NIPPON CHEMI-CON

ALUMINUM ELECTROLYTIC CAPACITORS

CAT. No. E1001M

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NIPPON CHEMI-CON

CAPACITOR SERIES TABLE, CONTENTS

Series			Features	Endurance (+R=With ripple)	Standard Type	Low impedance	Solvent resistant	Terminal type	Rated voltage range (Vdc)	Capacitance range (μF)
Conductive Polymer Electrolyte Type	Surface Mount Type	PXG (NEW!)	Super low ESR, high ripple current, downsized	105℃ 1,000 to 2,000 hours		●	●	SMD	16 to 25	10 to 180
		PXK	Super low ESR, high ripple current, downsized	105℃ 1,000 to 2,000 hours		●	●	SMD	2.5 to 16	100 to 560
		PXS	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	SMD	4 to 16	22 to 560
		PXF (Upgrade!)	Super low ESR, high ripple current	105℃ 1,000 to 2,000 hours		●	●	SMD	2 to 10	120 to 1,000
		PXE	Super low ESR, high ripple current	105℃ 2,000 hours		●	●	SMD	2.5 to 16	33 to 2,700
		PXA	Super low ESR, high ripple current	105℃ 1,000 to 2,000 hours	●	●	●	SMD	2.5 to 25	3.3 to 1,500
		PXD (NEW!)	125℃, super low ESR, high ripple current	125℃ 2,000 hours		●	●	SMD	2.5 to 10	47 to 470
		PXH	125℃, super low ESR, high ripple current	125℃ 1,000 hours		●	●	SMD	2.5 to 20	22 to 1,000
	Radial Lead Type	PSG (Upgrade!)	Long life, super low ESR, high ripple current	105℃ 2,000 to 5,000 hours		●	●	Radial	16 to 25	56 to 1,000
		PSK (Upgrade!)	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	Radial	2.5 to 6.3	220 to 560
		PSF (Upgrade!)	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	Radial	2 to 16	100 to 1,600
		PSE	Long life, super low ESR, high ripple current	105℃ 5,000 hours		●	●	Radial	2.5 to 6.3	470 to 820
		PSC	Super low ESR, high ripple current	105℃ 2,000 hours		●	●	Radial	2.5 to 16	270 to 2,700
		PSA	Super low ESR, high ripple current	105℃ 2,000 hours	●	●	●	Radial	2.5 to 16	47 to 1,500
		PS	Super low ESR, high ripple current	105℃ 2,000 hours	●	●	●	Radial	2.5 to 35	18 to 1,500
Surface Mount Type	General Purpose	MVA	85℃,standard	85℃ 2,000 hours	●		▲	SMD	4 to 450	1.0 to 10,000
		MVE	105℃, standard	105℃ 1,000 to 2,000 hours	●		▲	SMD	6.3 to 450	1.0 to 6,800
	Low Impedance	MZJ	Super low ESR	105℃ 2,000 hours		●	●	SMD	6.3 to 35	10 to 1,800
		MZA	Super low impedance	105℃ 2,000 hours		●	●	SMD	6.3 to 80	3.3 to 1,500
		MVY	Low impedance, standard, Case size φ4 to 18mm	105℃ 1,000 to 5,000 hours	●	●	▲	SMD	6.3 to 100	1.0 to 8,200
		MZF	10,000 hours, Long life, low impedance	105℃ 10,000 hours		●	●	SMD	6.3 to 50	10 to 470
		MZE	7,000/8,000 hours, Long life, low impedance	105℃ 7,000 to 8,000 hours		●	●	SMD	6.3 to 50	10 to 470
		MZK	5,000 hours, Long life, low impedance	105℃ 5,000 hours		●	●	SMD	6.3 to 35	10 to 150
		MLA	3,000 hours, Long life, low impedance	105℃ 3,000 hours		●	●	SMD	6.3 to 50	10 to 1,000
	Long Life	MLF	10,000 hours, Long life	105℃ 10,000 hours			●	SMD	6.3 to 50	1.0 to 1,000
		MLE	7,000/8,000 hours, Long life	105℃ 7,000 to 8,000 hours			●	SMD	6.3 to 50	1.0 to 1,000
		MLK	5,000 hours, Long life	105℃ 5,000 hours			●	SMD	6.3 to 35	4.7 to 100
		MVL	3,000/5,000 hours, Long life	105℃ 3,000 to 5,000 hours			●	SMD	6.3 to 50	1.0 to 1,000
		MVJ	2,000 hours, Long life	105℃ 2,000 hours			●	SMD	6.3 to 50	1.0 to 100
	Special Application	MVH	125℃, Case size φ6.3 to 18mm	125℃ 1,000 to 5,000 hours	●		▲	SMD	10 to 450	3.3 to 4,700
		MHB	125℃, Specified ESR after endurance	125℃ 2,000 hours			●	SMD	10 to 35	47 to 470
		MHJ	125℃, Specified ESR after endurance	125℃ 2,000 hours			●	SMD	10 to 35	47 to 470
		MKB	Specified ESR at low temperature	105℃ 3,000 hours				SMD	400	2.2 to 4.7
		MV-BP	Bi-polar	85℃ 2,000 hours			●	SMD	6.3 to 50	1.0 to 47
		MVK-BP	Bi-polar	105℃ 1,000 hours			●	SMD	6.3 to 50	1.0 to 47
Radial Lead Type	Low Profile	SRM	5mm height, downsized	85℃ 1,000 hours			●	Radial	4 to 50	1.0 to 330
		SRE	85℃, 5mm height, standard	85℃ 1,000 hours	●			Radial	4 to 50	1.0 to 100
		KRE	105℃, 5mm height, standard	105℃ 1,000 hours	●		●	Radial	6.3 to 50	1.0 to 100
		SRA	85℃, 7mm height, standard	85℃ 1,000 hours	●			Radial	4 to 63	1.0 to 470
		KMA	105℃, 7mm height, standard	105℃ 1,000 hours	●		●	Radial	4 to 63	1.0 to 220
		SRG	φ4×7 to φ18×25mm, low profile	85℃ 1,000 to 2,000 hours			●	Radial	4 to 50	1.0 to 10,000
		KRG	φ4×7 to φ18×25mm, low profile	105℃ 1,000 hours			●	Radial	6.3 to 50	1.0 to 10,000
	General Purpose	SMQ	85℃, Downsized	85℃ 2,000 hours				Radial	6.3 to 450	1.0 to 47,000
		KMQ	105℃, Downsized	105℃ 1,000 to 2,000 hours +R			▲	Radial	6.3 to 450	1.0 to 47,000
		SMG	85℃, standard	85℃ 2,000 hours	●		▲	Radial	6.3 to 450	1.0 to 39,000
		KMG	105℃, standard	105℃ 1,000 to 2,000 hours +R	●		▲	Radial	6.3 to 450	1.0 to 22,000
		SME-BP	Bi-polar, downsized	85℃ 2,000 hours			●	Radial	6.3 to 100	1.0 to 6,800
		KME-BP	Bi-polar, downsized	105℃ 1,000 hours			●	Radial	6.3 to 100	1.0 to 6,800
	High Frequency Use	KZM	Long life, super low impedance	105℃ 6,000 to 10,000 hours +R		●		Radial	6.3 to 50	27 to 10,000
		KZH	Super low impedance, downsized	105℃ 5,000 to 6,000 hours +R		●		Radial	6.3 to 35	47 to 8,200
		KZE	Low impedance, downsized	105℃ 1,000 to 5,000 hours +R		●		Radial	6.3 to 100	6.8 to 6,800
		KYA (Upgrade!)	Low impedance, downsized	105℃ 4,000 to 10,000 hours +R		●		Radial	6.3 to 100	1.0 to 15,000
		KY	Low impedance, standard	105℃ 4,000 to 10,000 hours +R	●	●		Radial	6.3 to 100	1.0 to 18,000
		LZA (NEW!)	Low impedance, downsized	105℃ 4,000 to 5,000 hours +R		●	●	Radial	6.3 to 35	330 to 6,800
		LXZ	Low impedance, downsized	105℃ 2,000 to 8,000 hours +R	●	●	●	Radial	6.3 to 63	12 to 18,000
		LXY	Low impedance	105℃ 2,000 to 8,000 hours +R		●	●	Radial	10 to 63	10 to 8,200
		LXV	Low impedance	105℃ 2,000 to 5,000 hours +R		●	●	Radial	6.3 to 100	5.6 to 15,000

: Recommendation products

▲ : Some of range are solvent resistant.

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CAPACITOR SERIES TABLE, CONTENTS

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Radial Lead Type	High Reliability	KXJ	Long life, downsized, for input filtering	105℃ 10,000 to 12,000 hours +R				Radial	160 to 450	6.8 to 680
		KXG	Long life, downsized, for input filtering	105℃ 8,000 to 10,000 hours +R	●			Radial	160 to 450	6.8 to 330
		SMH	For input filtering, φ20×20 to φ22×50mm (Ask Engineering Bulletin No808 in detail)	85℃ 2,000 hours +R				Radial	160 to 450	33 to 470
		KMH	For input filtering, φ20×20 to φ22×50mm (Ask Engineering Bulletin No810 in detail)	105℃ 2,000 hours +R				Radial	160 to 450	33 to 470
		KHE (NEW!)	Low profile, for input filtering	105℃ 2,000 hours +R				Radial	400 to 450	27 to 120
		PAG	Low profile, for input filtering	105℃ 2,000 hours +R				Radial	200 to 450	18 to 560
		KLJ	No sparks with DC overvoltage, downsized	105℃ 2,000 hours +R				Radial	200 & 400	4.7 to 330
		KLG	No sparks with DC overvoltage	105℃ 2,000 hours +R				Radial	200 & 400	22 to 330
		LE (NEW!)	Long life, downsized	105℃ 10,000 hours +R			●	Radial	10 to 100	1.0 to 330
		FL	Long life, downsized	105℃ 3,000 hours +R			●	Radial	6.3 to 50	1.0 to 270
		GPA (Upgrade!)	125℃, low impedance, downsized	125℃ 3,000 to 5,000 hours +R		●	●	Radial	25 to 100	200 to 6,800
		GXE	125℃, low impedance, downsized	125℃ 2,000 to 5,000 hours +R		●	▲	Radial	10 to 450	4.7 to 4,700
		GXL	125℃	125℃ 5,000 hours +R			●	Radial	10 to 50	100 to 1,000
		GXH	135℃	135℃ 1,500 / 2,000 hours +R			●	Radial	10 to 50	100 to 4,700
	Special Application	LBG	For airbag	105℃ 5,000 hours +R		●	●	Radial	25 & 35	1,000 to 11,000
		KZA	For PC motherboard (Ask Engineering Bulletin No809 in detail)	105℃ 2,000 hours +R		●		Radial	6.3 to 16	470 to 3,300
		LLA	Low DC leakage, general (Ask Engineering Bulletin No575 in detail)	85℃ 1,000 hours			●	Radial	6.3 to 50	1.0 to 15,000
		PH	For photo flash	55℃ 5,000 times charging				Radial	300 & 330	-
Snap-in Type	General Purpose	SMQ	85℃, standard	85℃ 2,000 hours +R	●			Pin	160 to 450	82 to 3,900
		KMW (NEW!)	105℃, super downsized	105℃ 2,000 hours +R				Pin	400 to 450	120 to 1,000
		KMR	105℃, downsized	105℃ 2,000 hours +R				Pin	160 to 450	100 to 3,300
		KMQ	105℃, standard	105℃ 2,000 hours +R	●			Pin	35, 50, 160 to 450	68 to 33,000
		SMM	85℃, 3,000 hours	85℃ 3,000 hours +R	●			Pin	160 to 450	47 to 3,300
		KMT (NEW!)	105℃, high ripple	105℃ 3,000 hours +R				Pin	420 & 450	82 to 680
		KMS	105℃, downsized	105℃ 3,000 hours +R	●			Pin	160 to 500	47 to 3,300
		KMM	105℃, 2,000/3,000 hours	105℃ 2,000 to 3,000 hours +R	●			Pin	160 to 450	39 to 3,300
		SMH	85℃, standard (Ask Engineering Bulletin No585 for 160 to 450V)	85℃ 2,000 hours +R				Pin	6.3 to 100	820 to 100,000
		KMH	105℃, standard (Ask Engineering Bulletin No584 for 160 to 450V)	105℃ 2,000 hours +R				Pin	6.3 to 100	560 to 82,000
	Low Profile	SLM	15mm height, low profile	85℃ 2,000 hours +R				Pin	160 to 400	47 to 560
		KLM	15mm height, low profile	105℃ 2,000 hours +R				Pin	160 to 400	39 to 390
	High Reliability	TXH (NEW!)	Long life	105℃ 10,000 hours +R				Pin	200 to 450	220 to 1,800
		LXM	Long life, downsized	105℃ 7,000 hours +R				Pin	160 to 450	47 to 2,200
		LXS (Upgrade!)	Long life, downsized	105℃ 5,000 hours +R	●			Pin	160 to 500	82 to 3,300
		LXQ	Long life, downsized	105℃ 5,000 hours +R				Pin	160 to 450	82 to 2,700
		LXG	Long life	105℃ 5,000 hours +R				Pin	10 to 100	390 to 47,000
		CHA	No sparks with DC overvoltage, downsized	105℃ 2,000 hours +R				Pin	200 to 450	56 to 1,200
		LXH	No sparks with DC overvoltage	105℃ 3,000/5,000 hours +R				Pin	200 & 400	68 to 1,500
		KMV	For charge and discharge application	105℃ 3,000 hours +R				Pin	350 to 450	82 to 1,200
Screw-Mount Type	General Purpose	SME	85℃, standard (Ask Engineering Bulletin No548 for 160 to 250V)	85℃ 2,000 hours +R	●			Screw	10 to 100	2,200 to 680,000
		KMQ (NEW!)	105℃, downsized	105℃ 2,000 hours +R				Screw	315 to 450	330 to 10,000
		KMH	105℃, standard	105℃ 2,000 hours +R	●			Screw	10 to 400	180 to 680,000
	For Inverter	RWG	Long life, high ripple, downsized	85℃ 5,000 hours +R				Screw	350 to 450	1,500 to 18,000
		RWF	Long life, high ripple	85℃ 5,000 hours +R				Screw	350 to 450	820 to 22,000
		RWQ	High ripple, downsized	85℃ 2,000 hours +R	●			Screw	350 to 550	390 to 15,000
		RWE	High ripple	85℃ 2,000 hours +R	●			Screw	350 to 550	100 to 12,000
		RWY	Long life, high ripple, low cost	85℃ 5,000 hours +R				Screw	350 to 450	500 to 14,000
		RWL	Long life, high ripple	85℃ 20,000 hours +R				Screw	350 to 450	2,200 to 12,000
		FTP	Ellips can shape, high ripple	85℃ 5,000 hours +R				Screw	63 to 450	270 to 21,000
		LXA	105℃, long life	105℃ 2,000/5,000 hours +R				Screw	10 to 525	330 to 390,000
		LXR	105℃, long life, high ripple	105℃ 5,000 hours +R				Screw	350 to 450	2,200 to 15,000
		RWV	For charge and discharge application	85℃ 5,000 hours +R				Screw	350 to 450	820 to 18,000

: Recommendation products

▲ : Some of range are solvent resistant.

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GROUP CHART

☆ : : Recommendation products

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

■SURFACE MOUNT

Surface Mount

- PXA → (Lower ESR) → PXE → (Lower ESR) → PXF (Upgrade!)
- PXA → (Longer Life) → PXS 5,000H
- PXE → PXK
- PXE → PXG (New!)

High Temp. 125℃

- PXH
- PXD (New!)

■RADIAL LEAD

Radial Lead

- PS → (Lower ESR) → PSA → (Lower ESR) → ★PSC → PSE 5,000H → PSF 5,000H (Upgrade!)
- PSE 5,000H → PSK 5,000H (Upgrade!)
- PSF 5,000H → PSG (Upgrade!)

Digitalization
Super Low ESR

ALUMINUM ELECTROLYTIC CAPACITORS

■SURFACE MOUNT

Surface Mount Standard

- ★MVA 85℃
- ★MVE 105℃

105℃ Low Impedance (Digitalization)

- ★MVY 1,000H → (Lower Z) → ★MZA 2,000H → (Lower Z) → MZJ 2,000H
- MZK 5,000H Low Profile
- MLA 3,000H → (Longer Life) → MZE 7,000/8,000H → (Longer Life) → MZF 10,000H

High Temp. (Automotive Application)

125℃

- ★MVH 125℃
- MHB 低ESR化
- MHJ 小形化

105℃ Long Life

- MVJ 2,000H → (Longer Life) → MVL 3,000/5,000H → (Longer Life) → MLE 7,000/8,000H → (Longer Life) → MLF 10,000H
- MKB 3,000H
- MLK 5,000H Low Profile

■RADIAL LEAD

Low Profile (5mm)

- SRM 85℃
- (Downsized)
- SRE 85℃
- KRE 105℃

Low Profile (from 7mm)

- SRG 85℃
- KRG 105℃
- (Downsized)
- SRA 85℃
- KMA 105℃

105℃ Low Impedance (Low Profile Power Supply Output Filter)

- LXY High Reliability → (Lower Z) → ★LXZ High Reliability → (Lower Z) → LZA High Reliability (New!)
- LXV Low Z
- KYA Low Z (Upgrade!)
- (Downsized)
- ★KY Long Life, Low Z → KZE Low Z → KZH Low Z → ★KZM Long Life, Low Z

Radial Lead Standard

- ★SMQ 85℃
- ★KMQ 105℃
- (Downsized)
- SMG 85℃
- KMG 105℃

105℃ High Ripple Current / Long Life (Power Supply Input Filter)

- PAG 2,000H → KHE 2,000H (New!) → KXG 8,000/10,000H → ★KXJ 10,000/12,000H
- (Downsized)

High Temp. (Automotive Application)

125℃

- GXE 2,000 to 5,000H
- GXL 5,000H
- GPA 3,000/5,000H (Upgrade!)

135℃

- GXH 1,500/2,000H

For Airbag

- LBG 105℃5,000H

Long Life

- LE 105℃10,000H (New!)
- FL 105℃3,000H

No Sparks against Over-Voltage

- KLJ 105℃
- (Downsized)
- KLG 105℃

For Photo Flash

- PH

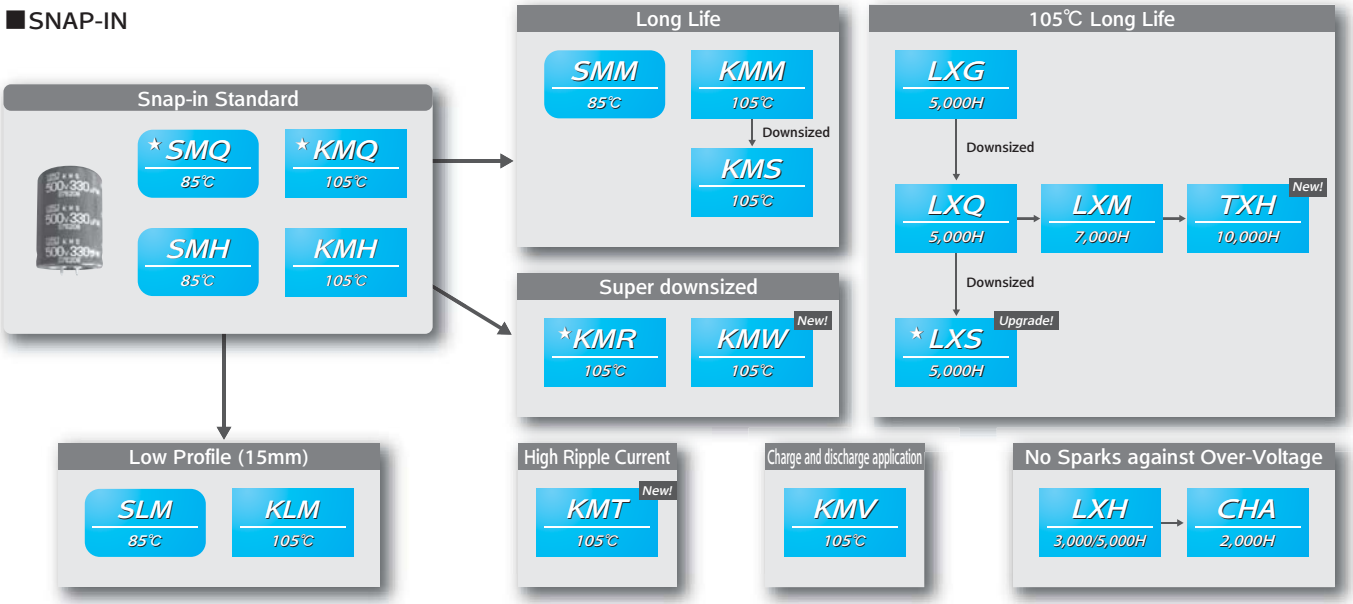
GROUP CHART

NIPPON CHEMI-CON

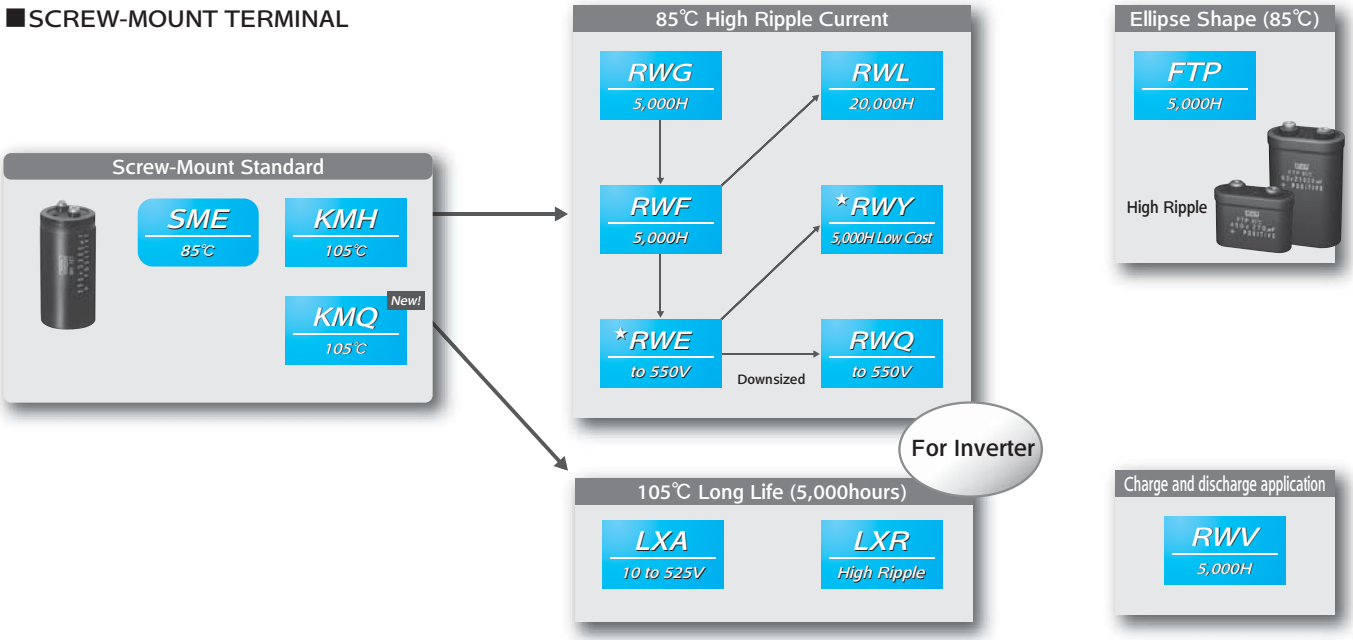
☆ : Recommendation products

ALUMINUM ELECTROLYTIC CAPACITORS

■SNAP-IN



■SCREW-MOUNT TERMINAL



PART NUMBERING SYSTEM

Part numbering system

Our part numbering system is common to all of Nippon Chemi-Con's subsidiaries worldwide, and has been switching the conventional part numbering system. The part number uses 18-digit codes to express information of principal product specifications such as product category, series name, rated voltage, capacitance, case size and RoHS compliance.

●Categories

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Code	Details
A	Conductive Polymer Aluminum Solid Capacitors (Polar)
E	Aluminum Electrolytic Capacitors (Polar)
B	Aluminum Electrolytic Capacitors (Bi-polar)
K	Multilayer Ceramic Capacitors
F,W	Film Capacitors
D	Electric Double Layer Capacitors
T	Metal Oxide Varistors
L	Amorphous Choke Coils

* For digits 2 to 18, please see "Product code guide".

●Example

Product type	Part number (Example)	Conventional part number (Ref.)
Surface mount type	EMVE160ADA100MD55G	MVE16VC10MD55E0
Radial lead type	EKMQ6R3ETC102MHB5D	TC04RKMQ6. 3VB1000MF50E0
Snap-in type	EKMQ201VSN471MP30S	KMQ200VSSN470M22BE0
Screw mount terminal type	ERWE551LGC821MCD0M	RWE550LGSN820MCC13EA

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ENVIRONMENTAL CONSIDERATION

Environment friendly capacitors

Nippon Chemi-Con always considers the environment in product materials, designs and manufacturing. In fact, our factories already have received ISO 14000 certificate. Cadmium, Mercury, Hexavalent Chromium, PBB and PBDE have never been used in our products. Furthermore, lead-containing materials have been eliminated from all our aluminum electrolytic capacitors including Conductive Polymer Aluminum Solid Capacitors to comply with RoHS. If you need "Halogen-Free" products, please consult with us.

◆Lead free and Non-PVC Products

1. Lead wire (Plating)

Category		Plating material on lead wires
Chip	case code : D46 to JA0	Sn-Bi
	case code : KE0 to MN0	Sn
Radial	case dia : ～φ8	Sn-Bi
	case dia : φ10～	Sn
Snap-in		Sn
Screw-Mount		Originally lead-free

*Please consult with us when you need "Lead-free parts" other than the above mentioned terminal plating materials.
(Note) **Sn** : Tin, **Bi** : Bismuth

2. Sleeve

Category		Sleeve material
Chip		Sleeveless(Coating case)
Radial	φ8×5L	Sleeveless(Coating case)
	except φ8×5L	PET
Snap-in		PET
Screw-Mount		PVC(Lead-free)

* Please consult with us when you need "Non-PVC parts" other than the above mentioned outer sleeve materials.

The colors of a PET sleeve are "Black", "Brown", and "Dark blue".
Standard designs of "lead-free" Snap-in type are not equipped with a plastic disc.
Please consult with us when you need nonflammable grade for outer sleeve material.

Identification of friendly parts is given by a supplement code (18th digit) of the part number.
For details, please refer to "Product code guide" for each type.

◆Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

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NIPPON CHEMI-CON

PACKAGING

TAPING SPECIFICATIONS

SURFACE MOUNT TYPE (TAPING)

◆CARRIER TAPE [mm]

Fig.1

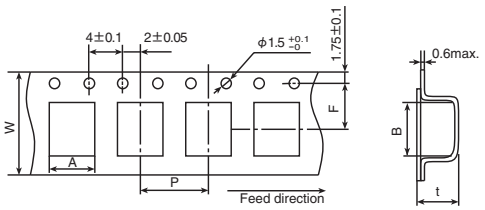


Fig.2

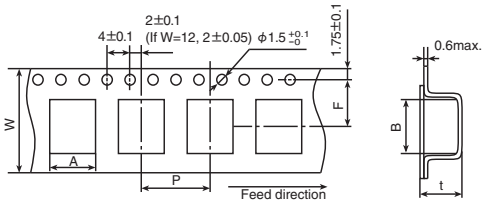


Fig.3

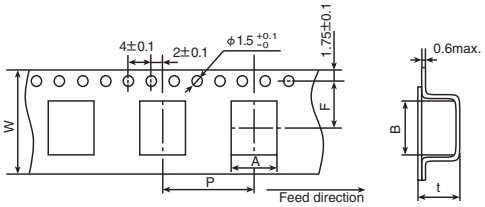
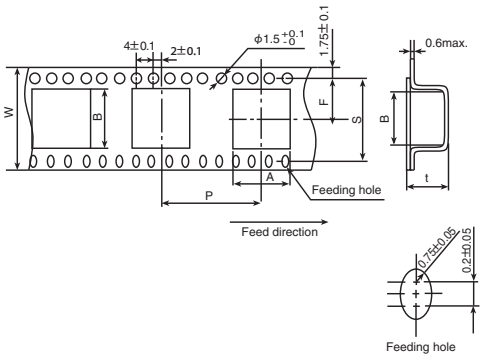


Fig.4



[mm]

Series	Items	W	A	B	F	P	t	S	Fig.
		±0.3	±0.2	±0.2	±0.1	±0.1	±0.2	±0.1	
Alchip™ MVA/MVE MZJ/MZA MVY/MZF MZE/MZK MLA/MLF MLE/MLK MVL/MVJ MVH/MHB MHJ/MKB MV-BP MVK-BP NPCAP™ PXG/PXK PXS/PXF PXE/PXA PXD/PXH	D55	12.0	4.7	4.7	5.5	8.0	5.7	—	1
	D60,D61	12.0	4.7	4.7	5.5	8.0	6.3	—	1
	D73	12.0	4.6	4.6	5.5	8.0	7.5	—	1
	E46	12.0	5.7	5.7	5.5	12.0	4.9	—	2
	E55	12.0	5.7	5.7	5.5	12.0	5.7	—	2
	E60,E61	12.0	5.7	5.7	5.5	12.0	6.3	—	2
	E73	16.0	5.7	5.7	7.5	12.0	7.5	—	2
	F46	16.0	7.0	7.0	7.5	12.0	4.9	—	2
	F55	16.0	7.0	7.0	7.5	12.0	5.7	—	2
	F60,F61	16.0	7.0	7.0	7.5	12.0	6.3	—	2
	F73	16.0	7.0	7.0	7.5	12.0	7.5	—	2
	F80	16.0	7.0	7.0	7.5	12.0	8.2	—	2
	F90	16.0	7.0	7.0	7.5	12.0	9.2	—	2
	H63	16.0	8.7	8.7	7.5	12.0	6.8	—	2
	H70	24.0	8.7	8.7	11.5	12.0	7.3	—	2
	H80	24.0	8.7	8.7	11.5	12.0	8.3	—	2
	HA0	24.0	8.7	8.7	11.5	16.0	11.0	—	3
	HC0	24.0	8.7	8.7	11.5	16.0	12.7	—	3
	J80	24.0	10.7	10.7	11.5	16.0	8.3	—	3
	JA0	24.0	10.7	10.7	11.5	16.0	11.0	—	3
	JC0	24.0	10.7	10.7	11.5	16.0	12.8	—	3
	KE0	32.0	13.4	13.4	14.2	24.0	14.0	28.4	4
	KG5	32.0	13.4	13.4	14.2	24.0	16.5	28.4	4
	LH0	44.0	17.5	17.5	20.2	28.0	16.8	40.4	4
	LN0	44.0	17.5	17.5	20.2	28.0	22.1	40.4	4
	MH0	44.0	19.5	19.5	20.2	32.0	17.1	40.4	4
	MN0	44.0	19.5	19.5	20.2	32.0	22.1	40.4	4

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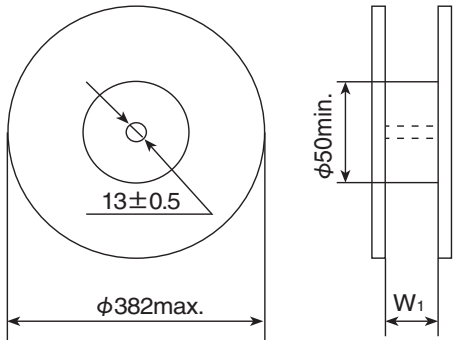
NIPPON CHEMI-CON

PACKAGING

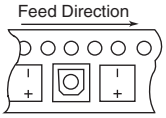
◆REEL DIMENSIONS [mm]



◆POLARITY

Alchip™ -MVA/MVE/MZJ
MZA/MVY/MZF
MZE/MZK/MLA
MLF/MLE/MLK
MVL/MVJ/MVH
MHB/MHJ/MKB
MV-BP/MVK-BP

NP CAP™ -PXG/PXK/PXS
PXF/PXE/PXA
PXD/PXH

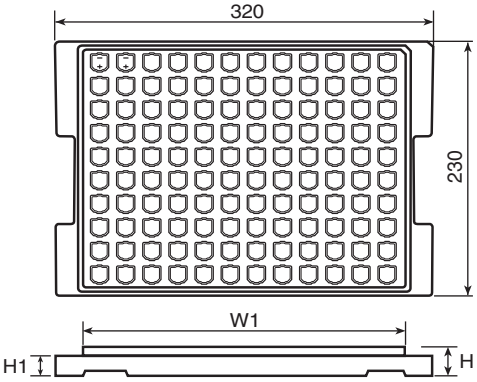


◆QUANTITY PER REEL/BOX

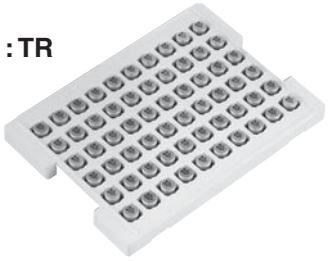
Series	Size code	Quantity (pcs/reel)	Quantity (pcs/box)	W1 (mm)
Alchip™ MVA/MVE MZJ/MZA MVY/MZF MZE/MZK MLA/MLF MLE/MLK MVL/MVJ MVH/MHB MHJ/MKB MV-BP MVK-BP	D55,D60,D61	2,000	10,000	14
	D73	1,500	7,500	14
	E55,E60,E61	1,000	5,000	14
	E73	1,000	5,000	18
	F55,F60,F61,F73	1,000	5,000	18
	F80	900	4,500	18
	F90	800	4,000	18
	H63	1,000	5,000	18
	HA0	500	1,500	26
	JA0	500	1,500	26
	KE0	200	600	34
	KG5	150	450	34
	LH0	125	250	46
	LN0	75	150	46
	MH0	125	250	46
	MN0	75	150	46
NPCAP™ PXG/PXK PXS/PXF PXE/PXA PXD/PXH	D55	2,000	20,000	14
	E46,E60,E61	1,000	10,000	14
	F46,F55,F60,F61	1,000	7,000	18
	F80	900	6,300	18
	H70	1,000	6,000	26
	H80	900	5,400	26
	HA0	500	3,000	26
	HC0	400	1,200	26
	J80	500	3,000	26
	JA0	500	3,000	26
	JC0	400	1,200	26

SURFACE MOUNT TYPE (TRAY)

◆DIMENSIONS [mm]



●TRAY CODE : TR

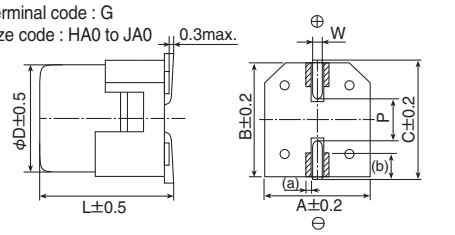


Size code	H [mm]	W1 [mm]	H1 [mm]	Quantity [pcs/tray]	Quantity [pcs/box]
KE0 & KG5	21.0	284	18.5	120	600
LH0 & LN0	28.0	284	24.0	80	400
MH0 & MN0	28.0	284	24.0	60	300

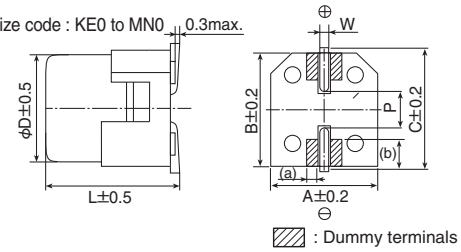
VIBRATION RESISTANT STRUCTURE (Terminal code : G)

◆DIMENSIONS [mm]

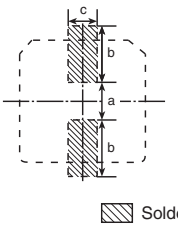
●Terminal code : G
●Size code : HA0 to JA0



●Size code : KE0 to MN0



◆RECOMMENDED SOLDER LAND



Size code	Dimensions of products (mm)									Solder land (mm)		
	D	L	A	B	C	W	P	(a)	(b)	a	b	c
HA0	8.0	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1	(0.5)	(1.8)	3.1	4.2	3.5
JA0	10.0	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5	(0.5)	(2.1)	4.5	4.4	3.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2	(1.3)	(3.0)	3.4	6.3	9.3
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2	(1.3)	(3.0)	3.4	6.3	9.3
LH0	16.0	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5	(2.0)	(3.0)	4.7	7.8	9.6
LN0	16.0	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5	(2.0)	(3.0)	4.7	7.8	9.6
MH0	18.0	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5	(2.0)	(4.0)	4.7	8.8	9.6
MN0	18.0	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5	(2.0)	(4.0)	4.7	8.8	9.6

( ); Ref.

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NIPPON CHEMI-CON

PACKAGING

TAPING SPECIFICATIONS

RADIAL LEAD TYPE (TAPING)

◆DIMENSION [mm]

Fig.1
Taping Code : TA, TC
ϕD=ϕ4 to 8

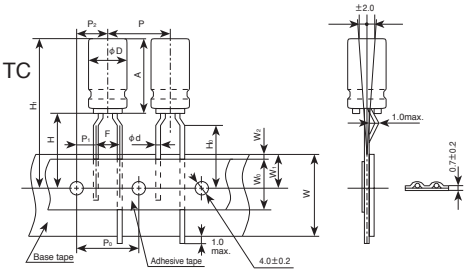


Fig.2
Taping Code : TD
ϕD=ϕ5
ϕD×L=ϕ4×7

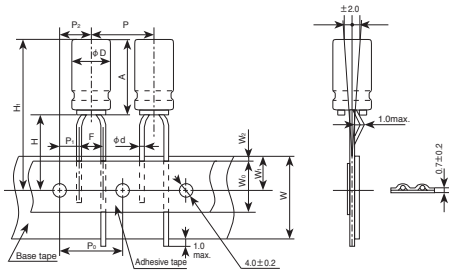


Fig.3
Taping Code : TD
ϕD=ϕ6.3 to 12.5

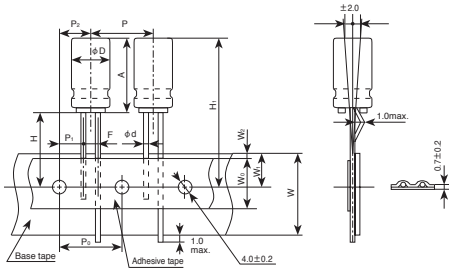
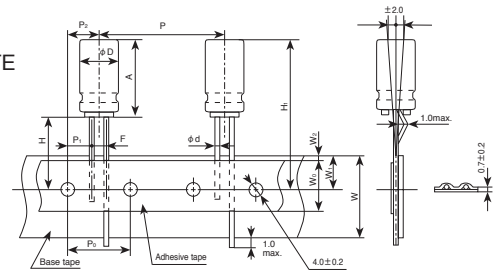


Fig.4
Taping Code : TE
ϕD=ϕ12.5



Code	Taping Code	Case size ϕD	Case size A	ϕd	P	P_0	P_1	P_2	F	W	W_0	W_1	W_2	H	H_0	H_1	Fig.
tol.		—	—	±0.05	±1.0	±0.2	±0.7	±1.0	+0.8 −0.2	±0.5	min.	±0.5	max.	±0.75	±0.5		
Nominal	TA	4	5	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	17.5	16.0	H1=H+A Check insertion machine specs.	1
	TC						3.85		5								
	TD		7	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5 *1	16.0		2
	TC						3.85		5					17.5			1
	TD		11.5	0.45	12.7	12.7	5.1	6.35	2.5	18.0	10.0	9.0	1.5	17.5	16.0		1
	TC						3.85		5								
	TD	5	5 to 7	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5	—		2
	TC						3.85		5					17.5	16.0		1
	TD		9 to 15	0.5	12.7	12.7	5.1	6.35	2.5	18.0	10.0	9.0	1.5	18.5	—		2
	TC						3.85		5						16.0		1
	TD	6.3	5 to 7	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5	—		3
	TC						3.85		5					17.5	16.0		1
	TD		9 to 15	0.5	12.7	12.7	5.1	6.35	2.5	18.0	10.0	9.0	1.5	18.5	—		3
	TC						3.85		5						16.0		1
	TD	8	5	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5	—		3
	TC						3.85		5					17.5	16.0		1
	TC		7	0.45	12.7	12.7	3.85	6.35	5	18.0	6.0	9.0	1.5	17.5	16.0		1
	TD		9 to 20	0.6	12.7	12.7	4.6	6.35	3.5	18.0	10.0	9.0	1.5	20.0	—		3
	TC						3.85		5						16.0		1
tol.		±0.5	max.	±0.05	±1.0	±0.3	±0.7	±1.3	+0.8 −0.2	±0.5	min.	±0.5	max.	+2.0 −0	—		
Nominal	TD	10	21	0.6	12.7	12.7	3.85	6.35	5	18.0	12.5	9.0	1.5	18.0	—		3
	TD	12.5	26	0.6	*2 15	15	5.0	7.5	5	18.0	12.5	9.0	1.5	18.0	—		3
	TE			0.6	25.4	12.7	3.85	6.35	5	18.0	12.5	9.0	1.5	18.0	—		4

* 1 : For ϕ4×7 (A=7, F=25), shall be $18.5^{-0.5/+0.75}$ (Taping code : TD) at Fig.2.

* 2 : P=15 taping is not standard. Use P=25.4 taping.

TAPING CODE

Example

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E KMQ 500 E TC 100 M E11 D

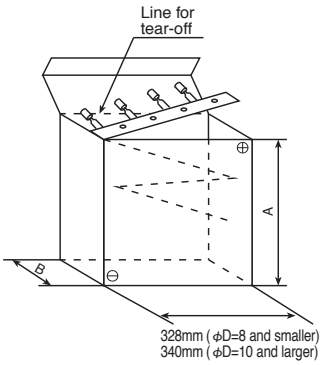
- Supplement code
- Size code
- Capacitance tolerance code
- Nominal capacitance code
- Lead forming code (Radial lead type)

Type	Contents	Code 9th	Code 10th
Taping (Radial lead)	Straight	T	D
	Grodual forming		
	Straight(Skip a hole)	T	E
	Forming(F=2.5mm)	T	A
	Forming(F=5.0mm)	T	C

- Terminal code
- Rated voltage code
- Series code
- Category

QUANTITY PER AMMO PACK

Ammo pack box



Typical example

Case size ϕD×L(mm)		A (mm)	B (mm)	Quantity (pcs.)
ϕ4	L=5 & 7mm	183	42	2,000
	L=11.5mm	183	51	
ϕ5	L=5 & 7mm	232	42	2,000
	L=9 to 15mm	232	51	
	L=17mm	235	60	
ϕ6.3	L=5 & 7mm	282	42	2,000
	L=9 to 15mm	284	51	
	L=17mm	284	55	
ϕ8	L=5 & 7mm	232	42	1,000
	L=9 to 15mm	232	51	
	L=17 & 20mm	235	60	
ϕ10	L=≦16mm	308	56	800(500)*
	L=17 to 20mm	308	62	800
	L=21 to 25mm	308	67	800
	L=26 to 30mm	308	71	500
ϕ12.5	L=≦16mm	308	62	500
	L=17 to 25mm	308	67	500

*Minimum order quantity for PSG/ PSK/PSF/PSE/PSC/PSA/PS series

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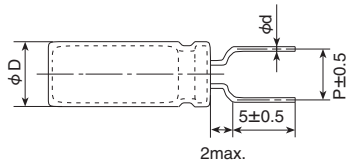
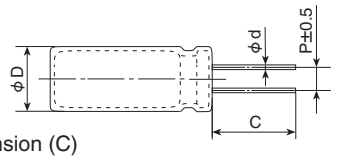
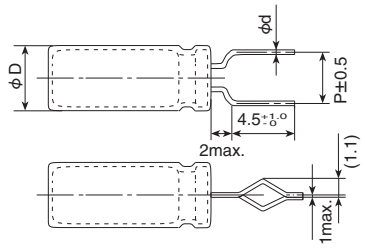
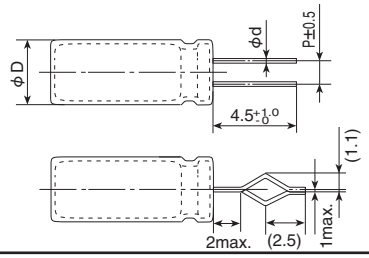
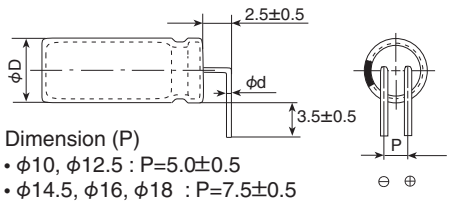
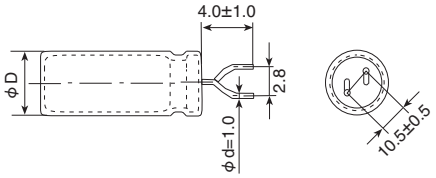
NIPPON CHEMI-CON

PACKAGING

RADIAL LEAD TYPE (CUT/FORMED LEAD)

The following lead configurations are available. When ordering, please indicate the type of lead configurations by using the appropriate supplement code, such as C5, FC, MC or RC in the product part number.

Terminal type	Size	Terminal type	Size
●Lead code : FC (Forming Cut type)  	φD=5 to 8	●Lead code : C5 (Cutting type)  Dimension (C) • φD= 4 to 8: C=5.0±0.5 (Second standard C=3.5±0.5) • φD=10 to 18: C=5.0$^{+1.0}_{-0}$ (Second standard C=3.5±0.5)	φD=4 to 18
●Lead code : FM (Snap-in type)  	φD=5 to 8	●Lead code : MC (Snap-in type)  	φD=10 to 18
●Lead code : BC (Horizontal type)  Dimension (P) • φ10, φ12.5 : P=5.0±0.5 • φ14.5, φ16, φ18 : P=7.5±0.5	φD=10 to 18	●Lead code : RC (Snap-in type)  	φD=20 to 22

* Please consult with us the other terminal forming.

◆DIMENSION (P)

[mm]

Lead forming / Size		Cutting type		Snap-in type	
		FC	C5	FM	MC
φ4		—	1.5	—	—
φ5		5.0	2.0	5.0	—
φ6.3		5.0	2.5	5.0	—
φ8	5L	5.0	2.5	5.0	—
	7L min.	5.0	3.5	5.0	—
φ10		—	5.0	—	5.0
φ12.5		—	5.0	—	5.0
φ14.5		—	7.5	—	7.5
φ16		—	7.5	—	7.5
φ18		—	7.5	—	7.5

* Please refer to dimensions of each series for lead-wire diameter (φd).

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PACKAGING

MINIMUM ORDER QUANTITY

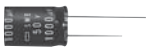
Please order by minimum order quantity.

◆SURFACE MOUNT

●Vertical

Series	Size code	Quantity (pcs)	
		Taping	Tray (pcs/box)
Alchip™ MVA/MVE/MZJ MZA/MVY/MZF MZE/MZK/MLA MLF/MLE/MLK MVL/MVJ/MVH MHB/MHJ/MKB MV-BP/MVK-BP	D55, D60, D61	2,000	—
	D73	1,500	—
	E46, E55, E60, E61, E73	1,000	—
	F46, F55, F60, F61, F73	1,000	—
	F80, H80	900	—
	F90	800	—
	H63, H70	1,000	—
	HA0	500	—
	HC0	400	—
	J80, JA0	500	—
	JC0	400	—
NPCAP™ PXG/PXK/PXS PXF/PXE/PXA PXD/PXH	KE0	200	600
	KG5	150	600
	LH0	125	400
	LN0	75	400
	MH0	125	300
	MN0	75	300

◆RADIAL



Size		Quantity (pcs)	
		Bagged*1	Taping
ϕ4		200	2,000
ϕ5		200	2,000
ϕ6.3		200 (200)*2	2,000 (2,000)*2
ϕ8		200 (100)*2	1,000 (1,000)*2
ϕ10	Height≦25mm	200 (100)*2	800 (500)*2
	Height≧30mm	200	500
ϕ12.5		100	500
ϕ14.5		50	250
ϕ16		50	250
ϕ18		50	250

*1 Standard bagged quantity.
*2 Minimum order quantity for PSG/PSK/PSF/PSE/PSC/PSA/ PS series.

◆SNAP-IN

200 pieces

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NIPPON CHEMI-CON

PACKAGING

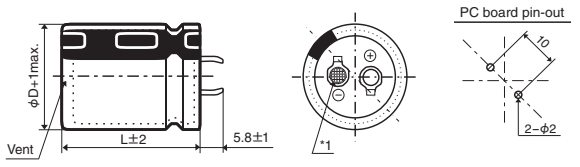
AVAILABLE TERMINALS FOR SNAP-IN AND SCREW-MOUNT TYPE

●We can make the following terminal type on custom design.
●There is a restriction for specification of product, please consult with us when the product is required.
●Please consult with us about terminal type other than those following listed.

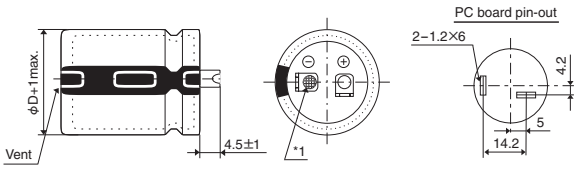
Snap-in type

[mm]

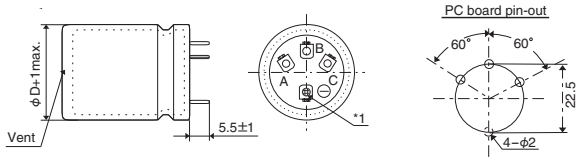
Terminal, Dummy code : VNN — D=ϕ22 toϕ35



Terminal, Dummy code : LIN — D=ϕ30 toϕ40

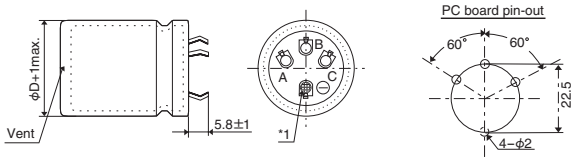


Terminal, Dummy code : VRD — D=ϕ35, ϕ40



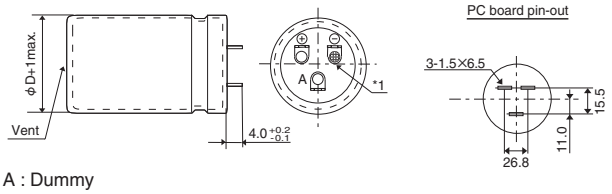
B : Positive, A, C : Dummy

Terminal, Dummy code : VND — D=ϕ35, ϕ40



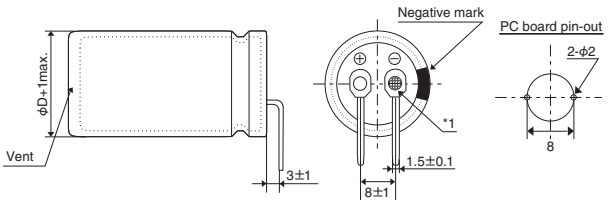
B : Positive, A, C : Dummy

Terminal, Dummy code : LIS — D=ϕ50



A : Dummy

Horizontal mounting
Terminal, Dummy code : LCN — D=ϕ20×30 to 50L, ϕ22×30 to 50L

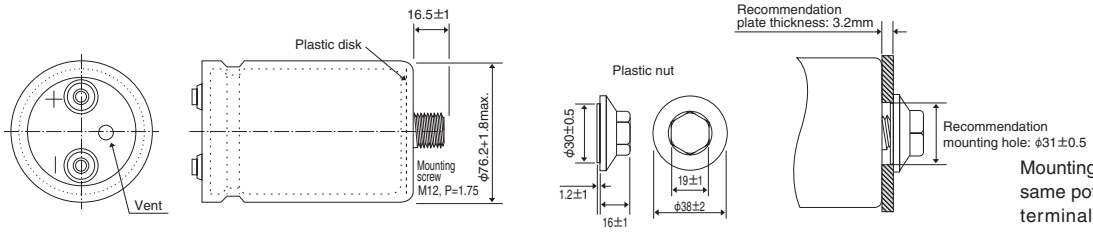


*1 Negative terminal : Mesh marking
*2 Use the dummy terminals for mechanical support only.
The dummy terminals must not be connected to any circuit trace on PC board, be sure to electrically isolate from the negative and the positive terminals.

Screw-mount type

[mm]

Stud mounting type — D=ϕ76.2



Mounting screw and case are same potential as the cathode terminal. Please careful of isolation between chassis.

Please consult with us about other size.

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STANDARDIZATION

The following series are discontinued. Please use the replacements in the table.

◆CHIP TYPE REPLACEMENTS

Discontinued series	Characteristics	Replacements
MV	85℃ standard	MVA
MVK	105℃ standard	MVE
MKA		
MVZ	Low impedance	MZA
MLD	Long life	MLE
MZD	Low impedance,Long life	MZE

◆LEAD TYPE REPLACEMENTS

Discontinued series	Characteristics	Replacements
SM	85℃ standard	SMG
SME		
KM	105℃ standard	KMG
KMC		
KME		
USM		LXY
BSM		
SHA	95℃ L=7mm	LXY/LXZ
SM-BP	85℃ bi-polar	SME-BP
KM-BP	105℃ bi-polar	KME-BP
SRC	85℃ low profile	SRG
SXC	Low impedance	KY/LXV
LXE		
LXJ		
SXE		
KMF(6.3 to 100V_{dc})		
LXF	Low impedance	LXY
KMY	Long life	KY
LXA	Long life	KY/LXY
GXD	High heat resistance	GXE
GHA	150℃ high heat resistance	*
KMF(160 to 450V_{dc})	High ripple current	KXG
KMX	Long life	
KRL	105℃ low leakage current	*

◆SCREW-MOUNT TERMINAL REPLACEMENTS

Discontinued series	Characteristics	Replacements
LWY	105℃ long life	LXA/LXR

* Please contact us.

Already been discontinued products are not listed in this catalog.

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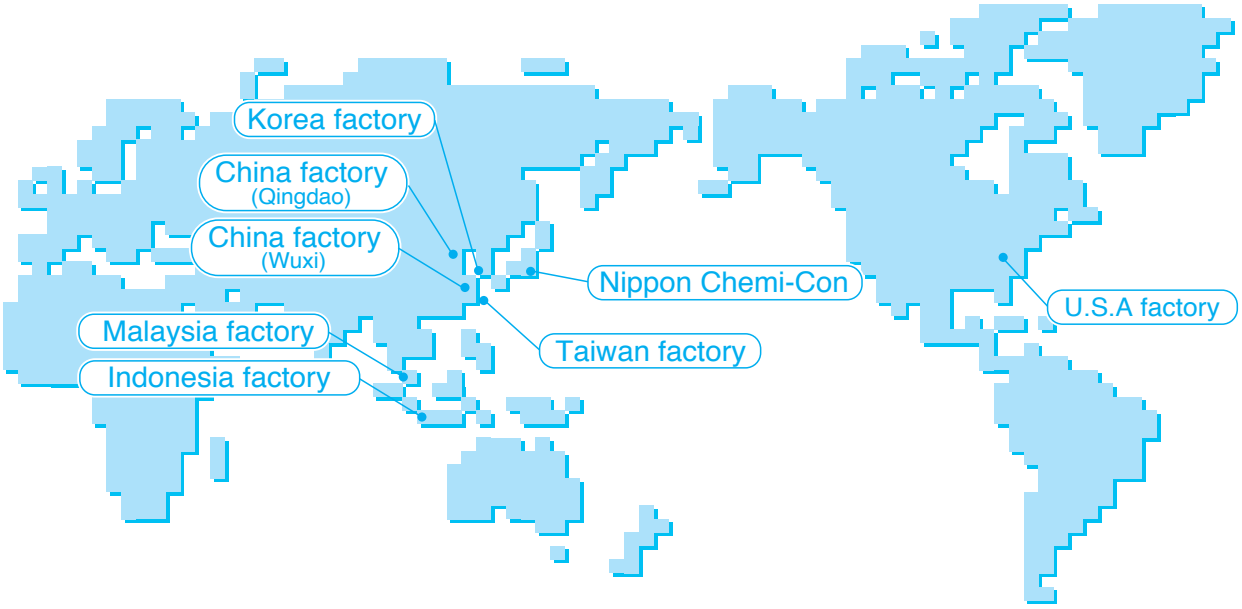
NIPPON CHEMI-CON

WORLD-WIDE MANUFACTURING LOCATIONS



●AVAILABLE ITEMS BY MANUFACTURING LOCATIONS

Classification		Series	Korea factory	China factory (Qingdao)	China factory (Wuxi)	Indonesia factory	Taiwan factory	Malaysia factory	U.S.A. factory
Conductive Polymer Electrolyte Type	SMD	PXE					●		
		PXF					●		
	Radial lead	PSA					●		
		PSC					●		
		PSE					●		
		PSF					●		
SMD		MVA	●		●	●			
		MVE	●		●	●			
		MVY	●		●	●			
		MZA				●			
Radial lead Low Profile		SRE				●			
		SRA				●			
		KMA				●			
		SRG				●			
Radial lead General purpose		SMG	●	●	●	●	●		
		KMG	●	●	●	●	●		
		SMQ			●	●	●		
		KMQ		●	●	●	●		
Radial lead Bi-polar		SME-BP	●	●		●			
		KME-BP	●	●		●			
Radial lead Low impedance, High ripple		LXZ			●	●			
		LXV			●	●	●		
		KY	●	●	●	●	●		
		KZE	●	●	●	●	●		
		KZH			●	●	●		
		KZM			●	●	●		
		KXG			●	●	●		
		KXJ			●	●	●		
		PAG			●		●		
Snap-in		SMQ						●	●
		KMQ						●	●
		SMM						●	●
		KMM						●	●
		KMS						●	●
Screw-mount Terminal		KMH							●
		RWE			●				●
		RWF							●
		RWL							●
		LXA							●

Please be sure to contact us before ordering as our product range is continuously improved and the product you require may have been superseded.

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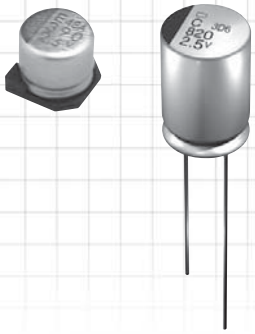
Conductive Polymer Aluminum Solid Capacitors



PRECAUTIONS AND GUIDELINES (Conductive Polymer)

The NPCAP™ is a Conductive Polymer Solid Aluminum Capacitor that uses highly conductive polymer electrolytic material. Please read the following in order to get the most out of your NPCAP™ capacitor.
For aluminum electrolytic capacitors, please refer to PRECAUTIONS AND GUIDELINES.

1 Designing Device Circuits

1) Types of Circuits Where NPCAP™ Capacitors are Not to be Used

The leakage current in conductive polymer solid aluminum capacitors (hereafter called capacitors) may vary depending on thermal stresses during soldering. Avoid the use of capacitors in the following types of circuits:

① High-impedance circuits that are to sustain voltages.
② Coupling circuits
③ Time constant circuits
Because the capacitance varies depending on the environment the capacitors are used in, there is a possibility that the capacitor can affect a time constant circuit where sensitivity to variation in capacitance is required.
④ Other circuits that are significantly affected by leakage current

2) Circuit Design

Verify the following before designing the circuit:

① The electrical characteristics of the capacitor will vary depending on differences in temperature and frequency. You had better design after verifying the scope of these factors.
② When connecting two or more capacitors in parallel, ensure that the design takes current balancing into account.
③ When two or more capacitors are connected in series, variability in applied voltage may cause over-voltage conditions. Contact Nippon Chemi-Con before using capacitors connected in series.
④ Avoid putting heat generating parts either around the capacitor or on the reverse of the circuit board.

3) Use in High Reliable and Critical Applications

Consult with Nippon Chemi-Con before using these capacitors in applications involving human life: Aviation/space equipment, Nuclear power equipment, Medical equipment and Automotive equipment, or in applications where capacitor failure could have a major impact.

4) Polarity

The NPCAP™ is a polarized solid aluminum electrolytic capacitor. Do not apply either reverse voltages or AC voltages to the polarized capacitors, using reversed polarity may cause a short circuit. Refer to the catalog, product specifications or capacitor body to confirm the polarity prior to use.

5) Operating Voltage

Do not apply a greater than rated voltage, if a voltage greater than the rated voltage is suddenly applied the leakage current increases causing shorting. The peak voltage of superimposed AC voltages (ripple voltages) on DC voltages must not exceed the full rated voltage. While there are specifications for surge voltages exceeding the rated voltage, usage conditions apply, and continued operation for extended periods of time under such conditions cannot be guaranteed.

6) Ripple Current

Do not apply currents in excess of the rated ripple current. The superimposition of a large ripple current increases the rate of heating within the capacitor. When excessive ripple current is imposed the internal temperature increases which can shorten life and shorting may occur.

7) Operating Temperature

Use within the stated category temperature range, if used outside this range, characteristics can deteriorate potentially leading to problems.

8) Charging and Discharging the Capacitor

Do not use the NPCAP™ capacitor in circuits where the capacitor is repetitively charged and discharged rapidly. Repetitively charging and discharging the capacitor rapidly may reduce the capacitance or may cause damage due to internal heating. Use of a protective circuit to ensure reliability is recommended when rush currents exceed 20A.

9) Leakage current

The leakage current may increase when the capacitors are subjected to the conditions below. After that, however, the leakage current will gradually decrease by self-healing action of the dielectric oxide layer when the capacitors are applied with a voltage less than the rated voltage within the Category Temperature range. As the voltage is closer to the rated voltage and the temperature is closer to the upper limit of Category Temperature range, the leakage current decreases faster.
The leakage current will increase by the following factors,

① Soldering
② Testing of high temperature exposure with no voltage applied, high temperature/humidity storage, temperature cycles, etc.

10) Failures and Service Life

Based on the JIS C 5003 Standard, the failure rate for NPCAP™ capacitors (with a 60% reliability standard) is as follows:

0.5%/1,000 hours (applied the rate voltage at the upper limit of Category Temperature range)

(1) Failure Modes

① The principal failure mode is wear-out failure, that is, capacitance decreases and ESR increases, and eventually the capacitors become open circuit failure. In addition, short circuit failure may happen with over-voltage and excessive current applied to the capacitors.
② The failure rate would be reduced by reducing ambient temperatures, ripple current and applying voltage.
③ If the short-circuited capacitor, which may be caused by over-voltages higher than the rated voltage or other conditions, has a large amount of current passed through, the aluminum can of the capacitor bulges and might be expelled with odor gas emitted.
④ The product contains flammable materials. If the short causes a spark it may ignite.
Please be careful when installing the product, its position and the layout design.

- Increase safety by using in conjunction with a protective circuit or protective equipment.
- Install measures such as redundant circuits so that the failure of a part of the equipment will not cause unstable operation.

(2) Service Life

NPCAP™ uses rubber as the sealing material, so the service life depends on the thermal integrity of this rubber. Consequently, it is recommended to use the capacitor at a lower temperature than the maximum temperature for the capacitor category.

11) Capacitor Insulation

Insulation of the capacitor's case is not guaranteed. Ensure electrical insulation between the capacitor case, negative electrode, positive electrode and circuit pattern.

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PRECAUTIONS AND GUIDELINES (Conductive Polymer)

12) Capacitor Usage Environment

Do not use/expose capacitors to the following conditions.

① Oil, water, salty water, take care to avoid storage in damp locations.
② Direct sunlight
③ Toxic gases such as hydrogen, sulfide, sulfurous acids, nitrous acids, chlorine and chlorine compounds, bromine and bromine compounds, ammonia, etc.
④ Ozone, ultraviolet rays and radiation.
⑤ Severe vibration or mechanical shock conditions beyond the limits advised in the product specification section of the catalog.

13) Capacitor mounting

① For the surface mount capacitor, design the solder land on the PC board in accordance with the catalog or the product specification.
② For radial capacitors, design the terminal holes on the PC board to fit the terminal dimension of the capacitor.
③ Do not pass any circuit traces beneath the seal side of a capacitor. The trace must pass 1 to 2mm to the side of the capacitor.
④ Do not pass any via holes underneath a capacitor on double sided PC board
⑤ In designing double-sided PC boards,do not locate any copper trace under the seal side of a capacitor

2 Installing Capacitors

1) Installing

① Do not reuse capacitors already assembled in equipment that have been exposed to power.
② The capacitor may have self charge. If this happens, discharge the capacitor through a resistor of approximately 1kΩ before use.
③ If capacitors are stored at a temperature of 35℃ or more and more than 75%RH, the leakage current may increase. This may also occur if the capacitors are stored for a longer period than the period which is specified in the catalog or the product specification. In this case, they can be reformed by the voltage treatment through a resistor of approximately 1kΩ.
④ Verify the rated capacitance and voltage of the capacitors when installing.
⑤ Verify the polarity of the capacitors.
⑥ Do not use the capacitors if they have been dropped on the floor.
⑦ Do not deform the case of the capacitors.
⑧ Verify that the lead spacing of the capacitor fits the hole spacing in the PC board before installing the capacitors.
⑨ Do not apply any mechanical force in excess of the limits prescribed in the catalog or the product specification of the capacitors. Avoid subjecting the capacitor to strong forces, as this may break the electrode terminals, bend or deform the capacitor, or damage the packaging, and may also cause short/open circuits, increased leakage current, or damage the appearance. Also, note the capacitors may be damaged by mechanical shocks caused by cut the lead wire, the vacuum/insertion head, component checker or centering operation of an automatic mounting or insertion machine.

2) Heat Resistance during Soldering

Ensure that the soldering conditions meet the specifications recommended by Nippon Chemi-Con. Note that the leakage current may increase or capacitance may decrease due to thermal stresses that occur during soldering, etc. Furthermore, the leakage current which rose gradually decreases, when voltage is applied at below the category upper limit temperature. Additionally the self repairing action is faster when voltage near the rated voltage rather than at a higher voltage is applied at below the category's upper temperature limit.

① Verify the following before using a soldering iron:
- That the soldering conditions (temperature and time) are within the ranges specified in the catalog or product specifications.
- That the tip of the soldering iron does not come into contact with the capacitor itself.

② Verify the following when flow soldering:
- Do not dip the body of a capacitor into the solder bath only dip the terminals in. The soldering must be done on the reverse side of PC board.
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalog or the product specifications.
- Do not apply flux to any part of capacitors other than their terminals.
- Make sure the capacitors do not come into contact with any other components while soldering.

③ Verify the following when reflow soldering:
- Soldering conditions (preheat, solder temperature and soldering time) should be within the limits prescribed in the catalogs or the product specification.
- The heat level should be appropriate. (Note that the thermal stress on the capacitor varies depending on the type and position of the heater in the reflow oven, and the color and material of the capacitor.)
- Vapor phase soldering (VPS) is not used.
- Except for the surface mount type, reflow soldering must not be used for the capacitors.

④ Do not reuse a capacitor that has already been soldered to PC board and then removed. When using a new capacitor in the same location, remove the flux, etc. first, and then use a soldering iron to solder on the new capacitor in accordance with the specifications.
⑤ Confirm before running into soldering that the capacitors are SMD for reflow soldering.

3) Handling After Soldering

Do not apply any mechanical stress to the capacitor after soldering onto the PC board.

① Do not lean or twist the body of the capacitor after soldering the capacitors onto the PC board.
② Do not use the capacitors for lifting or carrying the assembly board.
③ Do not hit or poke the capacitor after soldering to PC board. When stacking the assembly board, be careful that other components do not touch the aluminum electrolytic capacitors.
④ Do not drop the assembled board.

4) Cleaning PC boards

① Do not wash capacitors by using the following cleaning agents. Solvent resistant capacitors are only suitable for washing using the cleaning conditions prescribed in the catalog or the product specification. In particular, ultrasonic cleaning will accelerate damage to capacitors.
- Halogenated solvents; cause capacitors to fail due to corrosion.
- Alkali system solvents; corrode (dissolve) an aluminum case.
- Petroleum system solvents; cause the rubber seal material to deteriorate.
- Xylene; causes the rubber seal material to deteriorate.
- Acetone; erases the markings.

CFC alternatives or the other cleaners above; please consult with us

② Verify the following points when washing capacitors.
- Monitor conductivity, pH, specific gravity and the water content of cleaning agents. Contamination adversely affects these characteristics.
- Be sure not to expose the capacitors under solvent rich conditions or keep capacitors inside a closed container. In addition, please dry the solvent sufficiently on the PC board and the capacitor with an air knife (temperature

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PRECAUTIONS AND GUIDELINES (Conductive Polymer)

should be less than the maximum rated category temperature of the capacitor) for 10 minutes. Aluminum electrolytic capacitors can be characteristically and catastrophically damaged by halogen ions, particularly by chlorine ions, though the degree of the damage mainly depends upon the characteristics of the electrolyte and rubber seal material. When halogen ions come into contact with the capacitors, the foil corrodes when a voltage is applied. This corrosion causes an extremely high leakage current which results venting and an open circuit.

If the new types of cleaning agents mentioned below are used, the following are recommended as cleaning conditions for some of new cleaning agents.

-Higher alcohol cleaning agents
Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750 H, 750K, 750L, and 710M (Kao)
Technocare FRW-14 through 17 (Momentive performance material)
Cleaning Conditions:
Using these cleaning agents, capacitors are capable of withstanding immersion or ultrasonic cleaning for 10 minutes at a maximum liquid temperature of 60℃. Find optimum condition for washing, rinsing, and drying. Be sure not to rub the marking off the capacitor which can be caused by contact with other components or the PC board. Note that shower cleaning adversely affects the markings on the sleeve.

-Non-Halogenated Solvent Cleaning
AK225AES (Asahi Glass)
Cleaning Conditions:
Immersion, ultrasonic or vapor cleaning for 5 minutes. However, from an environmental point of view, these types of solvent will be banned in near future. We would recommend not using them if at all possible.

-Isopropyl Alcohol (IPA)
IPA (Isopropyl Alcohol) is one of the most acceptable cleaning agents; it is necessary to maintain a flux content in the cleaning liquid at a maximum limit of 2 Wt.%.

5) Precautions for using adhesives and coating materials

① Do not use any adhesive and coating materials containing halogenated solvent.
② Verify the following before using adhesive and coating material.
- Remove flux and dust left over between the rubber seal and the PC board before applying adhesive or coating materials to the capacitor.
- Dry and remove any residual cleaning agents before applying adhesive and coating materials to the capacitors. Do not cover over the whole surface of the rubber seal with the adhesive or coating materials.
- For permissible heat conditions for curing adhesives or coating materials, please consult with us.
- Covering over the whole surface of the capacitor rubber seal with resin may result in a hazardous condition because the inside pressure cannot be completely released. Also, a large amount of halogen ions in resins will cause the capacitors to fail because the halogen ions penetrate into the rubber seal and the inside of the capacitor.
- Some coating materials, it cannot be implemented to the capacitor.
  Please note change on the surface might be caused according to the kind of solvents used for mounting adhesives and coating agents.

6) Fumigation

In many cases when exporting or importing electronic devices, such as capacitors, wooden packaging is used. In order to control insects it may become necessary to fumigate the shipment. Precautions during “Fumigation” using halogenated chemical such as Methyl Bromide must be taken. Halogen gas can penetrate packaging materials such as cardboard boxes and vinyl bags. Penetration of the halogenated gas can cause corrosion of Electrolytic capacitors. Nippon Chemi-Con gives consideration to the packaging materials not to require the Fumigation. Verify whether the assembled PC board, products and capacitors themselves are subjected to Fumigation during their transportation or not.

3 The Operation of Devices

1) Do not touch the capacitor terminals directly.
2) Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object. Also, do not spill electric-conductive liquid such as acid or alkaline solution over the capacitor.
3) Do not use capacitors in circumstances where they would be subject to exposure to the following materials
- Oil, water, salty water or damp location.
- Direct sunlight.
- Ozone, ultraviolet rays or radiation.
- Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium.
- Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalog or product specification.

4 Maintenance Inspection

1) Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Do not apply any mechanical stress to the terminals of the capacitors.
2) The following items should be checked during the periodic inspections.
① Significant damage in appearance
② Electrical characteristics: leakage current, capacitance, tan δ and other characteristics prescribed in the catalog or product specification.
We recommend replacing the capacitors if the parts are out of specification.

5 Contingencies

1) If gas has vented from the capacitor during use, there is a short circuit and burning, or the capacitor discharges an odor or smoke, turn off the main power supply to the equipment or unplug the power cord.
2) If there is a problem with the capacitor or a fire breaks out, the capacitor may produce a burning gas or reactive gas from the outer resin, etc. If this happens, keep your hands and face away from the gas. If vented gas is inhaled or comes into contact with your eyes, flush your eyes immediately with water and/or gargle. If vented gas comes into contact with the skin, wash the affected area thoroughly with soap and water.

6 Storage

We recommend the following conditions for storage.
1) Store capacitors in a cool, dry place. Store at a temperature between 5 and 35℃, with a humidity of 75% or less.
(table-1)

	Before the bag is opened	After the bag is opened
SMD	Within 3 years after manufacturing	Within 6 months after the bag is opened
Radial	Within 3 years after manufacturing	—

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PRECAUTIONS AND GUIDELINES (Conductive Polymer)

SMD products are sealed in a special laminated aluminum bag. Use all capacitors once the bag is opened. Return unused capacitors to the bag, and seal it with a zipper. Please refer to (Table -1) for storage conditions. Be sure to follow our recommendations for reflow soldering.

2) Store the capacitors in a location free from direct contact with water, salt water, and oil.
3) Store in a location where the capacitor is not exposed to toxic gas, such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or chlorine compounds, bromine or other halogen gases, methyl bromide or other halogen compounds, ammonia, or similar.
4) Store in a location where the capacitor is not exposed to ozone, ultraviolet radiation, or other radiation.
5) It is recommended to store capacitors in their original packaging wherever possible.
6) The JEDEC J-STD-020 (Rev. C) standard does not apply.

7 Disposal

Please consult with a local industrial waste disposal specialist when disposing of aluminum electrolytic capacitors.

8 Catalogs

Specifications in the catalogs may be subject to change without notice. For more details of precautions and guidelines for aluminum electrolytic capacitors, please refer to Engineering Bulletin No. 634A.
Catalog data are typical. This value does not guarantee the performance.

9 Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

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NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Product code guide (Conductive polymer Surface mount type)

(Example : PXA series, 4V-150μF, φ6.3×5.7L)

Please refer to the following table

Contents	Code
Conductive Polymer	A

Series	Code
PXA	PXA

Type	Code
SMD	A

Tol.(%)	Code
±20	M

Terminal plating material	Code
Sn-Bi	G

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
A	P X A	4 R 0	A	R A	1 5 1	M	F 6 0	G
Category	Series code	Voltage code	Terminal code	Taping・Tray code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
2.5	2R5
4	4R0
6.3	6R3
10	100
16	160
20	200
25	250
35	350

Type	Reel dia. φ (mm)	Application size φD(mm)	Code
Reel for reuse	380	φD=4～10	RA
	330	φD=8～10	RB

Refer to product guide for taping specifications.

Cap.(μF)	Code
3.3	3R3
4.7	4R7
10	100
47	470
100	101
470	471
1,000	102
⋮	⋮

φD(mm)	Code
4	D
5	E
6.3	F
8	H
10	J

L(mm)	Code
4.5	46
5.2	55
5.7	60
5.8	61
6.7	70
7.7	80
10	A0
12	C0
12.2	C0

*Refer to the appendix (Part number) for codes not listed here.

Product code guide (Conductive polymer Radial lead type)

(Example : PSC series, 6.3V-470μF, φ8×8L,Long Lead with bulk)

Please refer to the following table

Contents	Code
Conductive Polymer	A

Series	Code
PSC	PSC
PS	PS-

Type	Code
Radial lead	E

Tol.(%)	Code
± 20	M

Terminal plating material	Code
Sn	S

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
A	P S C	6 R 3	E	L L	4 7 1	M	H 0 8	S
Category	Series code	Voltage code	Terminal code	Taping・Tray code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
2.5	2R5
4	4R0
6.3	6R3
10	100
16	160
20	200
25	250
35	350

Type	Contents	Code
Lead forming (Bulk)	Long Lead	LL
	Cut(3.5mm)	C3
	Cut(5.0mm)	C5
Taping	Straight	TD

Refer to product guide for taping specifications.

Cap.(μF)	Code
3.3	3R3
4.7	4R7
10	100
47	470
100	101
470	471
1,000	102
⋮	⋮

φD(mm)	Code
5	E
6.3	F
8	H
10	J

L(mm)	Code
5	05
6	06
8	08
10.5	A5
11.5	B5
12.5	C5

*Refer to the appendix (Part number) for codes not listed here.

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
Product List
◆SURFACE MOUNT TYPE (2.5 to 10V_{dc})

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

Cap (μF)	Rated voltage(V_{dc})															
	2.5				4				6.3				10			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
4.7													PXA	4×5.2	240	670
6.8													PXA	4×5.2	240	670
10													PXA	4×5.2	220	700
15													PXA	4×5.2	200	740
22									PXA	4×5.2	200	740				
33					PXA	4×5.2	200	740					PXS	5×5.8	70	1100
													PXA	5×5.7	40	1270
47									PXS	5×5.8	30	1970	PXE	5×5.8	28	2310
									PXA	5×5.7	35	1380	PXA	5×5.7	40	1270
													PXA	6.3×4.5	41	1560
													PXA	6.3×5.7	31	2250
													PXD	5×5.8	50	1270
56									PXD	5×5.8	45	1380	PXE	5×5.8	28	2310
													PXA	6.3×5.2	31	2250
													PXA	6.3×5.7	31	2250
													PXD	6.3×5.8	40	2250
													PXH	6.3×5.7	45	2250
68									PXA	6.3×5.7	27	2400	PXS	5×5.8	30	1970
													PXE	5×5.8	28	2310
82									PXA	6.3×4.5	40	1670				
									PXA	6.3×5.2	27	2400				
									PXA	6.3×5.7	27	2400				
									PXH	6.3×5.7	40	2400				
100					PXE	5×5.8	22	2610	PXS	5×5.8	25	2150				
					PXA	6.3×5.2	26	2450	PXE	5×5.8	24	2500				
					PXA	6.3×5.7	26	2450	PXA	5×5.7	35	1380				
									PXA	6.3×4.5	40	1670				
									PXA	6.3×5.2	27	2400				
									PXA	6.3×5.7	27	2400				
									PXD	6.3×5.8	35	2400				
									PXH	6.3×5.7	40	2400				
120	PXD	5×5.8	40	1450	PXA	6.3×4.5	38	1710	PXS	6.3×5.8	22	2570	PXS	6.3×5.8	27	2320
									PXE	5×5.8	24	2500	PXF	5×5.8	22	2600
									PXA	6.3×5.7	27	2400	PXE	6.3×5.8	25	2530
													PXA	8×6.7	27	2800
													PXH	8×6.7	35	2800
150					PXS	5×5.8	25	2150	PXK	6.3×4.5	19	2780	PXS	8×6.7	30	2760
					PXE	5×5.8	22	2610	PXF	5×4.5	25	2100	PXE	6.3×7.7	21	2880
					PXA	5×5.7	30	1490	PXF	5×5.8	12	3500	PXA	8×6.7	27	2800
					PXA	6.3×5.2	26	2450	PXA	8×6.7	25	3020	PXD	8×6.7	35	2800
					PXA	6.3×5.7	26	2450	PXH	8×6.7	30	3020	PXH	8×6.7	35	2800
					PXH	6.3×5.7	35	2450								
180	PXE	5×5.8	21	2670	PXK	6.3×4.5	19	2780	PXK	5×5.8	17	3390				
220	PXK	6.3×4.5	19	2780	PXK	5×5.8	17	3390	PXK	6.3×4.5	18	3200	PXE	8×6.7	21	3220
	PXF	5×4.5	25	2100	PXA	8×6.7	25	3020	PXS	6.3×5.8	22	2570				
	PXA	6.3×5.2	25	2500	PXH	8×6.7	30	3020	PXF	5×5.8	12	3500				
	PXA	6.3×5.7	25	2500					PXF	6.3×5.8	10	3900				
	PXD	6.3×5.8	30	2500					PXE	6.3×5.8	15	3160				
	PXH	6.3×5.7	35	2500					PXA	8×6.7	25	3020				
									PXD	8×6.7	30	3020				
									PXH	8×6.7	30	3020				
270					PXE	6.3×5.8	15	3160	PXF	6.3×7.7	9	4200	PXF	6.3×5.8	20	2800
									PXE	6.3×7.7	14	3470	PXE	8×6.7	21	3220
													PXA	8×12	14	4420
													PXA	10×7.7	24	3770
330	PXK	5×5.8	16	3500	PXF	6.3×5.8	10	3900	PXK	6.3×5.8	17	3390	PXE	8×7.7	19	3390
	PXK	6.3×4.5	16	3500	PXE	6.3×5.8	15	3160	PXF	6.3×5.8	10	3900	PXA	8×12	14	4420
	PXF	5×5.8	10	3900	PXA	8×6.7	25	3020	PXF	6.3×7.7	9	4200	PXA	10×7.7	24	3770
									PXF	8×6.7	10	4500	PXD	10×7.7	25	3500
									PXE	6.3×7.7	14	3470	PXH	10×7.7	30	3700
									PXE	8×6.7	14	3950				
									PXA	10×7.7	20	4130				
390	PXF	5×5.8	10	3900	PXK	6.3×5.8	17	3390	PXS	8×6.7	22	3220	PXE	8×10	17	4000
	PXF	6.3×5.8	10	3900	PXF	6.3×7.7	9	4200	PXF	8×6.7	10	4500				
	PXE	6.3×5.8	15	3160	PXE	6.3×7.7	14	3470	PXE	8×6.7	14	3950				
									PXA	8×12	12	4770				
470	PXF	6.3×7.7	9	4200	PXF	8×6.7	10	4500	PXF	8×7.7	9	4500	PXE	10×7.7	19	3800
	PXE	6.3×7.7	13	3600	PXE	8×6.7	14	3950	PXE	8×7.7	13	3950	PXA	10×12.2	12	5300
					PXA	10×7.7	20	4130	PXA	8×12	12	4770				
									PXA	10×7.7	20	4130				
									PXD	10×7.7	25	3500				
									PXH	10×7.7	25	3700				
560	PXK	6.3×5.8	16	3500	PXS	8×6.7	22	3220	PXF	8×7.7	9	4500	PXA	10×12.2	12	5300
	PXF	6.3×5.8	10	3900	PXF	8×6.7	10	4500								
	PXF	6.3×7.7	9	4200	PXE	8×6.7	14	3950								
	PXF	8×6.7	10	4500	PXA	8×12	12	4770								
	PXE	6.3×7.7	13	3600												
	PXE	8×6.7	13	4100												
	PXA	8×6.7	23	3100												
	PXH	8×6.7	30	3100												

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
Product List

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

◆SURFACE MOUNT TYPE (2 to 10Vdc)

Cap (μF)	Rated voltage(Vdc)																			
	2				2.5				4				6.3				10			
	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2
680	PXF	6.3x5.8	12	3500	PXF	8x6.7	10	4500	PXF	8x7.7	9	4500	PXA	10x12.2	10	5500	PXE	10x10	13	4820
					PXE	8x6.7	13	4100	PXE	8x7.7	13	3950								
					PXA	8x12	12	4770	PXA	10x7.7	20	4130								
									PXH	10x7.7	25	3700								
820					PXE	8x7.7	12	4260	PXA	10x12.2	10	5500	PXE	8x10	12	4770				
					PXE	8x12	9	5400					PXE	8x12	10	5150				
													PXE	10x7.7	14	4300				
													PXA	10x12.2	10	5500				
1000					PXF	8x7.7	9	4500	PXE	8x10	10	5220								
					PXE	8x7.7	12	4260	PXE	10x7.7	14	4300								
					PXA	10x7.7	19	4240												
					PXH	10x7.7	25	3700												
1200					PXE	10x7.7	13	4450	PXE	8x12	9	5400	PXE	10x10	12	5025				
									PXE	10x10	10	5500								
									PXA	10x12.2	10	5500								
1500					PXE	8x10	10	5220	PXE	10x10	10	5500	PXE	10x10	12	5025				
					PXE	8x12	9	5400					PXE	10x12.2	10	5500				
					PXA	10x12.2	10	5500												
1800									PXE	10x10	10	5500								
									PXE	10x12.2	9	5600								
2200					PXE	10x10	10	5500												
2700					PXE	10x12.2	9	5600												

◆SURFACE MOUNT TYPE (16 to 25Vdc)

Cap (μF)	Rated voltage(Vdc)															
	16				20				23				25			
	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2	Series	Nominal Case size (φDxL)	ESR *1	Ripple current *2
3.3	PXA	4x5.2	260	660												
10													PXG	5x4.5	60	1700
													PXA	6.3x5.7	65	1500
15					PXA	6.3x4.5	57	1300	PXA	6.3x4.5	57	1300				
22	PXS	5x5.8	90	1060	PXA	6.3x5.2	50	1650					PXG	5x5.8	40	2450
	PXA	5x5.7	45	1210	PXA	6.3x5.7	50	1650					PXA	8x6.7	50	1800
	PXA	6.3x4.5	45	1490	PXH	6.3x5.7	60	1650								
27					PXG	5x4.5	55	1770					PXG	5x5.8	40	2450
33	PXE	5x5.8	35	2070												
	PXA	6.3x5.7	37	2050												
39	PXG	5x4.5	50	1860	PXA	8x6.7	45	2000					PXG	6.3x5.8	30	2800
	PXS	5x5.8	35	1820									PXA	10x7.7	45	2100
	PXS	6.3x5.8	37	2050												
	PXE	5x5.8	35	2070												
	PXA	6.3x5.2	37	2050												
	PXA	6.3x5.7	37	2050												
	PXH	6.3x5.7	50	2050												
47					PXG	5x5.8	30	2800					PXG	6.3x5.8	30	2800
					PXA	8x6.7	45	2000								
					PXH	8x6.7	45	2000								
56					PXG	5x5.8	30	2800								
68	PXS	6.3x5.8	30	2200												
	PXE	6.3x5.8	28	2390												
82	PXS	8x6.7	30	2760	PXA	10x7.7	40	2500								
	PXE	6.3x7.7	24	2700	PXH	10x7.7	45	2400								
	PXA	8x6.7	30	2700												
	PXH	8x6.7	40	2700												
100	PXG	5x5.8	27	3000												
	PXK	6.3x5.8	24	2490												
	PXE	6.3x7.7	24	2700												
	PXE	8x6.7	24	3010												
120	PXS	8x6.7	27	2900	PXG	6.3x5.8	25	3200								
	PXE	8x6.7	24	3010												
150	PXE	8x7.7	22	3150	PXA	10x12.2	20	4320								
	PXA	10x7.7	26	3430												
	PXH	10x7.7	35	3020												
180	PXG	6.3x5.8	22	3300												
	PXE	8x10	18	3890												
	PXA	8x12	16	4360												
	PXA	10x7.7	26	3430												
	PXH	10x7.7	35	3020												
220	PXE	8x10	18	3890												
	PXE	10x7.7	22	3450												
	PXA	10x12.2	14	5050												
330	PXE	10x10	16	4350												
	PXA	10x12.2	14	5050												

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS
Product List

*1 ESR(mΩ max.)20℃,100k to 300kHz
*2 Rated ripple current(mArms)105℃,100kHz

◆RADIAL LEAD TYPE (2 to 10Vdc)

Cap (μF)	Rated voltage(Vdc)																			
	2				2.5				4				6.3				10			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
47																	PSA	6.3×10.5	25	2820
68																	PSA	6.3×10.5	25	2820
100																	PSA	6.3×10.5	25	2820
150																	PSA	6.3×10.5	25	2820
220					PSK	5×8	7	4350					PSA	6.3×10.5	20	3160				
270									PSA	6.3×10.5	20	3160	PSK	5×8	10	3700	PSA	8×11.5	9	4710
																	PS	8×11.5	14	4420
330					PSK	5×8	7	4350					PSK	5×8	8	4050	PS	8×11.5	14	4420
					PSF	6.3×8	5	5900					PSA	6.3×10.5	28	3190				
390					PSA	6.3×10.5	20	3160	PSA	6.3×10.5	24	3300	PSA	8×11.5	8	5080	PSC	8×11.5	9	5650
													PS	8×11.5	12	4770				
470					PSK	5×8	7	4350	PSF	6.3×8	5	5900	PSE	6.3×8	8	4700	PSA	10×11.5	8	5650
					PSF	6.3×8	5	5900					PSC	8×8	8	5700	PS	10×12.5	12	5300
													PSA	8×11.5	7	5700				
													PS	8×11.5	12	4770				
560					PSK	5×8	7	4350	PSF	6.3×8	5	5900	PSE	6.3×8	8	4700	PS	10×12.5	12	5300
					PSF	6.3×8	5	5900	PSE	6.3×8	7	5000	PSC	8×8	8	5700				
					PSC	8×8	7	6100	PSC	8×8	7	6100								
									PSA	8×11.5	7	5580								
									PS	8×11.5	10	5230								
680					PSE	8×6	8	4900	PSC	8×11.5	7	6100	PSA	10×11.5	7	5860	PSC	10×11.5	7	6100
					PSA	8×11.5	7	5580					PS	10×12.5	10	5500				
					PS	8×11.5	10	5230												
820					PSF	6.3×8	5	5900	PSA	10×11.5	6	5860	PSC	10×11.5	7	6640				
					PSE	6.3×8	7	5000	PS	10×12.5	8	5500	PS	10×12.5	10	5500				
					PSC	8×8	5	6100												
					PSC	8×8	7	6100												
					PSA	8×11.5	7	5580												
					PS	8×11.5	10	5230												
1000	PSF	6.3×8	5	5900	PSC	8×8	7	6100	PSC	10×11.5	6	6640	PS	10×12.5	10	5500				
					PSC	8×11.5	7	6100	PS	10×12.5	8	5500								
					PSA	10×11.5	6	5860												
1200					PSF	6.3×8	5	5900	PS	10×12.5	8	5500								
1500					PSC	8×11.5	7	6100					PSC	10×11.5	10	5560				
					PSA	10×11.5	7	5860												
					PS	10×12.5	8	5500												
1600					PSF	8×8	5	6100												
2700					PSC	10×11.5	8	5560												

◆RADIAL LEAD TYPE (16 to 35Vdc)

Cap (μF)	Rated voltage(Vdc)															
	16				20				25				35			
	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2	Series	Nominal Case size (φD×L)	ESR *1	Ripple current *2
18													PS	8×11.5	34	2830
33													PS	10×12.5	30	3270
56									PSG	6.3×5	30	2600				
68									PS	8×11.5	24	3320				
100	PSF	6.3×5	24	2490	PS	8×11.5	24	3320	PS	10×12.5	20	4320				
	PSF	6.3×10.5	25	2820												
	PSA	6.3×10.5	25	2820												
	PS	8×11.5	16	4360												
120					PSG	6.3×5	20	3200								
150	PSG	6.3×5	20	3200	PS	10×12.5	20	4320								
180	PS	8×11.5	16	4360					PSG	8×8	18	3770				
									PSG	8×11.5	16	4650				
220									PSG	8×11.5	16	4650				
270	PSG	6.3×8	15	3800												
	PSG	8×6	22	3300												
	PSF	8×8	10	5000												
	PSF	8×11.5	11	5080												
	PSC	8×11.5	11	5080												
	PS	10×12.5	14	5050												
330	PSF	8×8	13	4700	PSG	8×8	17	3880	PSG	10×11.5	14	5000				
	PSC	10×12.5	10	6100												
	PS	10×12.5	14	5050												
390					PSG	8×11.5	14	4970	PSG	10×11.5	14	5000				
470	PSG	8×8	16	4000												
	PSF	8×11.5	11	5400												
	PSF	10×11.5	10	6100												
	PSC	10×11.5	10	6100												
560	PSG	8×11.5	14	4970												
680					PSG	10×11.5	12	5400								
820	PSG	10×11.5	12	5400												
1000	PSG	10×11.5	12	5400												

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

NPCAP™-PXG Series

- Super low ESR, high ripple current capability
- Rated voltage range : 16 to 25Vdc, Capacitance : 15 to 180μF
- Case size : φ5×4.5L to φ6.3×5.8L
- **RoHS Compliant**
- Halogen Free

PXG
↑ Downsized
PXE

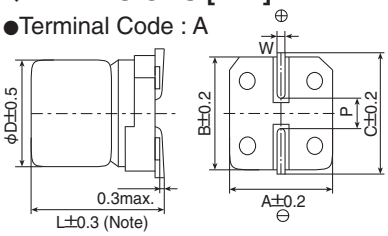
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	16 to 25Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (E46 : 1,000 hours) at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (E46 : 500 hours). Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ)and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A

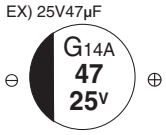


Size Code	φD	L	A	B	C	W	P
E46	5	4.5	5.3	5.3	5.9	0.5 to 0.8	1.4
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9

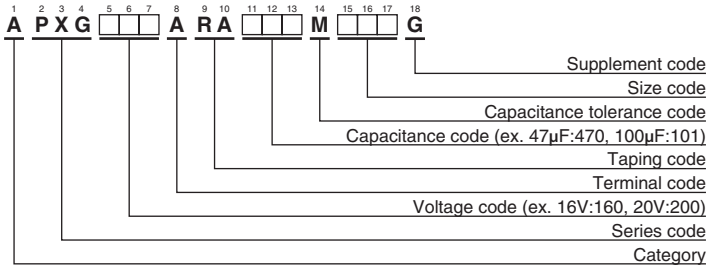
Note : L+0.1/-0.2 for E46

◆MARKING

EX) 25V47μF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

NPCAP™-PXG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
16	39	E46	312	50	1,860	APXG160ARA390ME46G
	100	E61	320	27	3,000	APXG160ARA101ME61G
	180	F61	576	22	3,300	APXG160ARA181MF61G
20	27	E46	270	55	1,770	APXG200ARA270ME46G
	47	E61	188	30	2,800	APXG200ARA470ME61G
	56	E61	224	30	2,800	APXG200ARA560ME61G
	120	F61	480	25	3,200	APXG200ARA121MF61G
25	10	E46	125	60	1,700	APXG250ARA100ME46G
	22	E61	110	40	2,450	APXG250ARA220ME61G
	27	E61	135	40	2,450	APXG250ARA270ME61G
	39	F61	195	30	2,800	APXG250ARA390MF61G
	47	F61	235	30	2,800	APXG250ARA470MF61G

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXK Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2.5 to 16Vdc, Capacitance range : 100 to 560μF
- Suitable for DC-DC converters, voltage regulators and decoupling applications used to computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXK
↑ Downsized
PXE

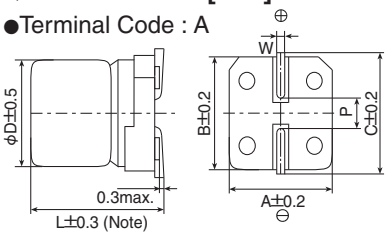
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15V (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (F46 : 1,000 hours) at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (F46 : 500hours). Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after following voltage treatment.
Voltage treatment : DC rated voltage are applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A

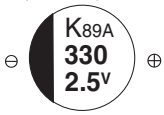


Note : L+0.1/-0.2 for F46

Size Code	φD	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F46	6.3	4.5	6.6	6.6	7.2	0.5 to 0.8	1.9
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9

◆MARKING

EX) 2.5V330μF



◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A P X K □□□ A R A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 330μF:331, 560μF:561)
- Taping code
- Terminal code
- Voltage code (ex. 2.5V:2R5, 6.3V:6R3)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXK Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	220	F46	300	19	2,780	APXK2R5ARA221MF46G
	330	E61	412	16	3,500	APXK2R5ARA331ME61G
	330	F46	700	16	3,500	APXK2R5ARA331MF46G
	560	F61	700	16	3,500	APXK2R5ARA561MF61G
4	180	F46	360	19	2,780	APXK4R0ARA181MF46G
	220	E61	440	17	3,390	APXK4R0ARA221ME61G
	390	F61	780	17	3,390	APXK4R0ARA391MF61G
6.3	150	F46	472	19	2,780	APXK6R3ARA151MF46G
	180	E61	567	17	3,390	APXK6R3ARA181ME61G
	220	F46	700	18	3,200	APXK6R3ARA221MF46G
	330	F61	1,040	17	3,390	APXK6R3ARA331MF61G
16	100	F61	320	24	2,490	APXK160ARA101MF61G

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXS Series

- Super low ESR, high ripple current capability
- Longer life (5,000 hours at 105℃)
- Rated voltage range : 4 to 16Vdc, Capacitance : 22 to 560μF
- Case size : φ5×5.8L to φ8×6.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXS
↑ Longer life
PXE/PXA

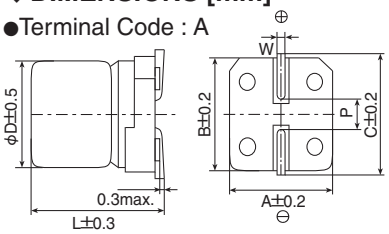
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	4 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current	I=0.2CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20%of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ)and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A



Size Code	φD	L	A	B	C	W	P
E61	5.0	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8.0	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1

◆MARKING

EX) 6.3V390μF

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A P X S □□□ A R A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470, 150μF:151)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3, 10V:100)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
4	150	E61	25	2,150	APXS4R0ARA151ME61G
	560	H70	22	3,220	APXS4R0ARA561MH70G
6.3	47	E61	30	1,970	APXS6R3ARA470ME61G
	100	E61	25	2,150	APXS6R3ARA101ME61G
	120	F61	22	2,570	APXS6R3ARA121MF61G
	220	F61	22	2,570	APXS6R3ARA221MF61G
	390	H70	22	3,220	APXS6R3ARA391MH70G
10	33	E61	70	1,100	APXS100ARA330ME61G
	68	E61	30	1,970	APXS100ARA680ME61G
	120	F61	27	2,320	APXS100ARA121MF61G
	150	H70	30	2,760	APXS100ARA151MH70G
16	22	E61	90	1,060	APXS160ARA220ME61G
	39	E61	35	1,820	APXS160ARA390ME61G
	39	F61	37	2,050	APXS160ARA390MF61G
	68	F61	30	2,200	APXS160ARA680MF61G
	82	H70	30	2,760	APXS160ARA820MH70G
	120	H70	27	2,900	APXS160ARA121MH70G

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!

NPCAP™-PXF Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2 to 10Vdc, Capacitance range : 120 to 1,000μF
- Case size range : φ5×4.5L to φ8×7.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free

PXF
↑ Lower ESR
PXE

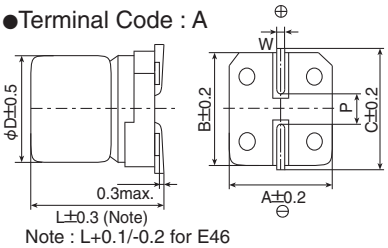
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2 to 10Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.15 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (E46 : 1,000 hours) at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (E46 : 500 hours) . Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A

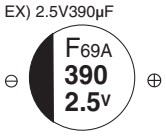


Note : L+0.1/-0.2 for E46

Size Code	φD	L	A	B	C	W	P
E46	5	4.5	5.3	5.3	5.9	0.5 to 0.8	1.4
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
H80	8	7.7	8.3	8.3	9.0	0.7 to 1.1	3.1

◆MARKING

EX) 2.5V390μF



◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A P X F □□□ A R A □□□ M □□□ G

- G — Supplement code
- □□□ — Size code
- M — Capacitance tolerance code
- □□□ — Capacitance code (ex. 330μF:331, 1,000μF:102)
- RA — Taping code
- A — Terminal code
- □□□ — Voltage code (ex. 2.5V:2R5, 10V:100)
- PXF — Series code
- A — Category

Please refer to "Product code guide (conductive polymer type)"

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!
NPCAP™-PXF Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2	680	F61	700	12	3,500	APXF2R0ARA681MF61G
2.5	220	E46	700	25	2,100	APXF2R5ARA221ME46G
	330	E61	700	10	3,900	APXF2R5ARA331ME61G
	390	E61	700	10	3,900	APXF2R5ARA391ME61G
	390	F61	292	10	3,900	APXF2R5ARA391MF61G
	470	F80	352	9	4,200	APXF2R5ARA471MF80G
	560	F61	700	10	3,900	APXF2R5ARA561MF61G
	560	F80	420	9	4,200	APXF2R5ARA561MF80G
	560	H70	420	10	4,500	APXF2R5ARA561MH70G
	680	H70	510	10	4,500	APXF2R5ARA681MH70G
	1,000	H80	750	9	4,500	APXF2R5ARA102MH80G
4	330	F61	396	10	3,900	APXF4R0ARA331MF61G
	390	F80	468	9	4,200	APXF4R0ARA391MF80G
	470	H70	564	10	4,500	APXF4R0ARA471MH70G
	560	H70	672	10	4,500	APXF4R0ARA561MH70G
	680	H80	816	9	4,500	APXF4R0ARA681MH80G
6.3	150	E46	700	25	2,100	APXF6R3ARA151ME46G
	150	E61	700	12	3,500	APXF6R3ARA151ME61G
	220	E61	700	12	3,500	APXF6R3ARA221ME61G
	220	F61	415	10	3,900	APXF6R3ARA221MF61G
	270	F80	510	9	4,200	APXF6R3ARA271MF80G
	330	F61	700	10	3,900	APXF6R3ARA331MF61G
	330	F80	623	9	4,200	APXF6R3ARA331MF80G
	330	H70	623	10	4,500	APXF6R3ARA331MH70G
	390	H70	737	10	4,500	APXF6R3ARA391MH70G
	470	H80	888	9	4,500	APXF6R3ARA471MH80G
	560	H80	1,050	9	4,500	APXF6R3ARA561MH80G
10	120	E61	240	22	2,600	APXF100ARA121ME61G
	270	F61	540	20	2,800	APXF100ARA271MF61G

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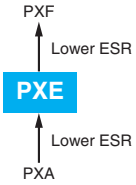
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXE Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
  (ESR and rated ripple current values are improved from PXA series.)
- Rated voltage range : 2.5 to 16Vdc, Capacitance range : 33 to 2,700μF
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free



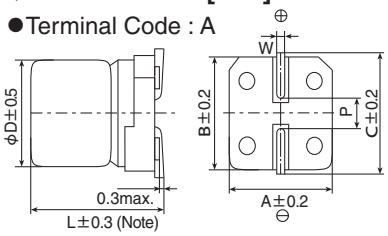
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

- Terminal Code : A



(Note) L±0.5 for HA0, HC0, JA0, JC0

Size Code	φD	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
H80	8	7.7	8.3	8.3	9.0	0.7 to 1.1	3.1
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
HC0	8	12.0	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
JC0	10	12.2	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 2.5V390μF

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	E	□	□	□	A	R	A	□	□	□	M	□	□	□	G

- 18 G — Supplement code
- 15–17 □□□ — Size code
- 14 M — Capacitance tolerance code
- 11–13 □□□ — Capacitance code (ex. 47μF:470,100μF:101)
- 10 A — Taping code
- 9 R — Terminal code
- 8 A — Voltage code (ex. 6.3V:6R3,10V:100)
- 5–7 □□□ — Series code
- 1 A — Category

Please refer to "Product code guide (conductive polymer type)"

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	180	E61	90.0	21	2,670	APXE2R5ARA181ME61G
	390	F61	195	15	3,160	APXE2R5ARA391MF61G
	470	F80	235	13	3,600	APXE2R5ARA471MF80G
	560	F80	280	13	3,600	APXE2R5ARA561MF80G
	560	H70	280	13	4,100	APXE2R5ARA561MH70G
	680	H70	340	13	4,100	APXE2R5ARA681MH70G
	820	H80	410	12	4,260	APXE2R5ARA821MH80G
	820	HC0	410	9	5,400	APXE2R5ARA821MHC0G
	1,000	H80	500	12	4,260	APXE2R5ARA102MH80G
	1,200	J80	600	13	4,450	APXE2R5ARA122MJ80G
	1,500	HA0	750	10	5,220	APXE2R5ARA152MHA0G
	1,500	HC0	750	9	5,400	APXE2R5ARA152MHC0G
	2,200	JA0	1,100	10	5,500	APXE2R5ARA222MJA0G
	2,700	JC0	1,350	9	5,600	APXE2R5ARA272MJC0G
4	100	E61	80.0	22	2,610	APXE4R0ARA101ME61G
	150	E61	120	22	2,610	APXE4R0ARA151ME61G
	270	F61	216	15	3,160	APXE4R0ARA271MF61G
	330	F61	264	15	3,160	APXE4R0ARA331MF61G
	390	F80	312	14	3,470	APXE4R0ARA391MF80G
	470	H70	376	14	3,950	APXE4R0ARA471MH70G
	560	H70	448	14	3,950	APXE4R0ARA561MH70G
	680	H80	544	13	3,950	APXE4R0ARA681MH80G
	1,000	HA0	800	10	5,220	APXE4R0ARA102MHA0G
	1,000	J80	800	14	4,300	APXE4R0ARA102MJ80G
	1,200	HC0	960	9	5,400	APXE4R0ARA122MHC0G
	1,200	JA0	960	10	5,500	APXE4R0ARA122MJA0G
	1,500	JA0	1,200	10	5,500	APXE4R0ARA152MJA0G
	1,800	JA0	1,440	10	5,500	APXE4R0ARA182MJA0G
	1,800	JC0	1,440	9	5,600	APXE4R0ARA182MJC0G
6.3	100	E61	126	24	2,500	APXE6R3ARA101ME61G
	120	E61	151	24	2,500	APXE6R3ARA121ME61G
	220	F61	277	15	3,160	APXE6R3ARA221MF61G
	270	F80	340	14	3,470	APXE6R3ARA271MF80G
	330	F80	415	14	3,470	APXE6R3ARA331MF80G
	330	H70	415	14	3,950	APXE6R3ARA331MH70G
	390	H70	491	14	3,950	APXE6R3ARA391MH70G
	470	H80	592	13	3,950	APXE6R3ARA471MH80G
	820	HA0	1,030	12	4,770	APXE6R3ARA821MHA0G
	820	HC0	1,030	10	5,150	APXE6R3ARA821MHC0G
	820	J80	1,030	14	4,300	APXE6R3ARA821MJ80G
	1,200	JA0	1,510	12	5,025	APXE6R3ARA122MJA0G
	1,500	JA0	1,890	12	5,025	APXE6R3ARA152MJA0G
	1,500	JC0	1,890	10	5,500	APXE6R3ARA152MJC0G
10	47	E61	94.0	28	2,310	APXE100ARA470ME61G
	56	E61	112	28	2,310	APXE100ARA560ME61G
	68	E61	136	28	2,310	APXE100ARA680ME61G
	120	F61	240	25	2,530	APXE100ARA121MF61G
	150	F80	300	21	2,880	APXE100ARA151MF80G
	220	H70	440	21	3,220	APXE100ARA221MH70G
	270	H70	540	21	3,220	APXE100ARA271MH70G
	330	H80	660	19	3,390	APXE100ARA331MH80G
	390	HA0	780	17	4,000	APXE100ARA391MHA0G
	470	J80	940	19	3,800	APXE100ARA471MJ80G
	680	JA0	1,360	13	4,820	APXE100ARA681MJA0G
16	33	E61	105	35	2,070	APXE160ARA330ME61G
	39	E61	124	35	2,070	APXE160ARA390ME61G
	68	F61	217	28	2,390	APXE160ARA680MF61G
	82	F80	262	24	2,700	APXE160ARA820MF80G
	100	F80	320	24	2,700	APXE160ARA101MF80G
	100	H70	320	24	3,010	APXE160ARA101MH70G
	120	H70	384	24	3,010	APXE160ARA121MH70G
	150	H80	480	22	3,150	APXE160ARA151MH80G
	180	HA0	576	18	3,890	APXE160ARA181MHA0G
	220	HA0	704	18	3,890	APXE160ARA221MHA0G
	220	J80	704	22	3,450	APXE160ARA221MJ80G
	330	JA0	1,050	16	4,350	APXE160ARA331MJA0G

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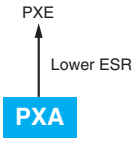
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXA Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte
- Rated voltage range : 2.5 to 25Vdc, case size range : φ4×5.2L to φ10×12.2L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**
- Halogen Free



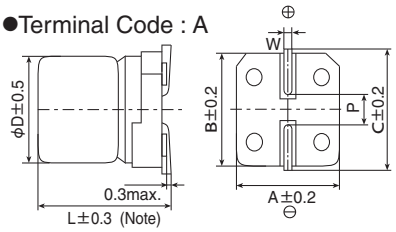
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 25Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (Rated voltage 2.5 to 20Vdc, 25Vdc) / Rated voltage×1.00 (Rated voltage 23Vdc) (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (F46 : 1,000 hours) at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours(F46 : 500 hours). Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A

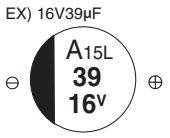


Note : L+0.1/-0.2 for F46
L±0.5 for HC0 and JC0

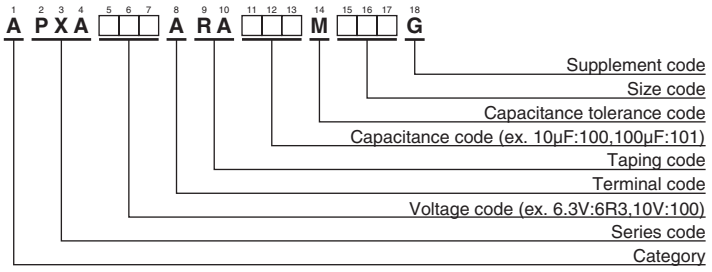
Size code	φD	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F46	6.3	4.5	6.6	6.6	7.2	0.5 to 0.8	1.9
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
HC0	8	12.0	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5
JC0	10	12.2	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 16V39μF



◆PART NUMBERING SYSTEM



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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/ after 2 min.)	ESR (mΩmax/ 20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	220	F55	110	25	2,500	APXA2R5ARA221MF55G
	220	F60	110	25	2,500	APXA2R5ARA221MF60G
	560	H70	280	23	3,100	APXA2R5ARA561MH70G
	680	HC0	340	12	4,770	APXA2R5ARA681MHC0G
	1,000	J80	500	19	4,240	APXA2R5ARA102MJ80G
	1,500	JC0	750	10	5,500	APXA2R5ARA152MJC0G
4	33	D55	66.0	200	740	APXA4R0ARA330MD55G
	100	F55	80.0	26	2,450	APXA4R0ARA101MF55G
	100	F60	80.0	26	2,450	APXA4R0ARA101MF60G
	120	F46	240	38	1,710	APXA4R0ARA121MF46G
	150	E60	120	30	1,490	APXA4R0ARA151ME60G
	150	F55	120	26	2,450	APXA4R0ARA151MF55G
	150	F60	120	26	2,450	APXA4R0ARA151MF60G
	220	H70	176	25	3,020	APXA4R0ARA221MH70G
	330	H70	264	25	3,020	APXA4R0ARA331MH70G
	470	J80	376	20	4,130	APXA4R0ARA471MJ80G
	560	HC0	448	12	4,770	APXA4R0ARA561MHC0G
	680	J80	544	20	4,130	APXA4R0ARA681MJ80G
	820	JC0	656	10	5,500	APXA4R0ARA821MJC0G
	1,200	JC0	960	10	5,500	APXA4R0ARA122MJC0G
6.3	22	D55	69.0	200	740	APXA6R3ARA220MD55G
	47	E60	59.2	35	1,380	APXA6R3ARA470ME60G
	68	F60	85.6	27	2,400	APXA6R3ARA680MF60G
	82	F46	267	40	1,670	APXA6R3ARA820MF46G
	82	F55	103	27	2,400	APXA6R3ARA820MF55G
	82	F60	103	27	2,400	APXA6R3ARA820MF60G
	100	E60	126	35	1,380	APXA6R3ARA101ME60G
	100	F46	315	40	1,670	APXA6R3ARA101MF46G
	100	F55	126	27	2,400	APXA6R3ARA101MF55G
	100	F60	126	27	2,400	APXA6R3ARA101MF60G
	120	F60	151	27	2,400	APXA6R3ARA121MF60G
	150	H70	189	25	3,020	APXA6R3ARA151MH70G
	220	H70	277	25	3,020	APXA6R3ARA221MH70G
	330	J80	416	20	4,130	APXA6R3ARA331MJ80G
	390	HC0	491	12	4,770	APXA6R3ARA391MHC0G
	470	HC0	592	12	4,770	APXA6R3ARA471MHC0G
	470	J80	592	20	4,130	APXA6R3ARA471MJ80G
	680	JC0	857	10	5,500	APXA6R3ARA681MJC0G
	820	JC0	1,030	10	5,500	APXA6R3ARA821MJC0G

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/ after 2 min.)	ESR (mΩmax/ 20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
10	4.7	D55	24.0	240	670	APXA100ARA4R7MD55G
	6.8	D55	34.0	240	670	APXA100ARA6R8MD55G
	10	D55	50.0	220	700	APXA100ARA100MD55G
	15	D55	75.0	200	740	APXA100ARA150MD55G
	33	E60	66.0	40	1,270	APXA100ARA330ME60G
	47	E60	94.0	40	1,270	APXA100ARA470ME60G
	47	F46	235	41	1,560	APXA100ARA470MF46G
	47	F60	94.0	31	2,250	APXA100ARA470MF60G
	56	F55	112	31	2,250	APXA100ARA560MF55G
	56	F60	112	31	2,250	APXA100ARA560MF60G
	120	H70	240	27	2,800	APXA100ARA121MH70G
	150	H70	300	27	2,800	APXA100ARA151MH70G
	270	HC0	540	14	4,420	APXA100ARA271MHC0G
	270	J80	540	24	3,770	APXA100ARA271MJ80G
	330	HC0	660	14	4,420	APXA100ARA331MHC0G
	330	J80	660	24	3,770	APXA100ARA331MJ80G
	470	JC0	940	12	5,300	APXA100ARA471MJC0G
	560	JC0	1,120	12	5,300	APXA100ARA561MJC0G
16	3.3	D55	26.0	260	660	APXA160ARA3R3MD55G
	22	E60	70.4	45	1,210	APXA160ARA220ME60G
	22	F46	176	45	1,490	APXA160ARA220MF46G
	33	F60	106	37	2,050	APXA160ARA330MF60G
	39	F55	125	37	2,050	APXA160ARA390MF55G
	39	F60	125	37	2,050	APXA160ARA390MF60G
	82	H70	262	30	2,700	APXA160ARA820MH70G
	150	J80	480	26	3,430	APXA160ARA151MJ80G
	180	HC0	576	16	4,360	APXA160ARA181MHC0G
	180	J80	576	26	3,430	APXA160ARA181MJ80G
	220	JC0	704	14	5,050	APXA160ARA221MJC0G
	330	JC0	1,050	14	5,050	APXA160ARA331MJC0G
20	15	F46	150	57	1,300	APXA200ARA150MF46G
	22	F55	88.0	50	1,650	APXA200ARA220MF55G
	22	F60	88.0	50	1,650	APXA200ARA220MF60G
	39	H70	156	45	2,000	APXA200ARA390MH70G
	47	H70	188	45	2,000	APXA200ARA470MH70G
	82	J80	328	40	2,500	APXA200ARA820MJ80G
	150	JC0	600	20	4,320	APXA200ARA151MJC0G
23	15	F46	172	57	1,300	APXA230ARA150MF46G
25	10	F60	125	65	1,500	APXA250ARA100MF60G
	22	H70	275	50	1,800	APXA250ARA220MH70G
	39	J80	488	45	2,100	APXA250ARA390MJ80G

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

NPCAP™-PXD Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- For automobile modules and other high temperature applications
- Endurance : 125℃ 2,000 hours
- Rated voltage range : 2.5 to 10Vdc, Capacitance range : 47 to 470µF
- **RoHS Compliant**
- Halogen Free

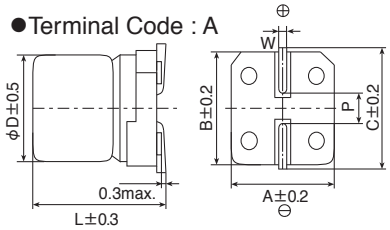
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +125℃
Rated Voltage Range	2.5 to 10Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 125℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 125℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦200% of the initial specified value ESR: ≦200% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 125℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 125℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 125℃.

◆DIMENSIONS [mm]

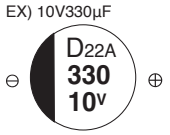
●Terminal Code : A



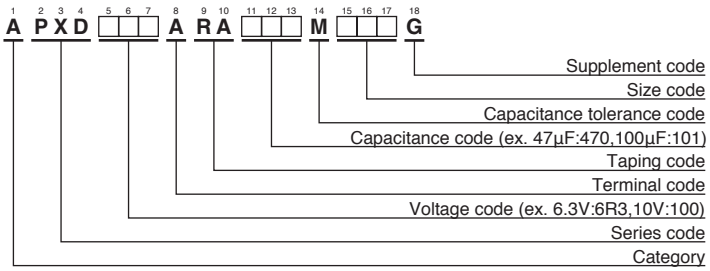
Size code	φD	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 10V330µF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

New!

NPCAP™-PXD Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/100kHz)		Part No.
					-55℃ to +105℃	+105℃ to +125℃	
2.5	120	E61	60.0	40	1,450	650	APXD2R5ARA121ME61G
	220	F61	110	30	2,500	770	APXD2R5ARA221MF61G
6.3	56	E61	70.5	45	1,380	600	APXD6R3ARA560ME61G
	100	F61	126	35	2,400	720	APXD6R3ARA101MF61G
	220	H70	277	30	3,020	960	APXD6R3ARA221MH70G
	470	J80	592	25	3,500	1,100	APXD6R3ARA471MJ80G
10	47	E61	94.0	50	1,270	550	APXD100ARA470ME61G
	56	F61	112	40	2,250	680	APXD100ARA560MF61G
	150	H70	300	35	2,800	880	APXD100ARA151MH70G
	330	J80	660	25	3,500	1,100	APXD100ARA331MJ80G

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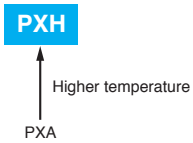
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXH Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Suitable for DC-DC converters, voltage regulators and decoupling applications.
- Endurance : 125℃ 1,000 hours
- Rated voltage range : 2.5 to 20Vdc, Capacitance range : 22 to 1,000µF
- Case size range : φ6.3×5.7L to φ10×7.7L
- **RoHS Compliant**
- Halogen Free



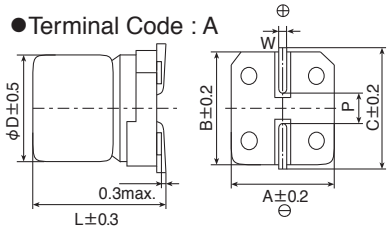
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +125℃
Rated Voltage Range	2.5 to 20Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 125℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 125℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦200% of the initial specified value ESR: ≦200% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 125℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 125℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 125℃.

◆DIMENSIONS [mm]

●Terminal Code : A

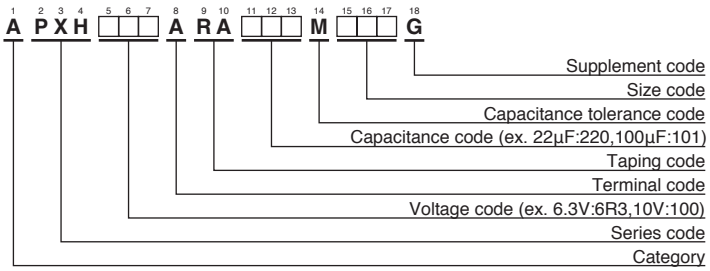


Size code	φD	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 20V22µF

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXH Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/100kHz)		Part No.
					-55℃ to +105℃	+105℃ to +125℃	
2.5	220	F60	110	35	2,500	770	APXH2R5ARA221MF60G
	560	H70	280	30	3,100	960	APXH2R5ARA561MH70G
	1,000	J80	500	25	3,700	1,100	APXH2R5ARA102MJ80G
4	150	F60	120	35	2,450	770	APXH4R0ARA151MF60G
	220	H70	176	30	3,020	960	APXH4R0ARA221MH70G
	680	J80	544	25	3,700	1,100	APXH4R0ARA681MJ80G
6.3	82	F60	103	40	2,400	720	APXH6R3ARA820MF60G
	100	F60	126	40	2,400	720	APXH6R3ARA101MF60G
	150	H70	189	30	3,020	960	APXH6R3ARA151MH70G
	220	H70	277	30	3,020	960	APXH6R3ARA221MH70G
	470	J80	592	25	3,700	1,100	APXH6R3ARA471MJ80G
10	56	F60	112	45	2,250	680	APXH100ARA560MF60G
	120	H70	240	35	2,800	880	APXH100ARA121MH70G
	150	H70	300	35	2,800	880	APXH100ARA151MH70G
	330	J80	660	30	3,700	1,010	APXH100ARA331MJ80G
16	39	F60	125	50	2,050	650	APXH160ARA390MF60G
	82	H70	262	40	2,700	830	APXH160ARA820MH70G
	150	J80	480	35	3,020	930	APXH160ARA151MJ80G
	180	J80	576	35	3,020	930	APXH160ARA181MJ80G
20	22	F60	88.0	60	1,650	590	APXH200ARA220MF60G
	47	H70	188	45	2,000	780	APXH200ARA470MH70G
	82	J80	328	45	2,400	820	APXH200ARA820MJ80G

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NIPPON CHEMI-CON

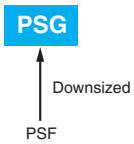
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSG Series

- Super low ESR, high ripple current capability
- Endurance: 2,000 to 5,000 hours at 105℃
- Rated voltage : 16 to 25Vdc
- **RoHS Compliant**
- **Halogen Free**



◆SPECIFICATIONS

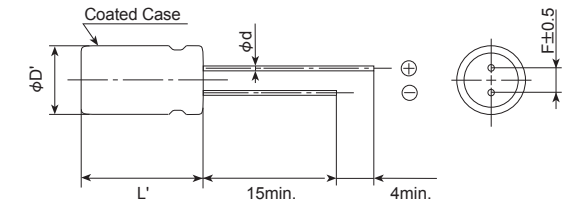
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage	16 to 25Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater Where, I : Leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours (20, 25V : 2,000 hours) at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

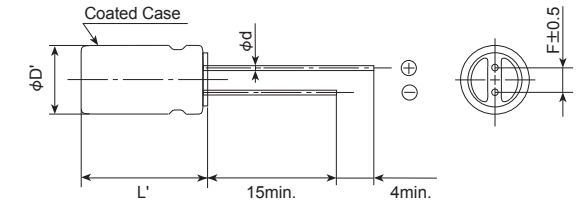
◆DIMENSIONS [mm]

- Terminal Code : E

F05,F08,H06,H08



HB5,JB5



Size code	F05	F08	H06	H08	HB5	JB5
φD	6.3		8.0			10.0
φd	0.45	0.6				
F	2.5		3.5			5.0
φD'	φD+0.5max.					
L'	L+1.0max.				L+1.5max.	

◆MARKING

EX) 16V150μF

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSG Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A P S G □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 150μF:151)
- Lead forming·Taping code
- Terminal code
- Voltage code (ex. 16V:160,20V:200)
- Series code
- Category

Please refer to “Product code guide (conductive polymer type)”

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L (mm)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
16	150	6.3×5	20	3,200	APSG160E□□151MF05S
	270	6.3×8	15	3,800	APSG160E□□271MF08S
	270	8×6	22	3,300	APSG160E□□271MH06S
	470	8×8	16	4,000	APSG160E□□471MH08S
	560	8×11.5	14	4,970	APSG160E□□561MHB5S
	820	10×11.5	12	5,400	APSG160E□□821MJB5S
	1,000	10×11.5	12	5,400	APSG160E□□102MJB5S
20	120	6.3×5	20	3,200	APSG200E□□121MF05S
	330	8×8	17	3,880	APSG200E□□331MH08S
	390	8×11.5	14	4,970	APSG200E□□391MHB5S
	680	10×11.5	12	5,400	APSG200E□□681MJB5S
25	56	6.3×5	30	2,600	APSG250E□□560MF05S
	180	8×8	18	3,770	APSG250E□□181MH08S
	180	8×11.5	16	4,650	APSG250E□□181MHB5S
	220	8×11.5	16	4,650	APSG250E□□221MHB5S
	330	10×11.5	14	5,000	APSG250E□□331MJB5S
	390	10×11.5	14	5,000	APSG250E□□391MJB5S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSK Series

- Super low ESR, high ripple current capability
- Downsized from PSE series (φ6.3×8L to φ5×8L)
- Longer life (5,000 hours at 105℃)
- ESR after endurance is specified within the initial spec
- **RoHS Compliant**
- **Halogen Free**

PSK
↑ Downsized
PSE

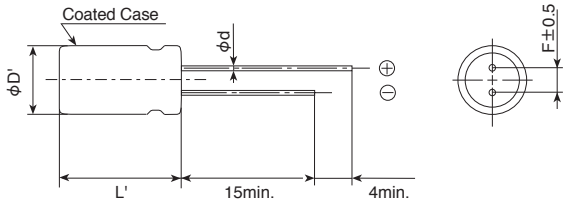
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 6.3 Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current*Note	500μA max. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦The initial specified value ESR: ≦The initial specified value Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦The initial specified value ESR: ≦The initial specified value Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦The initial specified value ESR: ≦The initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

- Terminal Code : E



Size code	E08
φD	5.0
φd	0.5(Note2)
F	2.0
φD'	φD+0.5max.
L'	L+1.0max.

Note2 : 0.45 for rated vollage 2.5V

◆MARKING

EX) 2.5V560μF

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSK Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A PSK □□□ E □□ □□□ M E08 S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 560μF:561)
- Lead forming·Taping code
- Terminal code
- Voltage code (ex. 2.5V:2R5, 6.3V:6R3)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L (mm)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	220	5×8	7	4,350	APSK2R5E□□221ME08S
	330	5×8	7	4,350	APSK2R5E□□331ME08S
	470	5×8	7	4,350	APSK2R5E□□471ME08S
	560	5×8	7	4,350	APSK2R5E□□561ME08S
6.3	270	5×8	10	3,700	APSK6R3E□□271ME08S
	330	5×8	8	4,050	APSK6R3E□□331ME08S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSF Series

- Super low ESR, high ripple current capability
- ESR 5mΩ max. (2 to 4Vdc)
- Longer life (5,000 hours at 105℃)
- ESR after endurance is specified within the initial spec (2 to 4Vdc)
- Rated voltage range : 2 to 16Vdc
- **RoHS Compliant**
- **Halogen Free**

PSF
↑ Lower ESR
PSE

◆SPECIFICATIONS

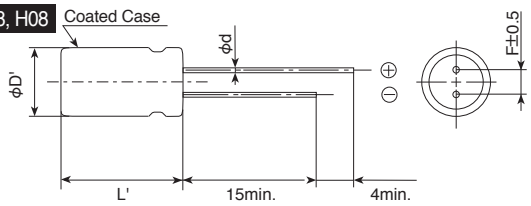
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: 2 to 4Vdc : ≦The initial specified value
	ESR: 16Vdc : ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: 2 to 4Vdc : ≦The initial specified value
	ESR: 16Vdc : ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ)and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	D.F. (tanδ): ≦The initial specified value
	ESR: 2 to 4Vdc : ≦The initial specified value
	ESR: 16Vdc : ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

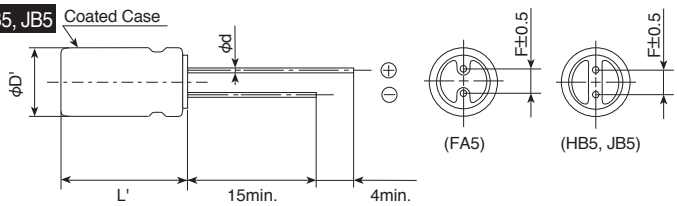
◆DIMENSIONS [mm]

- Terminal Code : E

F05, F08, H08



FA5, HB5, JB5



Size code	F05	F08	FA5	H08	HB5	JB5
φD	6.3			8.0		10.0
φd	0.45	0.6	0.5	0.6		
F	2.5			3.5		5.0
φD'	φD+0.5max.					
L'	L+1.0max.		L+0.3max.	L+1.0max.	L+1.5max.	

◆MARKING

EX) 2.5V560μF

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSF Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A P S F □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 560μF:561)
- Lead forming·Taping code
- Terminal code
- Voltage code (ex. 2.5V:2R5, 16V:160)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	Leakage current (μAmax/after 2min.)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2	1,000	6.3×8	500	5	5,900	APSF2R0E□□102MF08S
2.5	330	6.3×8	500	5	5,900	APSF2R5E□□331MF08S
	470	6.3×8	500	5	5,900	APSF2R5E□□471MF08S
	560	6.3×8	500	5	5,900	APSF2R5E□□561MF08S
	820	6.3×8	500	5	5,900	APSF2R5E□□821MF08S
	1,200	6.3×8	1,200	5	5,900	APSF2R5E□□122MF08S
	1,600	8×8	800	5	6,100	APSF2R5E□□162MH08S
4	470	6.3×8	500	5	5,900	APSF4R0E□□471MF08S
	560	6.3×8	500	5	5,900	APSF4R0E□□561MF08S
16	100	6.3×5	500	24	2,490	APSF160E□□101MF05S
	100	6.3×10.5	500	25	2,820	APSF160E□□101MFA5S
	270	8×8	864	10	5,000	APSF160E□□271MH08S
	270	8×11.5	864	11	5,080	APSF160E□□271MHB5S
	330	8×8	1,050	13	4,700	APSF160E□□331MH08S
	470	8×11.5	1,500	11	5,400	APSF160E□□471MHB5S
	470	10×11.5	1,500	10	6,100	APSF160E□□471MJB5S

□□ : Enter the appropriate lead forming or taping code.

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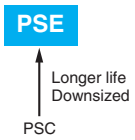
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSE Series

- ●Super low ESR, high ripple current capability
- ●Downsized from PSC series (φ8×8L to φ6.3×8L)
- ●Endurance is longer life than PSC series (5,000 hours at 105℃)
- ●ESR after endurance is specified within the initial spec
- ●Rated voltage range : 2.5 to 6.3Vdc
- **●RoHS Compliant**
- **●Halogen Free**



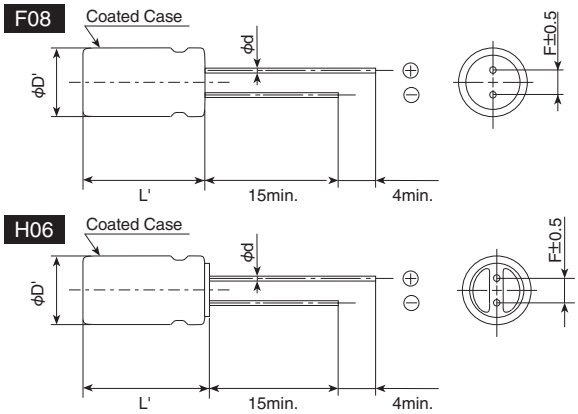
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 6.3Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦The initial specified value ESR: ≦The initial specified value Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦The initial specified value ESR: ≦The initial specified value Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦The initial specified value ESR: ≦The initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E



Size code	F08	H06
φD	6.3	8.0
φd	0.6	
F	2.5	3.5
φD'	φD+0.5max.	
L'	L+1.5max.	

◆MARKING

EX) 2.5V820μF

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSE Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A PSE □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 820μF:821)
- Lead forming·Taping code
- Terminal code
- Voltage code (ex. 2.5V:2R5, 4V:4R0, 6.3V:6R3)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩ max./20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	680	8×6	8	4,900	APSE2R5E□□681MH06S
	820	6.3×8	7	5,000	APSE2R5E□□821MF08S
4	560	6.3×8	7	5,000	APSE4R0E□□561MF08S
6.3	470	6.3×8	8	4,700	APSE6R3E□□471MF08S
	560	6.3×8	8	4,700	APSE6R3E□□561MF08S

□□ : Enter the appropriate lead forming or taping code.

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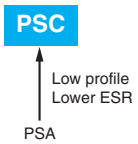
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSC Series

- ●Super low ESR, high ripple current capability
- ●Lower profile than PSA (φ8×8L to φ10×12.5L)
- ●Rated voltage range : 2.5 to 16Vdc
- ●Nominal capacitance range : 270 to 2,700μF
- ●Endurance : 2,000 hours at 105℃
- ●Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- ●Added 2.5V 820μF (ESR 5mΩ max.)
- **●RoHS Compliant**



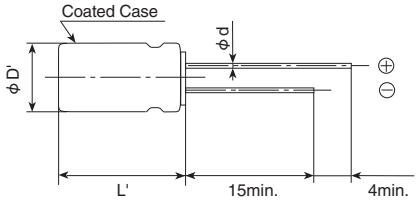
◆SPECIFICATIONS

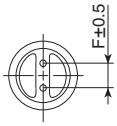
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E





Size code	H08	HB5	JB5	JC5
φD	8.0	8.0	10.0	10.0
φd	0.6	0.8(Note1)	0.8(Note1)	0.6
F	3.5	3.5	5.0	5.0
φD'	φD+0.5max.			
L'	L+1.0max.	L+1.5max.		

Note1 : 0.6 for rated volt 16V.

◆MARKING

EX) 2.5V820μF

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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSC Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A PSC □□□ E □□ □□□ M □□□ □

- Supplement code (Note2)
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 330μF:331, 1000μF:102)
- Lead forming·Taping code
- Terminal code
- Voltage code (ex. 4V:4R0,6.3V:6R3,10V:100)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

(Note2) PSC series, 2.5V820μF(ESR 5mΩ max.) has supplement code "J".
Can case, terminal and terminal plating are the same as all others in PSC series.

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩ max/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	560	8×8	7	6,100	APSC2R5E□□561MH08S
	820	8×8	5	6,100	APSC2R5E□□821MH08J
	820	8×8	7	6,100	APSC2R5E□□821MH08S
	1,000	8×8	7	6,100	APSC2R5E□□102MH08S
	1,000	8×11.5	7	6,100	APSC2R5E□□102MHB5S
	1,500	8×11.5	7	6,100	APSC2R5E□□152MHB5S
	2,700	10×11.5	8	5,560	APSC2R5E□□272MJB5S
4	560	8×8	7	6,100	APSC4R0E□□561MH08S
	680	8×11.5	7	6,100	APSC4R0E□□681MHB5S
	1,000	10×11.5	6	6,640	APSC4R0E□□102MJB5S
6.3	470	8×8	8	5,700	APSC6R3E□□471MH08S
	560	8×8	8	5,700	APSC6R3E□□561MH08S
	820	10×11.5	7	6,640	APSC6R3E□□821MJB5S
	1,500	10×11.5	10	5,560	APSC6R3E□□152MJB5S
10	390	8×11.5	9	5,650	APSC100E□□391MHB5S
	680	10×11.5	7	6,100	APSC100E□□681MJB5S
16	270	8×11.5	11	5,080	APSC160E□□271MHB5S
	330	10×11.5	10	6,100	APSC160E□□331MJB5S
	330	10×12.5	10	6,100	APSC160E□□331MJC5S
	470	10×11.5	10	6,100	APSC160E□□471MJB5S

□□ : Enter the appropriate lead forming or taping code.

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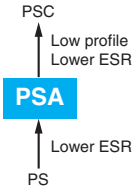
NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSA Series



- Super low ESR, high temperature resistance and high ripple current capability
- Rated voltage range : 2.5 to 16V_{dc}
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- **RoHS Compliant**

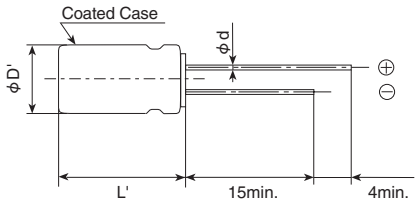
◆SPECIFICATIONS

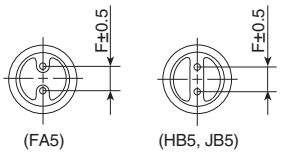
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16V_{dc}
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V_{dc}) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.08 max. (FA5 size : 0.12max.) (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor (R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

- Terminal Code : E

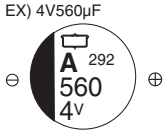




Size code	FA5	HB5	JB5
φD	6.3	8.0	10.0
φd	0.5	0.8	
F	2.5	3.5	5.0
φD'	φD+0.5max		
L'	L+0.3max	L+1.5max	

◆MARKING

EX) 4V560μF



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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PSA Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A PSA □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 270μF:271, 1 000μF:102)
- Lead forming·Taping code
- Terminal code
- Voltage code (ex. 4V:4R0, 6.3V:6R3, 10V:100)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩ max/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	390	6.3×10.5	20	3,160	APSA2R5E□□391MFA5S
	680	8×11.5	7	5,580	APSA2R5E□□681MHB5S
	820	8×11.5	7	5,580	APSA2R5E□□821MHB5S
	1,000	10×11.5	6	5,860	APSA2R5E□□102MJB5S
	1,500	10×11.5	7	5,860	APSA2R5E□□152MJB5S
4	270	6.3×10.5	20	3,160	APSA4R0E□□271MFA5S
	390	6.3×10.5	24	3,300	APSA4R0E□□391MFA5S
	560	8×11.5	7	5,580	APSA4R0E□□561MHB5S
	820	10×11.5	6	5,860	APSA4R0E□□821MJB5S
6.3	220	6.3×10.5	20	3,160	APSA6R3E□□221MFA5S
	330	6.3×10.5	28	3,190	APSA6R3E□□331MFA5S
	390	8×11.5	8	5,080	APSA6R3E□□391MHB5S
	470	8×11.5	7	5,700	APSA6R3E□□471MHB5S
	680	10×11.5	7	5,860	APSA6R3E□□681MJB5S
10	47	6.3×10.5	25	2,820	APSA100E□□470MFA5S
	68	6.3×10.5	25	2,820	APSA100E□□680MFA5S
	100	6.3×10.5	25	2,820	APSA100E□□101MFA5S
	150	6.3×10.5	25	2,820	APSA100E□□151MFA5S
	270	8×11.5	9	4,710	APSA100E□□271MHB5S
	470	10×11.5	8	5,650	APSA100E□□471MJB5S
16	100	6.3×10.5	25	2,820	APSA160E□□101MFA5S

□□ : Enter the appropriate lead forming or taping code.

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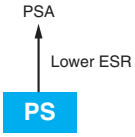
NIPPON CHEMI-CON

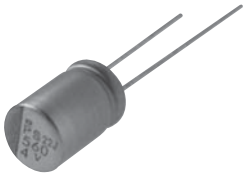
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PS Series

- Super low ESR, high temperature resistance
- Large capacitance & Improved high ripple current capability
- Rated voltage range : 2.5 to 35Vdc
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications
  For computer motherboards
- **RoHS Compliant**





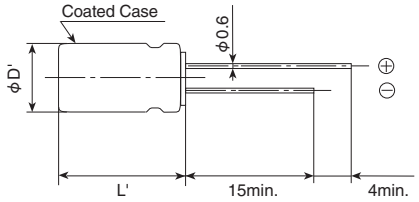
◆SPECIFICATIONS

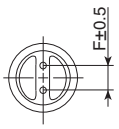
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 35Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV (Rated voltage 2.5 to 25Vdc) / I=0.5CV (Rated voltage 35Vdc) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

- Terminal Code : E

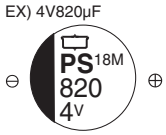




Size code	HB5	JC5
φD	8	10
φd	0.6	
F	3.5	5.0
φD'	φD+0.5max	
L'	L+1.5max.	

◆MARKING

EX) 4V820μF



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NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

NPCAP™-PS Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A P S – □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 270μF:271, 1 500μF:152)
- Lead forming·Taping code
- Terminal code
- Voltage code (ex. 4V:4R0, 6.3V:6R3, 10V:100)
- Series code
- Category

Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	680	8×11.5	10	5,230	APS-2R5E□□681MHB5S
	820	8×11.5	10	5,230	APS-2R5E□□821MHB5S
	1,500	10×12.5	8	5,500	APS-2R5E□□152MJC5S
4	560	8×11.5	10	5,230	APS-4R0E□□561MHB5S
	820	10×12.5	8	5,500	APS-4R0E□□821MJC5S
	1,000	10×12.5	8	5,500	APS-4R0E□□102MJC5S
	1,200	10×12.5	8	5,500	APS-4R0E□□122MJC5S
6.3	390	8×11.5	12	4,770	APS-6R3E□□391MHB5S
	470	8×11.5	12	4,770	APS-6R3E□□471MHB5S
	680	10×12.5	10	5,500	APS-6R3E□□681MJC5S
	820	10×12.5	10	5,500	APS-6R3E□□821MJC5S
	1,000	10×12.5	10	5,500	APS-6R3E□□102MJC5S
10	270	8×11.5	14	4,420	APS-100E□□271MHB5S
	330	8×11.5	14	4,420	APS-100E□□331MHB5S
	470	10×12.5	12	5,300	APS-100E□□471MJC5S
	560	10×12.5	12	5,300	APS-100E□□561MJC5S
16	100	8×11.5	16	4,360	APS-160E□□101MHB5S
	180	8×11.5	16	4,360	APS-160E□□181MHB5S
	270	10×12.5	14	5,050	APS-160E□□271MJC5S
	330	10×12.5	14	5,050	APS-160E□□331MJC5S
20	100	8×11.5	24	3,320	APS-200E□□101MHB5S
	150	10×12.5	20	4,320	APS-200E□□151MJC5S
25	68	8×11.5	24	3,320	APS-250E□□680MHB5S
	100	10×12.5	20	4,320	APS-250E□□101MJC5S
35	18	8×11.5	34	2,830	APS-350E□□180MHB5S
	33	10×12.5	30	3,270	APS-350E□□330MJC5S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

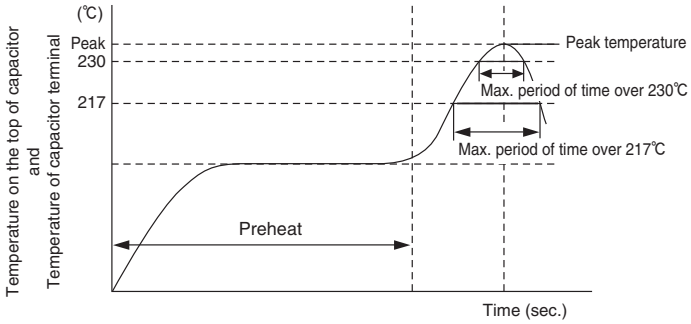
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

RECOMMENDED SOLDERING CONDITIONS FOR NPCAP™

◆SURFACE MOUNT TYPE

The following conditions are recommended for air or infrared reflow soldering PXK/PXS/PXF/PXE/PXA/PXH series onto a glass epoxy circuit board of 90×50×0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and temperature of capacitor terminal.
Reflow should be performed twice or less.
Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.

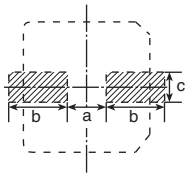
● Recommended soldering heat conditions



Voltage range (V_{dc})	Preheat	Time maintained above 217℃	Time maintained above 230℃	Peak temp.	Reflow number
2.5 to 16V	150 to 180℃ 120 sec.max.	50 sec.max.	40 sec.max.	260℃max.	1-cycle only
				250℃max.	2-cycle allowed
20 to 25V		50 sec.max. (40 sec.max.)	40 sec.max. (30 sec.max.)	250℃max. (240℃max.)	1-cycle only
		40 sec.max.	30 sec.max.		2-cycle allowed

(　　) : Applies for 20V 82μF(J80) and 25V 39μF(J80)

● Recommended Solder Land on PC Board



Solder land on PC board

[mm]

Size code	a	b	c
D55	1.0	2.6	1.6
E46,E60,E61	1.4	3.0	1.6
F46, F55 F60, F61, F80	1.9	3.5	1.6
H70, H80, HA0, HC0	3.1	4.2	2.2
J80, JA0, JC0	4.5	4.4	2.2

◆RADIAL LEAD TYPE

● Recommended soldering heat conditions

Preheat　:150℃ 120 seconds max.
Flow soldering　:260+5℃ max. 10+1 seconds max.

◆PRECAUTIONS FOR USERS

Soldering method
SMD type have no capability to withstand such dip or wave soldering as totally immersing components into a solder bath.

Reflow soldering
Reflow the capacitors within Recommended Reflow Soldering Conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult with us if other reflow conditions are employed.

1. Location of components : Temperature increases at the edge of PC board more than the center.
2. Population of PC board : The lower the component population is, the more temperature rises.
3. Material of PC board : A ceramic-made board needs more heat than a glass epoxy-made board. The heat increase may cause damage to the capacitors.
4. Thickness of PC board : A thicker board needs more heat than a thinner board. The heat may damage the capacitors.
5. Size of PC board : A larger board needs more heat than a smaller board. The heat may damage the capacitors.
6. Solder thickness
   If very thin cream solder paste is to be used for SMD types, please consult with us.
7. Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8. Case leakage current will increase (～mA) after the reflow process, the leakage current which rose gradually decreases when voltage is applied.
9. Vapor phase soldering (VPS) is not used.

Rework of soldering
Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

Mechanical stress
Do not grab the capacitors to lift the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

Cleaning assembly board
Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

Coating on assembly board
1. Before curing coating material, remove the cleaning solvents from the assembly board.
2. Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

Molding with resin
Internal chemical reaction gradually produces gas in the capacitor; increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine in resin will penetrate the end seal, reach the element, and damage of the capacitor.

Glue
The followings are requirements for glue.
1. A low curing temperature over a short period of time
2. Strong adhension and heat resistance after curing
3. Long shelf life
4. No corrosion

Others
Refer to PRECAUTIONS AND GUIDELINES(Conductive Polymer).

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Aluminum Electrolytic Capacitors

Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

For Conductive Polymer Aluminum Solid Electrolytic Capacitors, see Precautions and Guidelines (Conductive Polymer Aluminum Solid Electrolytic Capacitors)

1 Device circuits design considerations

1) Confirm installation and operating requirements for capacitors, then use them within the performance limits prescribed in this catalog or product specifications.

2) Polarity

Aluminum electrolytic capacitors are polarized.
Never apply a reverse voltage or AC voltage. Connecting with wrong polarity will short-circuit or damage the capacitor with the pressure relief vent opening early on. To identify the polarity of a capacitor, see the relevant diagram in the catalogs or product specifications, or the polarity marking on the body of the capacitor. Incidentally, the rubber end seal bungs of the radial lead type capacitors have a solder-flux gas escaping configuration, which is nothing to do with the polarity of the capacitors. For circuits where the polarity is occasionally reversed, use a bi-polar type of aluminum electrolytic capacitor. However, note that even bi-polar type capacitors must not be used for AC circuits.

3) Operating voltage

Do not apply an over-voltage that exceeds a rated voltage specified for the capacitors. The total peak value of the ripple voltage plus the DC voltage must not exceed the rated voltage of the capacitors. Although capacitors specify a surge voltage that exceeds the full rated voltage, it does not assure long-term use but limited use under specific conditions.

4) Ripple current

Do not apply an overcurrent that exceeds the rated ripple current specified for the capacitors. Excessive ripple current will increase heat production within the capacitors, causing the capacitors to be damaged as follows:
- Shorten lifetime
- Open pressure relief vent
- Short circuit

The rated ripple current is specified along with a specific ripple frequency.
Where using the capacitors at any other ripple frequency other than the specified frequency, calculate the allowable ripple current by multiplying the rated ripple current by a frequency compensation factor (Frequency Multiplier) specified for each product series.

5) Operating temperature (Category temperature)

Do not apply high temperatures that exceed the upper limit of the category temperature range specified for the capacitors.
Using the capacitor at temperatures higher than the upper limit will considerably shorten the lifetime of the capacitor and make the pressure relief vent open.
In other words, lowering ambient temperatures will extend the expected lifetime of the capacitors.

6) Lifetime

Select the capacitors to meet the service life requirements of a device.

7) Charging and discharging

Do not use capacitors in circuits intended for rapid charge and discharge cycle operations.
If capacitors are used in the circuits that repeat a charge and discharge with a large voltage drop or a rapid charge and discharge at a short interval cycle, capacitance will decrease and/or the capacitors will be damaged by internal heat generation.
Consult us for a heavy charge and discharge type of capacitor so that the capacitor will be designed in accordance with requirements of duty cycle of charge and discharge, the number of cycles, discharging resistance and operating temperatures.

8) Failure mode of capacitors

Non-solid aluminum electrolytic capacitors have a limited lifetime which ends in an open circuit failure mode, in general. Depending on the product type and operating conditions, the failure mode may involve in opening of the pressure relief vent.

9) Capacitor insulation

Electrically isolate the following sections of a capacitor from the negative terminal, the positive terminal and the circuit patterns.
- The outer can case of a non-solid aluminum capacitor.
- The dummy terminal of a snap-in type non-solid aluminum capacitor, which is designed for mounting stability.

10) Outer sleeve

The outer sleeve of a capacitor does not assure electrical insulation (except for screw-terminal type capacitors). It should not be used where electrical insulation is required.

11) Operating conditions

Do not use/expose capacitors to the following conditions:
① Direct contact with water, salt water or oil, or high condensation environment.
② Direct sunlight.
③ Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine and its compounds, bromine and its compounds and ammonium.
④ Ozone, ultraviolet rays or radiation.
⑤ Extreme vibration or mechanical shock that exceeds limits in the catalogs or product specifications.

12) Mounting

① Non-solid aluminum electrolytic capacitors contain paper separators and electric-conductive electrolyte that contains organic solvent as main solvent material, both of which are flammable. If the electrolyte leaks onto a printed circuit board, it can erode the device circuit pattern, may short-circuit the copper traces, smoke and burn. Make sure of designing a PC board as follows:
- Provide the appropriate hole spacing on the PC board to match the terminal spacing of a capacitor.
- Provide the following adequate clearance space over the pressure relief vent of a capacitor to avoid blocking the correct opening of the pressure relief vent.

Case diameter	Clearance
ϕ8(6.3) to ϕ16mm:	2mm minimum
ϕ18 to ϕ35mm:	3mm minimum
ϕ40 mm and above:	5mm minimum

- Do not locate any wire or circuit pattern over the pressure relief vent of a capacitor.
- If a capacitor is mounted with its pressure relief vent facing down on the PC board, provide a ventilation hole in the board beneath it to let gas escape when the vent opens.
- Do not print any copper trace under the seal (terminal) side of a capacitor. Copper traces should be 1 mm (preferably 2mm or more) spaced apart from the side of the capacitor body.
- Avoid locating any heat source components near capacitors or on the opposite side of the PC board under capacitors.
- In designing a double-sided PC board, do not locate any through-hole via or unnecessary hole underneath a capacitor.
- In designing a double-sided PC board, do not print any circuit pattern underneath a capacitor.

② For a screw terminal type capacitor, tightening the terminal screws and the mounting clamp should be within the maximum torque specified in the catalogs or product specifications. Do not mount a screw terminal type capacitor with the terminals facing downward. Also, if the body of a capacitor is installed horizontally such as being laid on its side, do not position the pressure relief vent downward.

③ For a chip type capacitor, design the land patterns of the PC board in accordance with the recommended footprint dimensions described in the catalogs or product specifications.

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NIPPON CHEMI-CON

Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

13) Using capacitors for significantly safety-oriented applications

Consult us about capacitors for a device application affecting human safety (①Aviation and space, ②Nuclear, ③Medical and ④Vehicle) or for any device whose failure will make an impact on society.
Note that some products such as photoflash use capacitors which have been designed for specific applications cannot be used for any other application.

14) Others

Design device circuits taking into consideration the following conditions:
① Electrical characteristics of a capacitor depend on the temperature and frequency. In designing the device circuits, consider the change in the characteristics.
② If using more than one capacitor connected in parallel, design the device circuits to balance the current flow in individual capacitors.
③ If using more than one capacitor connected in series, connect shunting resistors in parallel with the individual capacitors to balance the voltage.

2 Installation

1) Assembling

① Do not try to reuse the capacitors once assembled and electrified, except only capacitors that are taken from a device for periodic inspection to measure their electrical characteristics.
② Capacitors may have been spontaneously recharged with time by a recovery voltage phenomenon. In this case, discharge the capacitors through a resistor of approximately 1kΩ before use.
③ If non-solid aluminum electrolytic capacitors have been stored at any conditions more than 35℃ and 75%RH for long storage periods of time more than the limits specified in the catalogs or product specifications, they may have high leakage current. In this case, make pre-conditioning by applying the rated voltage through a resistor of approximately 1kΩ.
④ Confirm the rated capacitance and voltage of capacitors before installation.
⑤ Confirm the polarity of capacitors before installation.
⑥ Do not try to use the capacitors that were dropped to the floor and so forth.
⑦ Do not deform the can case of a capacitor.
⑧ Make sure that the terminal spacing of a capacitor equals the holes spacing on the PC board before installing the capacitor. For radial lead type capacitors, some standard pre-formed lead types are also available.
⑨ When installing a snap-in type capacitor on the PC board, insert the terminals into the holes and press the capacitor down until the body is settled flush on the surface of the PC board (without the body standing off).
⑩ Do not apply excessive mechanical force to capacitors more than the limits prescribed in the catalogs or product specifications. Avoid excessive mechanical force while the capacitors are in the process of vacuum-picking, placing and positioning by automatic mounting machines or cutting the lead wires by automatic insertion machines.

2) Soldering and heat resistance

① For soldering using a soldering iron, consider the following conditions:
- Soldering conditions (temperature and time) should be within the limits prescribed in the catalogs or product specifications.
- If it is necessary to pre-form the terminal spacing of a capacitor to match the hole spacing on the PC board before assembly and soldering, do not make mechanical stress reach into the body of the capacitor but only the lead wires.
- Do not touch the body of a capacitor with the hot tip of the soldering iron.

② For flow soldering, consider the following conditions:
- Do not dip the body of a capacitor into a solder bath. Expose only the terminals to the melt solder with the PC board interposing between the solder and the body of the capacitor. Solder only the reverse side of the PC board where the body of the capacitor is not located.
- Soldering conditions should be within the limits prescribed in the catalogs or product specifications.
- Do not apply flux to any part of a capacitor other than the terminals.
- Do not let any other component lean against nor come into contact with the capacitor while soldering.

③ For reflow soldering, consider the following conditions:
- Soldering conditions (preheat, reflow temperature and time) should be within the limits prescribed in the catalogs or product specifications.
- When using the infrared heater and setting its temperatures, adjust the heating levels taking into consideration that the color and materials of a capacitor vary in their infrared absorbance.
- The allowable number of reflow passes is specified in the catalogs or product specifications.
- When mounting a capacitor on the double-sided PC board, do not place any wiring pattern underneath the capacitor.
- Avoid using Vapor Phase Soldering (VPS) system reflow.

④ Do not try to reuse the capacitor that was removed from the PC board after soldering.
⑤ Only use chip type capacitors for reflow soldering. The other type capacitors are not designed for the reflow.

3) Handling after soldering

After soldering the PC board, do not apply the following mechanical stress to the capacitor:
① Do not tilt, push down or twist the body of the capacitor.
② Do not grab the body of the capacitor to carry the assembly board.
③ Do not hit anything against the capacitor. When stacking the assembled boards, do not put any of the PC boards or other components against the capacitor.
④ Do not drop the assembled board.

4) Cleaning assembly boards

① Do not clean capacitors with the following cleaning agents:
- Halogenated solvents: cause capacitor failures due to corrosion.
- Alkali system solvents: corrode (dissolve) the aluminum can case.
- Terpene and petroleum system solvents: deteriorate the rubber seal materials.
- Xylene: deteriorates the rubber seal materials as well.
- Acetone: erases the markings printed on a capacitor.

Where cleaning is necessary, use only solvent resistant type capacitors that have been assured for the cleaning within the specific cleaning conditions prescriber in the catalogs or product specifications. In particular, carefully set up the conditions for ultrasonic cleaning system.

② Where cleaning the solvent resistance type of aluminum electrolytic capacitors, confirm the following conditions:
- Control the contamination (the conductivity, pH, specific gravity, water content, etc.) of the cleaning agents.
- After the cleaning, do not leave the capacitors (assembly boards) in an environment of cleaning agent-rich or in a closed container. Sufficiently evaporate the residual cleaning agent from the assembly boards and the capacitors by forced hot air at temperatures less than the upper limit of category temperature range for more than 10 minutes.

In general, aluminum electrolytic capacitors are sensitive to contamination of halogen ions (particularly to chlorine ions). Depending on the properties of the electrolyte and rubber seal materials used in a capacitor, the halogen ions lead up to catastrophic failures on the capacitor. Where the inside of a capacitor has been contaminated with more than a certain amount of halogen ions and the capacitor is in use, the corrosion reaction of aluminum occurs. The corrosion causes the capacitor to have a significant increase in leakage current with heat produced, open the pressure relief vent and become open circuit mode failure.
Due to global environmental issues (greenhouse effects and other environmental destruction by depletion of the ozone layer), the conventional cleaning solvents of CFC 113, Trichloroethylene and 1,1,1-trichloroethylene were replaced by substitutes.
The following are some substitute cleaning agents and allowable cleaning conditions:

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Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

a) Fatty-alcohol cleaning agents
Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750H, 750K, 750L and 710M (Kao)
Technocare FRW-14, 15, 16 and 17 (Momentive Performance Materials)

[Cleaning conditions]
Either of immersion or ultrasonic cleaning, for a maximum of 10 minutes and at a maximum liquid temperature of 60℃ is acceptable. Make sure that the markings on the capacitor are not rubbed against any other component or the PC board during cleaning. Note that shower cleaning affects the markings on the capacitor.

b) HCFC (Freon 225) as Alternative CFCs
AK225AES (Asahi Glass)

[Cleaning conditions]
Solvent resistant type capacitors, which were originally developed to intend to resist Freon TE or Freon TES, are also capable of withstanding any one of immersion, ultrasonic or vapor cleaning, for a maximum of 5 minutes (or 2 minutes for KRE and KRE-BP series capacitors or 3 minutes for SRM series). However, this type of cleaning agent is not recommended to use, as the cleaning materials may be banned in near future in view of global environmental issues.

c) IPA (Isopropyl Alcohol)
Immersion cleaning with a maximum flux concentration of 2 wt% is acceptable.

5) Adhesives and coating materials

① Do not use any adhesive or coating materials containing halogenated solvents.

② Make sure of the following conditions before applying adhesive or coating materials to a capacitor,

- No flux residue nor stain is left between the rubber seal of a capacitor and PC board.
- Dry the capacitor to remove residual cleaning agents before applying adhesive and coating materials. Do not cover up the entire surface of the rubber seal of the capacitor with adhesives or coating materials.
- Heating and curing conditions for adhesives and coating materials should be followed as prescribed in the catalogs or product specifications.
- Covering up the entire surface of the rubber seal with resin mold materials will obstruct the normal diffusion of internal hydrogen gas from a capacitor and result in serious failures. Also, where the adhesive and coating materials contain a large amount of halogen ions, the halogen ions will contaminate the inside of the capacitor through the rubber seal materials, causing the capacitor to become a failure.
- Depending on solvent materials that the adhesive or coating materials contains, note that the outer sleeve of a capacitor may lose a gloss or whiten in appearance.

6) Fumigation

In exporting or importing electronic devices, they may be exposed to fumigation with halide such as methyl bromide. Where aluminum electrolytic capacitors are exposed to halide such as methyl bromide, the capacitors will be damaged with the corrosion reaction with halogen ions in the same way as cleaning agents. For the export and import, Nippon Chemi-Con considers using some packaging method and so forth so that fumigation is not required. For customers to export or import electronic devices, semi-assembly products or capacitor components, confirm if they will be exposed to fumigation and also consider final condition of packaging. (Note that either cardboard or vinyl package has a risk of fumigation gas penetration.)

3 Precautions during operation of devices

1) Never touch the terminals of a capacitor directly with bare hands.
2) Do not short-circuit between the capacitor terminals with anything conductive.
Also, do not spill any conductive liquid such as acid or alkaline solution over a capacitor.
3) Confirm environmental conditions where the device will be placed. Do not use the devise in the following environmental conditions:
① Water or oil spatters, or high condensation environment.
② Direct sunlight.
③ Ozone, ultraviolet rays or radiation.
④ Toxic gases such as hydrogen sulfide, sulfuric acid, nitrous acid, chlorine and its compounds, bromine and its compounds and ammonium.
⑤ Extreme vibration or mechanical shock that exceeds the limits in the catalogs or product specifications.

4 Maintenance inspections

1) For industrial use capacitors, make periodic inspections of the capacitors. Before the inspections, turn off the power supply of the device and discharge the electricity of the capacitors. Where checking it by a volt-ohm meter, confirm the polarity beforehand. Do not apply mechanical stress to the terminals of the capacitors during inspection.
2) Characteristics to be inspected
① Significant damage in appearance: vent opening, electrolyte leakage, etc.
② Electrical characteristics: leakage current, capacitance, tan δ and other characteristics prescribed in the catalogs or product specifications

If finding anything abnormal on the characteristics above, check the specifications of the capacitor and take appropriate actions such as replacement.

5 Capacitor venting

1) A capacitor with more than a certain case size has the pressure relief vent functioning to escape abnormal gas pressure increase.
If gas expels from a venting capacitor, disconnect the power supply of the device or unplug the power supply cord. If not disconnecting the power supply, the device circuit may be damaged due to the short circuit failure of the capacitor or short-circuited with the liquid that the gas was condensed to. It may cause secondary damages such as device burnout in the worst case scenario.
The gas that comes out of the open vent is vaporized electrolyte, not smoke.
2) The gas expelled from a venting capacitor is more than100°C. Never expose your face to the capacitor. If your eyes are exposed to the gas or you inhale it, immediately flush your eyes and/or gargle with water. If the electrolyte comes in contact with the skin, wash with soap and water.

6 Storage

1) Do not store capacitors at high temperature or high humidity. Store the capacitors indoors at temperatures of 5 to 35℃ and humidities of less than 75%RH.
In principle, aluminum electrolytic capacitors should be used within three years after production.
2) Keep capacitors packed in the original packaging material wherever possible.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

Precautions and Guidelines (Aluminum Non-Solid Electrolytic Capacitors)

3) Avoid the following storage environmental conditions:
   ① Water spattering, high temperatures, high humidity or condensation environment.
   ② Oil spattering or oil mist filled.
   ③ Salt water spattering or salt filled.
   ④ Acidic toxic gases such as hydrogen sulfide, sulfuric acid, nitrous acid, chlorine, bromine and methyl bromide filled.
   ⑤ Alkaline toxic gases such as ammonium filled.
   ⑥ Acid or alkaline solutions spattering.
   ⑦ Direct sunlight, ozone, ultraviolet rays or radiation.
   ⑧ Extreme vibration or shock loading
4) JEDEC J-STD-020 (rev. C) is not applicable.

7 Capacitor disposal

Please consult with a local organization for the proper disposal of industrial waste. For incinerating capacitors, apply a high-temperature incineration (over 800℃). Incinerating them at temperatures lower than that may produce toxic gases such as chlorine. To prevent capacitors from explosion, punch holes in or sufficiently crush the can cases of the capacitors, then incinerate.

8 Catalogs

Specifications in the catalogs are subject to change without notice. Test data shown in the catalogs are not assured as the whole performance values, but typical values.
For more details, refer to JEITA/EIAJ RCR-2367C (March 2006) with the title of “Safety Application Guide for fixed aluminum electrolytic capacitors for use in electronic equipment”.

9 Regarding compliance for EU REACH Regulation

1) According to the content of REACH handbook (Guidance on requirements for substances in articles which is published on May 2008), our electronic components are "articles without any intended release". Therefore they are not applicable for "Registration" for EU REACH Regulation Article 7 (1).
   Reference: Electrolytic Condenser Investigation Society
   "Study of REACH Regulation in EU about Electrolytic Capacitor" (publicized on 13 March 2008)
2) Nippon Chemi-Con develops the products without substance of very high concern(SVHC).DEHP(CASNo.117-81-7) was contained as some covering material, Nippon Chemi-Con abolished use of DEHP totally at June, 2011.

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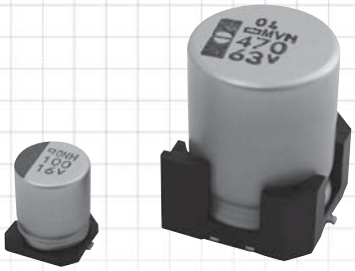
Surface Mount Aluminum Electrolytic Capacitors



PART NUMBERING SYSTEM

Product code guide (Surface mount type)

(Example : MVA series, 25V-47μF, φ6.3×5.2L)

Please refer to the following table

Contents	Code
Polar	E
Bi-polar	B

Series	Code
MVA	MVA
MV(Bi-polar)	MV-

Type	Code
No dummy terminal	A
With dummy terminal	G

Tol.(%)	Code
±20	M

Terminal plating material	Code
Sn-Bi	G
Sn	S

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
E	MVA	250	A	DA	470	M	F55	G
Category	Series code	Voltage code	Terminal code	Taping・Tray code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
4	4R0
6.3	6R3
10	100
25	250
100	101
250	251
⋮	⋮

Taping type		Reel dia. φ(mm)	Application size φD(mm)	Code
Taping	Reel (Cardboard)	380	φD=4～18 (not φD=12.5)	DA
		330	φD=4～18	DB
	Reel (Plastic)	380	φD=4～10	PA
	Reel for reuse	380	φD=4～12.5	RA
Tray		-	φD=12.5～18	TR

Refer to product guide for taping and tray specifications.

Cap.(μF)	Code
1.0	1R0
4.7	4R7
10	100
47	470
100	101
470	471
1,000	102
⋮	⋮

φD(mm)	Code
4	D
5	E
6.3	F
8	H
10	J
12.5	K
16	L
18	M

L(mm)	Code
5.2	55
5.7	60
5.8	61
6.3	63
7.0	73
7.7	80
8.7	90
10	A0
13.5	E0
16	G5
16.5	H0
21.5	N0

*Refer to the appendix (Part number) for codes not listed here.

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

Alchip™-MVA Series

- ●φ4 through φ18 case sizes are fully lined up
- ●Endurance : 2,000 hours at 85℃
- ●Suitable to fit for downsized equipment
- ●Solvent resistant type except 100 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

MVA → MVE (105℃)

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃
Rated Voltage Range	4 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)

Leakage Current

Rated voltage (Vdc)	4 to 100V	160 to 450V
D55 to JA0	I=0.01CV or 3μA, whichever is greater.(after 2 minutes)	—
KE0 to MN0	I=0.03CV or 4μA, whichever is greater.(after 1 minute)	I=0.04CV+100μA max.(after 1 minute)

Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃)

Dissipation Factor (tanδ)

Rated voltage (Vdc)		4V	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400 & 450V
tanδ (Max.)	D55 to JA0	0.42	0.35	0.30	0.26	0.16	0.14	0.12	0.12	0.12	—	—
	KE0 to MN0	—	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.10	0.20	0.25

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		4V	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400 & 450V
D55 to JA0	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2	2	3	—	—
	Z(−40℃)/Z(+20℃)	17	10	8	6	4	3	3	3	4	—	—
KE0 to MN0	Z(−25℃)/Z(+20℃)	—	5	4	3	2	2	2	2	2	3	6
	Z(−40℃)/Z(+20℃)	—	12	10	8	5	4	3	3	3	6	10

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.

Size code	D55 to JA0	D55 to JA0	KE0 to MN0
Rated voltage (Vdc)	4V & 6.3V	10 to 100V	6.3 to 450V
Capacitance change	≦±30% of the initial value	≦±20% of the initial value	
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value	
Leakage current	≦The initial specified value	≦The initial specified value	

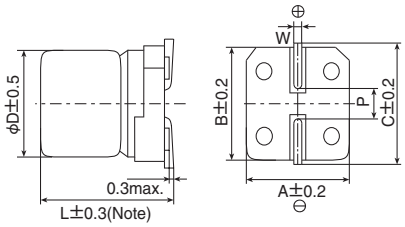
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Size code	D55 to JA0	D55 to JA0	KE0 to MN0
Rated voltage	4V & 6.3V	10 to 100V	6.3 to 450V
Capacitance change	≦±30% of the initial value	≦±20% of the initial value	
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value	
Leakage current	≦The initial specified value	≦The initial specified value	

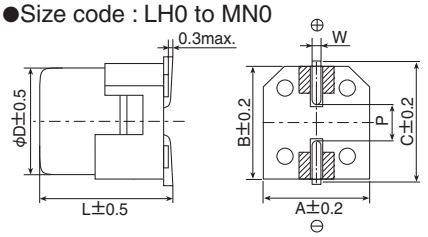
◆DIMENSIONS [mm]

●Terminal Code : A
●Size code : D55 to MN0



Note : L±0.5 for HA0 to MN0

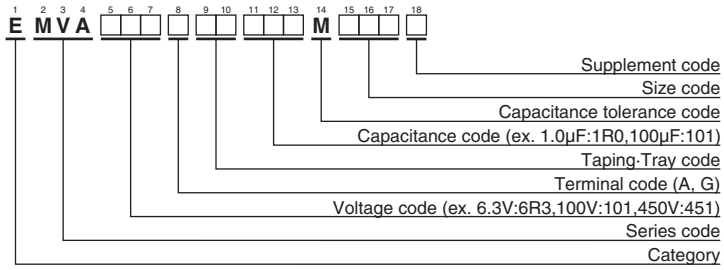
●Terminal Code : G
●Size code : LH0 to MN0



▨ : Dummy terminals

Size code	D	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

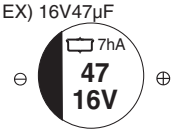
◆PART NUMBERING SYSTEM



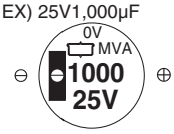
Please refer to "Product code guide (surface mount type)"

◆MARKING

D55 to JA0
EX) 16V47μF



KE0 to HN0
EX) 25V1,000μF



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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

Alchip™-MVA Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	33	D55	0.42	25	EMVA4R0ADA330MD55G
	47	D55	0.42	30	EMVA4R0ADA470MD55G
	100	E55	0.42	50	EMVA4R0ADA101ME55G
	220	F55	0.42	80	EMVA4R0ADA221MF55G
	330	F80	0.42	135	EMVA4R0ADA331MF80G
	470	F80	0.42	150	EMVA4R0ADA471MF80G
	1,000	HA0	0.42	320	EMVA4R0ADA102MHA0G
6.3	33	D55	0.35	30	EMVA6R3ADA330MD55G
	47	D55	0.35	33	EMVA6R3ADA470MD55G
	100	E55	0.35	55	EMVA6R3ADA101ME55G
	220	F55	0.35	88	EMVA6R3ADA221MF55G
	330	F80	0.35	135	EMVA6R3ADA331MF80G
	470	HA0	0.35	280	EMVA6R3ADA471MHA0G
	680	HA0	0.35	290	EMVA6R3ADA681MHA0G
	820	HA0	0.35	320	EMVA6R3ADA821MHA0G
	1,000	JA0	0.35	430	EMVA6R3ADA102MJA0G
	1,500	JA0	0.35	480	EMVA6R3ADA152MJA0G
	2,200	KE0	0.40	890	EMVA6R3ARA222MKE0S
	3,300	KG5	0.42	1,000	EMVA6R3ARA332MKG5S
	3,300	LH0	0.42	1,200	EMVA6R3□DA332MLH0S
	4,700	LH0	0.44	1,400	EMVA6R3□DA472MLH0S
	6,800	LN0	0.48	1,750	EMVA6R3□DA682MLN0S
	6,800	MH0	0.48	1,700	EMVA6R3□DA682MMH0S
	10,000	MN0	0.56	2,000	EMVA6R3□DA103MMN0S
10	22	D55	0.30	26	EMVA100ADA220MD55G
	33	D55	0.30	30	EMVA100ADA330MD55G
	47	E55	0.30	44	EMVA100ADA470ME55G
	100	F55	0.30	70	EMVA100ADA101MF55G
	150	F55	0.30	79	EMVA100ADA151MF55G
	220	F80	0.30	130	EMVA100ADA221MF80G
	330	HA0	0.30	270	EMVA100ADA331MHA0G
	470	HA0	0.30	280	EMVA100ADA471MHA0G
	1,000	JA0	0.30	430	EMVA100ADA102MJA0G
	2,200	KE0	0.36	960	EMVA100ARA222MKE0S
	3,300	LH0	0.38	1,300	EMVA100□DA332MLH0S
	4,700	LN0	0.40	1,550	EMVA100□DA472MLN0S
	4,700	MH0	0.40	1,600	EMVA100□DA472MMH0S
	6,800	MN0	0.44	1,850	EMVA100□DA682MMN0S
16	22	D55	0.26	26	EMVA160ADA220MD55G
	33	E55	0.26	37	EMVA160ADA330ME55G
	47	E55	0.26	44	EMVA160ADA470ME55G
	100	F55	0.26	70	EMVA160ADA101MF55G
	150	F80	0.26	110	EMVA160ADA151MF80G
	220	F80	0.26	130	EMVA160ADA221MF80G
	330	HA0	0.26	270	EMVA160ADA331MHA0G
	470	HA0	0.26	280	EMVA160ADA471MHA0G
	680	JA0	0.26	380	EMVA160ADA681MJA0G
	1,000	KE0	0.30	710	EMVA160ARA102MKE0S
	2,200	LH0	0.32	1,150	EMVA160□DA222MLH0S
	3,300	LN0	0.34	1,450	EMVA160□DA332MLN0S
	3,300	MH0	0.34	1,450	EMVA160□DA332MMH0S
	4,700	MN0	0.36	1,750	EMVA160□DA472MMN0S
25	10	D55	0.16	24	EMVA250ADA100MD55G
	22	E55	0.16	41	EMVA250ADA220ME55G
	33	E55	0.16	47	EMVA250ADA330ME55G
	47	F55	0.16	60	EMVA250ADA470MF55G
	56	F55	0.16	66	EMVA250ADA560MF55G
	100	F80	0.16	120	EMVA250ADA101MF80G
	150	HA0	0.16	210	EMVA250ADA151MHA0G
	220	HA0	0.16	260	EMVA250ADA221MHA0G
	330	HA0	0.16	300	EMVA250ADA331MHA0G
	470	JA0	0.16	400	EMVA250ADA471MJA0G
	1,000	KE0	0.26	820	EMVA250ARA102MKE0S
	2,200	LN0	0.28	1,450	EMVA250□DA222MLN0S
	2,200	MH0	0.28	1,400	EMVA250□DA222MMH0S
	3,300	MN0	0.30	1,800	EMVA250□DA332MMN0S
35	4.7	D55	0.14	18	EMVA350ADA4R7MD55G
	10	D55	0.14	24	EMVA350ADA100MD55G
	22	E55	0.14	41	EMVA350ADA220ME55G
35	33	F55	0.14	54	EMVA350ADA330MF55G
	100	F80	0.14	120	EMVA350ADA101MF80G
	150	HA0	0.14	210	EMVA350ADA151MHA0G
	220	HA0	0.14	260	EMVA350ADA221MHA0G
	330	JA0	0.14	360	EMVA350ADA331MJA0G
	470	KE0	0.22	600	EMVA350ARA471MKE0S
	1,000	LH0	0.22	1,100	EMVA350□DA102MLH0S
	2,200	MN0	0.24	1,700	EMVA350□DA222MMN0S
50	3.3	D55	0.12	15	EMVA500ADA3R3MD55G
	4.7	D55	0.12	18	EMVA500ADA4R7MD55G
	10	E55	0.12	30	EMVA500ADA100ME55G
	22	F55	0.12	47	EMVA500ADA220MF55G
	33	F80	0.12	70	EMVA500ADA330MF80G
	47	F80	0.12	85	EMVA500ADA470MF80G
	100	HA0	0.12	190	EMVA500ADA101MHA0G
	220	JA0	0.12	320	EMVA500ADA221MJA0G
	330	KE0	0.18	600	EMVA500ARA331MKE0S
	470	KG5	0.18	740	EMVA500ARA471MKG5S
	470	LH0	0.18	850	EMVA500□DA471MLH0S
	1,000	LN0	0.18	1,300	EMVA500□DA102MLN0S
	1,000	MN0	0.18	1,400	EMVA500□DA102MMN0S
63	1.0	D55	0.12	8.0	EMVA630ADA1R0MD55G
	2.2	D55	0.12	12	EMVA630ADA2R2MD55G
	3.3	E55	0.12	17	EMVA630ADA3R3ME55G
	4.7	E55	0.12	20	EMVA630ADA4R7ME55G
	10	F55	0.12	32	EMVA630ADA100MF55G
	22	F80	0.12	60	EMVA630ADA220MF80G
	33	HA0	0.12	110	EMVA630ADA330MHA0G
	47	HA0	0.12	130	EMVA630ADA470MHA0G
	56	JA0	0.12	160	EMVA630ADA560MJA0G
	68	JA0	0.12	170	EMVA630ADA680MJA0G
	100	KE0	0.14	380	EMVA630ARA101MKE0S
	220	KE0	0.14	580	EMVA630ARA221MKE0S
	330	KG5	0.14	720	EMVA630ARA331MKG5S
	330	LH0	0.14	820	EMVA630□DA331MLH0S
	470	LH0	0.14	950	EMVA630□DA471MLH0S
	470	MH0	0.14	1,000	EMVA630□DA471MMH0S
100	22	HA0	0.12	90	EMVA101ADA220MHA0G
	33	JA0	0.12	120	EMVA101ADA330MJA0G
	68	KE0	0.10	380	EMVA101ARA680MKE0S
	100	KE0	0.10	440	EMVA101ARA101MKE0S
	220	LN0	0.10	850	EMVA101□DA221MLN0S
	220	MH0	0.10	800	EMVA101□DA221MMH0S
	330	MN0	0.10	1,000	EMVA101□DA331MMN0S
160	47	KG5	0.20	370	EMVA161ARA470MKG5S
	68	LH0	0.20	500	EMVA161□DA680MLH0S
	100	LN0	0.20	590	EMVA161□DA101MLN0S
	100	MH0	0.20	590	EMVA161□DA101MMH0S
200	22	KE0	0.20	240	EMVA201ARA220MKE0S
	33	KG5	0.20	310	EMVA201ARA330MKG5S
	47	LH0	0.20	420	EMVA201□DA470MLH0S
	68	LN0	0.20	510	EMVA201□DA680MLN0S
	68	MH0	0.20	510	EMVA201□DA680MMH0S
	100	MN0	0.20	590	EMVA201□DA101MMN0S
250	10	KE0	0.20	150	EMVA251ARA100MKE0S
	22	KG5	0.20	240	EMVA251ARA220MKG5S
	33	LH0	0.20	340	EMVA251□DA330MLH0S
	47	LN0	0.20	420	EMVA251□DA470MLN0S
	47	MH0	0.20	420	EMVA251□DA470MMH0S
	68	MN0	0.20	490	EMVA251□DA680MMN0S
400	4.7	KE0	0.25	120	EMVA401ARA4R7MKE0S
	10	LH0	0.25	140	EMVA401□DA100MLH0S
	22	LN0	0.25	280	EMVA401□DA220MLN0S
	22	MH0	0.25	280	EMVA401□DA220MMH0S
	33	MN0	0.25	350	EMVA401□DA330MMN0S
450	4.7	KE0	0.25	120	EMVA451ARA4R7MKE0S
	10	LH0	0.25	140	EMVA451□DA100MLH0S
	22	LN0	0.25	280	EMVA451□DA220MLN0S
	33	MN0	0.25	350	EMVA451□DA330MMN0S

□ : Enter the appropriate terminal code.

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

Alchip™-MVE Series

MVE → Longer life → MVL, MVJ

- ●Rated voltage range : 6.3 to 450V, capacitance range : 1.0 to 6,800μF
- ●Endurance : 1,000 to 2,000 hours at 105℃
- ●Case size range :φ4×5.2L to φ18×21.5L
- ●Solvent resistant type except 100 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-40 to +105℃
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20%(M) (20℃, 120Hz)

Leakage Current

Rated voltage(Vdc)	6.3 to 100V	160 to 450V
D55 to JA0	I=0.01CV or 3μA, whichever is greater (2 minutes)	—
KE0 to MN0	I=0.03CV or 4μA, whichever is greater (1 minute)	I=0.04CV+100μA (1minute)

Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (20℃)

Dissipation Factor (tanδ): See STANDARD RATINGS (20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400 to 450V
D55 to JA0	Z(-25℃)/Z(+20℃)	4	3	2	2	2	2	2	3	—	—
	Z(-40℃)/Z(+20℃)	12	8	6	4	3	3	3	4	—	—
KE0 to MN0	Z(-25℃)/Z(+20℃)	5	4	3	2	2	2	2	2	3	6
	Z(-40℃)/Z(+20℃)	10	8	6	4	3	3	3	3	6	10

(120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified period of time at 105℃.

Size code	D55 to F80	HA0 to MN0
Time	1,000 hours	2,000 hours
Capacitance change	≦±30% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value

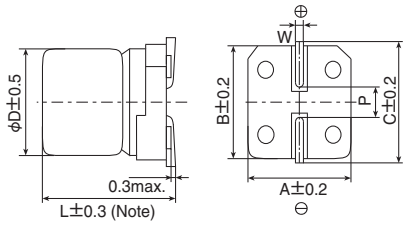
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for B55 to F80 size) at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Size code	D55 to F80	HA0 to MN0
Capacitance change	≦±25% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value

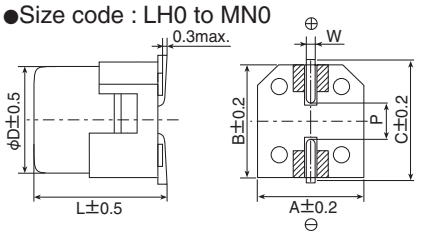
◆DIMENSIONS [mm]

●Terminal Code : A
●Size code : D55 to MN0



Note : L±0.5 for HA0 to MN0

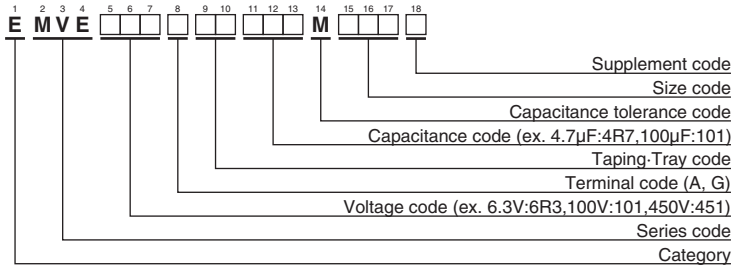
●Terminal Code : G
●Size code : LH0 to MN0



▨ : Dummy terminals

Size code	D	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

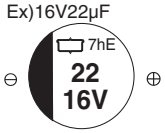
◆PART NUMBERING SYSTEM



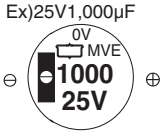
Please refer to "Product code guide (surface mount type)"

◆MARKING

D55 to JA0
Ex)16V22μF



KE0 to MN0
Ex)25V1,000μF



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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

Alchip™-MVE Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	22	D55	0.30	22	EMVE6R3ADA220MD55G
	33	E55	0.30	34	EMVE6R3ADA330ME55G
	47	E55	0.30	38	EMVE6R3ADA470ME55G
	100	F55	0.30	69	EMVE6R3ADA101MF55G
	220	F80	0.45	120	EMVE6R3ADA221MF80G
	330	HA0	0.40	290	EMVE6R3ADA331MHA0G
	470	HA0	0.45	320	EMVE6R3ADA471MHA0G
	680	HA0	0.45	340	EMVE6R3ADA681MHA0G
	1,000	JA0	0.40	410	EMVE6R3ADA102MJA0G
	1,500	JA0	0.45	550	EMVE6R3ADA152MJA0G
	2,200	KE0	0.40	680	EMVE6R3ARA222MKE0S
	2,200	LH0	0.40	840	EMVE6R3□DA222MLH0S
	3,300	KG5	0.42	850	EMVE6R3ARA332MKG5S
	3,300	MH0	0.42	1,000	EMVE6R3□DA332MMH0S
	4,700	LN0	0.44	1,200	EMVE6R3□DA472MLN0S
	4,700	MH0	0.44	1,200	EMVE6R3□DA472MMH0S
	6,800	LN0	0.48	1,200	EMVE6R3□DA682MLN0S
	6,800	MN0	0.48	1,350	EMVE6R3□DA682MMN0S
10	22	E55	0.24	30	EMVE100ADA220ME55G
	33	E55	0.24	34	EMVE100ADA330ME55G
	47	F55	0.24	48	EMVE100ADA470MF55G
	100	F55	0.30	69	EMVE100ADA101MF55G
	150	F80	0.35	100	EMVE100ADA151MF80G
	220	F80	0.35	120	EMVE100ADA221MF80G
	330	HA0	0.35	290	EMVE100ADA331MHA0G
	470	HA0	0.35	320	EMVE100ADA471MHA0G
	1,000	JA0	0.35	410	EMVE100ADA102MJA0G
	2,200	KG5	0.36	750	EMVE100ARA222MKG5S
	2,200	LH0	0.36	850	EMVE100□DA222MLH0S
	3,300	LH0	0.38	1,000	EMVE100□DA332MLH0S
	3,300	MH0	0.38	1,100	EMVE100□DA332MMH0S
	4,700	LN0	0.40	1,300	EMVE100□DA472MLN0S
	4,700	MN0	0.40	1,350	EMVE100□DA472MMN0S
16	10	D55	0.20	17	EMVE160ADA100MD55G
	22	E55	0.20	30	EMVE160ADA220ME55G
	33	F55	0.20	45	EMVE160ADA330MF55G
	47	F55	0.20	48	EMVE160ADA470MF55G
	100	F55	0.26	69	EMVE160ADA101MF55G
	150	F80	0.28	100	EMVE160ADA151MF80G
	220	F80	0.28	120	EMVE160ADA221MF80G
	330	HA0	0.28	290	EMVE160ADA331MHA0G
	470	HA0	0.28	320	EMVE160ADA471MHA0G
	680	JA0	0.28	470	EMVE160ADA681MJA0G
	1,000	KE0	0.30	550	EMVE160ARA102MKE0S
	1,000	LH0	0.30	650	EMVE160□DA102MLH0S
	2,200	LH0	0.32	950	EMVE160□DA222MLH0S
	2,200	MH0	0.32	1,000	EMVE160□DA222MMH0S
	3,300	LN0	0.34	1,200	EMVE160□DA332MLN0S
	3,300	MH0	0.34	1,200	EMVE160□DA332MMH0S
25	10	E55	0.16	27	EMVE250ADA100ME55G
	22	F55	0.16	44	EMVE250ADA220MF55G
	33	F55	0.16	50	EMVE250ADA330MF55G
	47	F55	0.16	60	EMVE250ADA470MF55G
	100	F80	0.18	100	EMVE250ADA101MF80G
	150	HA0	0.18	240	EMVE250ADA151MHA0G
	220	HA0	0.18	320	EMVE250ADA221MHA0G
	330	JA0	0.16	450	EMVE250ADA331MJA0G
	470	JA0	0.18	490	EMVE250ADA471MJA0G
	1,000	LH0	0.26	820	EMVE250□DA102MLH0S
	1,000	MH0	0.26	880	EMVE250□DA102MMH0S
	2,200	LN0	0.28	1,250	EMVE250□DA222MLN0S
	2,200	MN0	0.28	1,300	EMVE250□DA222MMN0S
35	4.7	D55	0.14	16	EMVE350ADA4R7MD55G
	10	E55	0.14	27	EMVE350ADA100ME55G
	22	F55	0.14	44	EMVE350ADA220MF55G
	47	F80	0.16	80	EMVE350ADA470MF80G
	100	F80	0.16	100	EMVE350ADA101MF80G
	150	HA0	0.16	260	EMVE350ADA151MHA0G
	220	JA0	0.16	375	EMVE350ADA221MJA0G
35	330	JA0	0.16	450	EMVE350ADA331MJA0G
	470	KE0	0.22	520	EMVE350ARA471MKE0S
	470	LH0	0.22	650	EMVE350□DA471MLH0S
	1,000	LH0	0.22	750	EMVE350□DA102MLH0S
	1,000	MH0	0.22	1,000	EMVE350□DA102MMH0S
	2,200	MN0	0.24	1,450	EMVE350□DA222MMN0S
50	1.0	D55	0.12	8.0	EMVE500ADA1R0MD55G
	2.2	D55	0.12	12	EMVE500ADA2R2MD55G
	3.3	D55	0.12	15	EMVE500ADA3R3MD55G
	4.7	E55	0.12	20	EMVE500ADA4R7ME55G
	10	F55	0.12	32	EMVE500ADA100MF55G
	33	F80	0.14	65	EMVE500ADA330MF80G
	47	F80	0.14	80	EMVE500ADA470MF80G
	100	HA0	0.14	230	EMVE500ADA101MHA0G
	220	JA0	0.14	375	EMVE500ADA221MJA0G
	330	KE0	0.18	500	EMVE500ARA331MKE0S
	330	LH0	0.18	600	EMVE500□DA331MLH0S
	470	LH0	0.18	700	EMVE500□DA471MLH0S
	470	MH0	0.18	750	EMVE500□DA471MMH0S
	1,000	MN0	0.18	1,200	EMVE500□DA102MMN0S
63	1.0	D55	0.12	8.0	EMVE630ADA1R0MD55G
	2.2	D55	0.12	12	EMVE630ADA2R2MD55G
	3.3	E55	0.12	17	EMVE630ADA3R3ME55G
	4.7	F55	0.12	22	EMVE630ADA4R7MF55G
	10	F55	0.12	32	EMVE630ADA100MF55G
	22	F80	0.12	58	EMVE630ADA220MF80G
	33	HA0	0.12	140	EMVE630ADA330MHA0G
	47	HA0	0.12	170	EMVE630ADA470MHA0G
	100	JA0	0.12	310	EMVE630ADA101MJA0G
	220	KE0	0.14	470	EMVE630ARA221MKE0S
	220	LH0	0.14	560	EMVE630□DA221MLH0S
	330	LH0	0.14	700	EMVE630□DA331MLH0S
	330	MH0	0.14	750	EMVE630□DA331MMH0S
	470	LN0	0.14	900	EMVE630□DA471MLN0S
	470	MH0	0.14	900	EMVE630□DA471MMH0S
100	22	HA0	0.12	100	EMVE101ADA220MHA0G
	33	JA0	0.12	150	EMVE101ADA330MJA0G
	47	KE0	0.10	250	EMVE101ARA470MKE0S
	68	KE0	0.10	300	EMVE101ARA680MKE0S
	100	KE0	0.10	380	EMVE101ARA101MKE0S
	100	LH0	0.10	450	EMVE101□DA101MLH0S
	220	LN0	0.10	750	EMVE101□DA221MLN0S
	220	MH0	0.10	750	EMVE101□DA221MMH0S
	330	MN0	0.10	980	EMVE101□DA331MMN0S
160	33	KE0	0.15	95	EMVE161ARA330MKE0S
	47	LH0	0.15	260	EMVE161□DA470MLH0S
	68	LN0	0.15	320	EMVE161□DA680MLN0S
	68	MH0	0.15	320	EMVE161□DA680MMH0S
	100	LN0	0.15	380	EMVE161□DA101MLN0S
200	10	KE0	0.15	80	EMVE201ARA100MKE0S
	22	KG5	0.15	110	EMVE201ARA220MKG5S
	33	LH0	0.15	220	EMVE201□DA330MLH0S
	47	LN0	0.15	270	EMVE201□DA470MLN0S
	47	MH0	0.15	270	EMVE201□DA470MMH0S
	68	MN0	0.15	330	EMVE201□DA680MMN0S
250	4.7	KE0	0.15	65	EMVE251ARA4R7MKE0S
	10	KG5	0.15	105	EMVE251ARA100MKG5S
	22	LH0	0.15	180	EMVE251□DA220MLH0S
	33	LN0	0.15	230	EMVE251□DA330MLN0S
	33	MH0	0.15	230	EMVE251□DA330MMH0S
	47	MN0	0.15	280	EMVE251□DA470MMN0S
400	4.7	KG5	0.20	50	EMVE401ARA4R7MKG5S
	10	LH0	0.20	85	EMVE401□DA100MLH0S
	22	MN0	0.20	130	EMVE401□DA220MMN0S
450	3.3	KE0	0.20	40	EMVE451ARA3R3MKE0S
	4.7	KG5	0.20	50	EMVE451ARA4R7MKG5S
	10	LH0	0.20	85	EMVE451□DA100MLH0S
	22	MN0	0.20	130	EMVE451□DA220MMN0S

□ : Enter the appropriate terminal code.

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower ESR, 105℃

Alchip™-MZJ Series

- Lower ESR, 2,000 hours at 105℃
- Rated voltage range : 6.3 to 35V
- Nominal capacitance range : 10 to 1,800μF
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

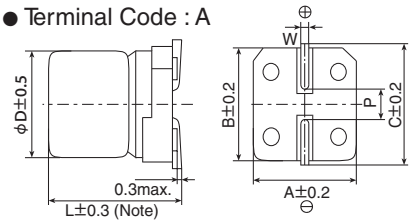
MZJ
↑ Lower ESR
MZA

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	6.3 to 35Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V tanδ(Max.): 0.26, 0.19, 0.16, 0.14, 0.12 (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V Z(−25℃)/Z(+20℃): 2, 2, 2, 2, 2 Z(−40℃)/Z(+20℃): 3, 3, 3, 3, 3 Z(−55℃)/Z(+20℃): 4, 4, 4, 3, 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charging with the specified surge voltage for 30±5 seconds through a protective resistor (as required for RC=0.1±0.05sec) and open-circuiting for 5.5 minutes at a room temperature of 15 to 35℃. Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V Surge voltage (Vdc): 7.2V, 12V, 18V, 29V, 40V Appearance: No significant damage Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value (Caution) Surge Voltage Test intends to evaluate capacitors in durability of an exceptional excessive voltage under specific conditions.It does not imply long-term use at all.

◆DIMENSIONS [mm]

● Terminal Code : A

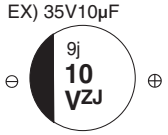


Note : L±0.5 for HA0 and JA0

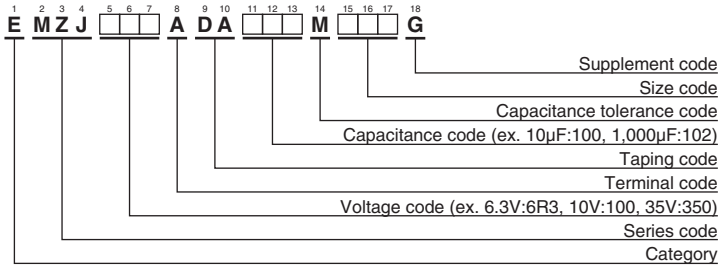
Size code	D	L	A	B	C	W	P
D61	4	5.8	4.3	4.3	5.1	0.5 to 0.8	1.0
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 35V10μF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

● Rated voltage symbol

Rated voltage (Vdc)	Symbol
6.3	j
10	A
16	C
25	E
35	V

Applying voltage over the rated voltages causes the capacitors to have short lifetime.
Besides, applying voltage over the specified surge voltages may cause to have short circuit failure. A protection circuit should be used if applied voltage will exceed the rated voltages.

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower ESR, 105℃

Alchip™-MZJ Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	tanδ	ESR (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	47	D61	0.26	0.85	160	EMZJ6R3ADA470MD61G
	100	E61	0.26	0.36	240	EMZJ6R3ADA101ME61G
	220	F61	0.26	0.26	300	EMZJ6R3ADA221MF61G
	330	F80	0.26	0.16	600	EMZJ6R3ADA331MF80G
	1,000	HA0	0.26	0.08	850	EMZJ6R3ADA102MHA0G
	1,500	JA0	0.26	0.06	1,190	EMZJ6R3ADA152MJA0G
	1,800	JA0	0.26	0.06	1,190	EMZJ6R3ADA182MJA0G
10	33	D61	0.19	0.85	160	EMZJ100ADA330MD61G
	150	F61	0.19	0.26	300	EMZJ100ADA151MF61G
	680	HA0	0.19	0.08	850	EMZJ100ADA681MHA0G
	1,000	JA0	0.19	0.06	1,190	EMZJ100ADA102MJA0G
	1,200	JA0	0.19	0.06	1,190	EMZJ100ADA122MJA0G
16	22	D61	0.16	0.85	160	EMZJ160ADA220MD61G
	47	E61	0.16	0.36	240	EMZJ160ADA470ME61G
	100	F61	0.16	0.26	300	EMZJ160ADA101MF61G
	150	F80	0.16	0.16	600	EMZJ160ADA151MF80G
	220	F80	0.16	0.16	600	EMZJ160ADA221MF80G
	470	HA0	0.16	0.08	850	EMZJ160ADA471MHA0G
	680	JA0	0.16	0.06	1,190	EMZJ160ADA681MJA0G
	820	JA0	0.16	0.06	1,190	EMZJ160ADA821MJA0G
25	10	D61	0.14	0.85	160	EMZJ250ADA100MD61G
	22	E61	0.14	0.36	240	EMZJ250ADA220ME61G
	33	E61	0.14	0.36	240	EMZJ250ADA330ME61G
	33	F61	0.14	0.26	300	EMZJ250ADA330MF61G
	47	F61	0.14	0.26	300	EMZJ250ADA470MF61G
	68	F61	0.14	0.26	300	EMZJ250ADA680MF61G
	100	F80	0.14	0.16	600	EMZJ250ADA101MF80G
	330	HA0	0.14	0.08	850	EMZJ250ADA331MHA0G
	470	JA0	0.14	0.06	1,190	EMZJ250ADA471MJA0G
	560	JA0	0.14	0.06	1,190	EMZJ250ADA561MJA0G
35	10	D61	0.12	0.85	160	EMZJ350ADA100MD61G
	22	E61	0.12	0.36	240	EMZJ350ADA220ME61G
	33	F61	0.12	0.26	300	EMZJ350ADA330MF61G
	47	F61	0.12	0.26	300	EMZJ350ADA470MF61G
	68	F61	0.12	0.26	300	EMZJ350ADA680MF61G
	100	F80	0.12	0.16	600	EMZJ350ADA101MF80G
	100	HA0	0.12	0.08	850	EMZJ350ADA101MHA0G
	150	HA0	0.12	0.08	850	EMZJ350ADA151MHA0G
	220	HA0	0.12	0.08	850	EMZJ350ADA221MHA0G
	330	JA0	0.12	0.06	1,190	EMZJ350ADA331MJA0G
	390	JA0	0.12	0.06	1,190	EMZJ350ADA391MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower impedance, 105℃

Alchip™-MZA Series

- Lowest impedance, 2,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

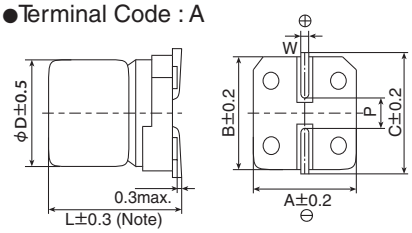
MZA
↑ Lower Z
MVY

◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	-55 to +105℃									
Rated Voltage Range	6.3 to 80Vdc									
Capacitance Tolerance	±20%(M)									(20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	
	tanδ(Max.)	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	(20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	
	Z(-25℃)/Z(+20℃)	2	2	2	2	2	2	2	2	
	Z(-40℃)/Z(+20℃)	3	3	3	3	3	3	3	3	
	Z(-55℃)/Z(+20℃)	4	4	4	3	3	3	3	3	(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.									
	Capacitance change	≦±30% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

- Terminal Code : A

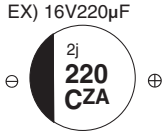


Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
D61	4	5.8	4.3	4.3	5.1	0.5 to 0.8	1.0
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 16V220μF



- Rated voltage symbol

Rated voltage (Vdc)	Symbol
6.3	j
10	A
16	C
25	E
35	V
50	H
63	J
80	K

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E M Z A □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 4.7μF:4R7,10μF:100)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,50V:500)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower impedance, 105℃

Alchip™-MZA Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	tanδ	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	22	D61	0.26	1.35	90	EMZA6R3ADA220MD61G
	47	D61	0.26	1.35	90	EMZA6R3ADA470MD61G
	47	E61	0.26	0.70	160	EMZA6R3ADA470ME61G
	100	E61	0.26	0.70	160	EMZA6R3ADA101ME61G
	100	F61	0.26	0.36	240	EMZA6R3ADA101MF61G
	220	F61	0.26	0.36	240	EMZA6R3ADA221MF61G
	330	F80	0.26	0.34	280	EMZA6R3ADA331MF80G
	470	HA0	0.26	0.16	600	EMZA6R3ADA471MHA0G
	1,000	HA0	0.26	0.16	600	EMZA6R3ADA102MHA0G
	1,500	JA0	0.26	0.08	850	EMZA6R3ADA152MJA0G
10	22	D61	0.19	1.35	90	EMZA100ADA220MD61G
	33	D61	0.19	1.35	90	EMZA100ADA330MD61G
	33	E61	0.19	0.70	160	EMZA100ADA330ME61G
	220	F80	0.19	0.34	280	EMZA100ADA221MF80G
	330	HA0	0.19	0.16	600	EMZA100ADA331MHA0G
	470	HA0	0.19	0.16	600	EMZA100ADA471MHA0G
	680	HA0	0.19	0.16	600	EMZA100ADA681MHA0G
	1,000	JA0	0.19	0.08	850	EMZA100ADA102MJA0G
16	10	D61	0.16	1.35	90	EMZA160ADA100MD61G
	22	D61	0.16	1.35	90	EMZA160ADA220MD61G
	22	E61	0.16	0.70	160	EMZA160ADA220ME61G
	47	E61	0.16	0.70	160	EMZA160ADA470ME61G
	47	F61	0.16	0.36	240	EMZA160ADA470MF61G
	100	F61	0.16	0.36	240	EMZA160ADA101MF61G
	220	F80	0.16	0.34	280	EMZA160ADA221MF80G
	330	HA0	0.16	0.16	600	EMZA160ADA331MHA0G
	470	HA0	0.16	0.16	600	EMZA160ADA471MHA0G
	680	JA0	0.16	0.08	850	EMZA160ADA681MJA0G
25	10	D61	0.14	1.35	90	EMZA250ADA100MD61G
	22	E61	0.14	0.70	160	EMZA250ADA220ME61G
	33	E61	0.14	0.70	160	EMZA250ADA330ME61G
	33	F61	0.14	0.36	240	EMZA250ADA330MF61G
	47	F61	0.14	0.36	240	EMZA250ADA470MF61G
	100	F80	0.14	0.34	280	EMZA250ADA101MF80G
	220	HA0	0.14	0.16	600	EMZA250ADA221MHA0G
	330	HA0	0.14	0.16	600	EMZA250ADA331MHA0G
	470	JA0	0.14	0.08	850	EMZA250ADA471MJA0G
35	4.7	D61	0.12	1.35	90	EMZA350ADA4R7MD61G
	10	D61	0.12	1.35	90	EMZA350ADA100MD61G
	10	E61	0.12	0.70	160	EMZA350ADA100ME61G
	22	E61	0.12	0.70	160	EMZA350ADA220ME61G
	33	F61	0.12	0.36	240	EMZA350ADA330MF61G
	47	F61	0.12	0.36	240	EMZA350ADA470MF61G
	100	F80	0.12	0.34	280	EMZA350ADA101MF80G
	100	HA0	0.12	0.16	600	EMZA350ADA101MHA0G
	220	HA0	0.12	0.16	600	EMZA350ADA221MHA0G
	330	JA0	0.12	0.08	850	EMZA350ADA331MJA0G
50	4.7	D61	0.10	2.90	60	EMZA500ADA4R7MD61G
	10	E61	0.10	1.52	85	EMZA500ADA100ME61G
	10	F61	0.10	0.88	165	EMZA500ADA100MF61G
	22	F61	0.10	0.88	165	EMZA500ADA220MF61G
	33	F80	0.10	0.68	195	EMZA500ADA330MF80G
	47	F80	0.10	0.68	195	EMZA500ADA470MF80G
	100	HA0	0.10	0.34	350	EMZA500ADA101MHA0G
	220	JA0	0.10	0.18	670	EMZA500ADA221MJA0G
63	4.7	E61	0.08	4.8	50	EMZA630ADA4R7ME61G
	10	F61	0.08	2.2	80	EMZA630ADA100MF61G
	22	F80	0.08	2.1	120	EMZA630ADA220MF80G
	33	HA0	0.08	0.70	250	EMZA630ADA330MHA0G
	47	HA0	0.08	0.70	250	EMZA630ADA470MHA0G
	68	HA0	0.08	0.70	250	EMZA630ADA680MHA0G
	100	JA0	0.08	0.45	400	EMZA630ADA101MJA0G
80	3.3	E61	0.08	5.0	25	EMZA800ADA3R3ME61G
	4.7	F61	0.08	3.0	40	EMZA800ADA4R7MF61G
	10	F80	0.08	2.4	60	EMZA800ADA100MF80G
	22	HA0	0.08	1.3	130	EMZA800ADA220MHA0G
	33	HA0	0.08	1.3	130	EMZA800ADA330MHA0G
	47	JA0	0.08	0.70	200	EMZA800ADA470MJA0G

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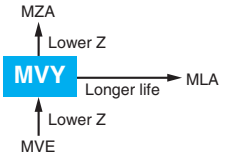
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MVY Series

- ●Endurance : 1,000 to 5,000 hours at 105℃
- ●Low impedance
- ●For digital equipment, especially DC-DC converters
- ●Solvent resistant type except 80 & 100Vdc (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**



◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃ (6.3 to 63Vdc)　　−40 to +105℃ (80 & 100Vdc)
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)

Dissipation Factor (tanδ)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	80V	100V
tanδ (Max.)	D55 to F80	0.24	0.20	0.16	0.14	0.12	0.12	—	—	—
	HA0 & JA0	0.28	0.24	0.20	0.16	0.14	0.12	—	—	—
	KE0 to MN0	0.26	0.22	0.18	0.16	0.14	0.12	0.14	0.10	0.10

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	80V	100V
Z(−40℃)/Z(+20℃)	D55 to JA0	3	2	2	2	2	2	—	—	—
	KE0 to MN0	10	8	6	4	3	3	3	3	3

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃.

Time	D55 to F80 : 1,000 hours HA0 & JA0 : 2,000 hours KE0 to MN0 : 5,000 hours	
Rated voltage	6.3Vdc (D55 to JA0)	6.3 to 100Vdc
Capacitance change	≦±30% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value

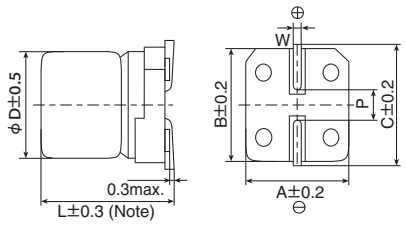
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	6.3Vdc (D55 to JA0)	6.3 to 100Vdc
Capacitance change	≦±30% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value

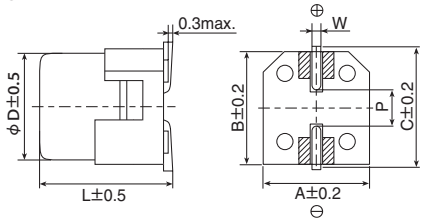
◆DIMENSIONS [mm]

- ● Terminal Code : A
- ● Size code : D55 to MN0



Note : L±0.5 for HA0 to MN0

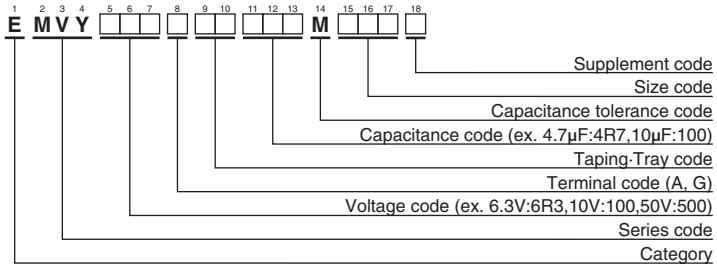
- ● Terminal Code : G
- ● Size code : LH0 to MN0



▨ : Dummy terminals

Size code	φD	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

D55 to JA0

EX) 6.3V100μF

KE0 to MN0

EX) 16V1,000μF

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MVY Series

◆STANDARD RATINGS

☐ is not solvent resistant (80/100Vdc).

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	22	D55	3.0	60	EMVY6R3ADA220MD55G
	33	E55	1.8	95	EMVY6R3ADA330ME55G
	47	E55	1.8	95	EMVY6R3ADA470ME55G
	100	F55	1.0	140	EMVY6R3ADA101MF55G
	220	F55	1.0	140	EMVY6R3ADA221MF55G
	330	F80	0.34	280	EMVY6R3ADA331MF80G
	470	HA0	0.30	450	EMVY6R3ADA471MHA0G
	680	HA0	0.30	450	EMVY6R3ADA681MHA0G
	1,000	HA0	0.30	450	EMVY6R3ADA102MHA0G
	1,500	JA0	0.15	670	EMVY6R3ADA152MJA0G
	2,200	KE0	0.070	820	EMVY6R3ARA222MKE0S
	2,200	LH0	0.054	1,260	EMVY6R3☐DA222MLH0S
	3,300	KG5	0.060	950	EMVY6R3ARA332MKG5S
	3,300	MH0	0.054	1,350	EMVY6R3☐DA332MMH0S
	4,700	LN0	0.038	1,630	EMVY6R3☐DA472MLN0S
	4,700	MH0	0.054	1,350	EMVY6R3☐DA472MMH0S
	6,800	LN0	0.038	1,630	EMVY6R3☐DA682MLN0S
	6,800	MN0	0.038	1,750	EMVY6R3☐DA682MMN0S
	8,200	MN0	0.038	1,750	EMVY6R3☐DA822MMN0S
10	22	E55	1.8	95	EMVY100ADA220ME55G
	33	E55	1.8	95	EMVY100ADA330ME55G
	47	F55	1.0	140	EMVY100ADA470MF55G
	100	F55	1.0	140	EMVY100ADA101MF55G
	220	F80	0.34	280	EMVY100ADA221MF80G
	330	HA0	0.30	450	EMVY100ADA331MHA0G
	470	HA0	0.30	450	EMVY100ADA471MHA0G
	680	JA0	0.15	670	EMVY100ADA681MJA0G
	1,000	JA0	0.15	670	EMVY100ADA102MJA0G
	2,200	KG5	0.060	950	EMVY100ARA222MKG5S
	2,200	LH0	0.054	1,260	EMVY100☐DA222MLH0S
	3,300	LH0	0.054	1,260	EMVY100☐DA332MLH0S
	3,300	MH0	0.054	1,350	EMVY100☐DA332MMH0S
	4,700	LN0	0.038	1,630	EMVY100☐DA472MLN0S
	4,700	MN0	0.038	1,750	EMVY100☐DA472MMN0S
	6,800	MN0	0.038	1,750	EMVY100☐DA682MMN0S
16	10	D55	3.0	60	EMVY160ADA100MD55G
	22	E55	1.8	95	EMVY160ADA220ME55G
	33	F55	1.0	140	EMVY160ADA330MF55G
	47	F55	1.0	140	EMVY160ADA470MF55G
	100	F55	1.0	140	EMVY160ADA101MF55G
	220	F80	0.34	280	EMVY160ADA221MF80G
	330	HA0	0.30	450	EMVY160ADA331MHA0G
	470	HA0	0.30	450	EMVY160ADA471MHA0G
	680	JA0	0.15	670	EMVY160ADA681MJA0G
	1,000	KE0	0.070	820	EMVY160ARA102MKE0S
	1,000	LH0	0.054	1,260	EMVY160☐DA102MLH0S
	2,200	LH0	0.054	1,260	EMVY160☐DA222MLH0S
	2,200	MH0	0.054	1,350	EMVY160☐DA222MMH0S
	3,300	LN0	0.038	1,630	EMVY160☐DA332MLN0S
	3,300	MH0	0.054	1,350	EMVY160☐DA332MMH0S
	4,700	MN0	0.038	1,750	EMVY160☐DA472MMN0S
25	10	E55	1.8	95	EMVY250ADA100ME55G
	22	F55	1.0	140	EMVY250ADA220MF55G
	33	F55	1.0	140	EMVY250ADA330MF55G
	47	F55	1.0	140	EMVY250ADA470MF55G
	100	F80	0.34	280	EMVY250ADA101MF80G
	220	HA0	0.30	450	EMVY250ADA221MHA0G
25	330	HA0	0.30	450	EMVY250ADA331MHA0G
	470	JA0	0.15	670	EMVY250ADA471MJA0G
	1,000	LH0	0.054	1,260	EMVY250☐DA102MLH0S
	1,000	MH0	0.054	1,350	EMVY250☐DA102MMH0S
	2,200	LN0	0.038	1,630	EMVY250☐DA222MLN0S
	2,200	MN0	0.038	1,750	EMVY250☐DA222MMN0S
	3,300	MN0	0.038	1,750	EMVY250☐DA332MMN0S
35	4.7	D55	3.0	60	EMVY350ADA4R7MD55G
	10	E55	1.8	95	EMVY350ADA100ME55G
	22	F55	1.0	140	EMVY350ADA220MF55G
	33	F55	1.0	140	EMVY350ADA330MF55G
	47	F55	1.0	140	EMVY350ADA470MF55G
	47	F61	1.0	140	EMVY350ADA470MF61G
	68	F80	0.34	280	EMVY350ADA680MF80G
	100	HA0	0.30	450	EMVY350ADA101MHA0G
	220	HA0	0.30	450	EMVY350ADA221MHA0G
	330	JA0	0.15	670	EMVY350ADA331MJA0G
	470	KE0	0.070	820	EMVY350ARA471MKE0S
	470	LH0	0.054	1,260	EMVY350☐DA471MLH0S
	1,000	LH0	0.054	1,260	EMVY350☐DA102MLH0S
	1,000	MH0	0.054	1,350	EMVY350☐DA102MMH0S
	2,200	MN0	0.038	1,750	EMVY350☐DA222MMN0S
50	1.0	D55	5.0	30	EMVY500ADA1R0MD55G
	2.2	D55	5.0	30	EMVY500ADA2R2MD55G
	3.3	D55	5.0	30	EMVY500ADA3R3MD55G
	4.7	E55	3.0	50	EMVY500ADA4R7ME55G
	10	F55	2.0	70	EMVY500ADA100MF55G
	22	F55	2.0	70	EMVY500ADA220MF55G
	33	F80	0.60	170	EMVY500ADA330MF80G
	47	F80	0.60	170	EMVY500ADA470MF80G
	68	HA0	0.60	300	EMVY500ADA680MHA0G
	100	HA0	0.60	300	EMVY500ADA101MHA0G
	220	JA0	0.30	500	EMVY500ADA221MJA0G
	330	KE0	0.11	650	EMVY500ARA331MKE0S
	330	LH0	0.087	900	EMVY500☐DA331MLH0S
	470	LH0	0.087	900	EMVY500☐DA471MLH0S
	470	MH0	0.087	1,060	EMVY500☐DA471MMH0S
	1,000	MN0	0.050	1,520	EMVY500☐DA102MMN0S
63	68	KE0	0.19	500	EMVY630ARA680MKE0S
	100	KE0	0.19	500	EMVY630ARA101MKE0S
	220	KE0	0.19	500	EMVY630ARA221MKE0S
	220	LH0	0.12	845	EMVY630☐DA221MLH0S
	330	LH0	0.12	845	EMVY630☐DA331MLH0S
	330	MH0	0.12	905	EMVY630☐DA331MMH0S
	470	LN0	0.085	1,100	EMVY630☐DA471MLN0S
	470	MH0	0.12	905	EMVY630☐DA471MMH0S
80	100	KE0	0.33	450	EMVY800ARA101MKE0S
	220	KG5	0.26	550	EMVY800ARA221MKG5S
	330	LN0	0.16	900	EMVY800☐DA331MLN0S
	330	MH0	0.24	700	EMVY800☐DA331MMH0S
	470	MN0	0.16	950	EMVY800☐DA471MMN0S
100	47	KE0	0.33	450	EMVY101ARA470MKE0S
	68	KE0	0.33	450	EMVY101ARA680MKE0S
	100	KE0	0.33	450	EMVY101ARA101MKE0S
	100	LH0	0.24	650	EMVY101☐DA101MLH0S
	220	LN0	0.16	900	EMVY101☐DA221MLN0S
	220	MH0	0.24	700	EMVY101☐DA221MMH0S
	330	MN0	0.16	950	EMVY101☐DA331MMN0S

☐ : Enter the appropriate terminal code.

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 10000-hours-life, 105℃

Alchip™-MZF Series

- ●Endurance : 10,000 hours at 105℃
- ●Low impedance
- ●Rated voltage range : 6.3 to 50V
- ●Nominal capacitance range : 10 to 470μF
- ●Suitable for high reliability products
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

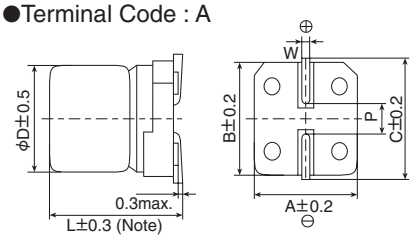
MLA → (Longer life) → MZE → (Longer life) → **MZF**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-25 to +105℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20%(M) (at 20℃,120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.32, 0.28, 0.26, 0.16, 0.14, 0.14 (at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V Z(-10℃)/Z(+20℃): 4, 3, 2, 2, 2, 2 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 10,000 hours at 105℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

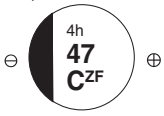
E M Z F □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



●Rated voltage symbol

Rated voltage (Vdc)	6.3	10	16	25	35	50
Symbol	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	47	E73	2.2	95	EMZF6R3ADA470ME73G
	100	F73	1.1	140	EMZF6R3ADA101MF73G
	220	F90	1.0	230	EMZF6R3ADA221MF90G
	330	F90	1.0	230	EMZF6R3ADA331MF90G
	470	HA0	0.22	600	EMZF6R3ADA471MHA0G
10	33	E73	2.2	95	EMZF100ADA330ME73G
	150	F73	1.1	140	EMZF100ADA151MF73G
16	22	E73	2.2	95	EMZF160ADA220ME73G
	47	F73	1.1	140	EMZF160ADA470MF73G
	100	F73	1.1	140	EMZF160ADA101MF73G
	150	F90	1.0	230	EMZF160ADA151MF90G
	220	F90	1.0	230	EMZF160ADA221MF90G
	330	HA0	0.22	600	EMZF160ADA331MHA0G
	470	JA0	0.16	850	EMZF160ADA471MJA0G
25	22	E73	2.2	95	EMZF250ADA220ME73G

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
25	33	F73	1.1	140	EMZF250ADA330MF73G
	47	F73	1.1	140	EMZF250ADA470MF73G
	100	F90	1.0	230	EMZF250ADA101MF90G
	220	HA0	0.22	600	EMZF250ADA221MHA0G
	330	JA0	0.16	850	EMZF250ADA331MJA0G
35	10	E73	2.2	95	EMZF350ADA100ME73G
	10	F73	1.1	140	EMZF350ADA100MF73G
	22	E73	2.2	95	EMZF350ADA220ME73G
	22	F73	1.1	140	EMZF350ADA220MF73G
	33	F90	1.0	230	EMZF350ADA330MF90G
	47	F90	1.0	230	EMZF350ADA470MF90G
	100	HA0	0.22	600	EMZF350ADA101MHA0G
	220	JA0	0.16	850	EMZF350ADA221MJA0G
50	47	HA0	0.53	350	EMZF500ADA470MHA0G
	100	JA0	0.35	670	EMZF500ADA101MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 7000 to 8000-hours-life, 105℃

Alchip™-MZE Series

- ●Endurance : 7,000 to 8,000 hours at 105℃
- ●Low impedance
- ●Rated voltage range : 6.3 to 50V
- ●Nominal capacitance range : 10 to 470μF
- ●Suitable for high reliability products
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

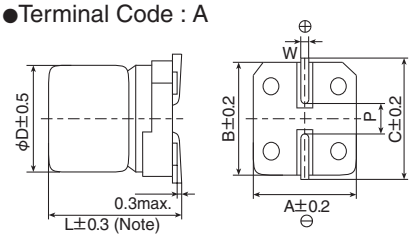
MVY → Longer life → MLA → Longer life → **MZE**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-25 to +105℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20%(M) (at 20℃,120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.32, 0.28, 0.26, 0.16, 0.14, 0.14 (at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V Z(-10℃)/Z(+20℃): 4, 3, 2, 2, 2, 2 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃. Time: E73 & F73 : 7,000 hours; F90 to JA0 : 8,000 hours Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

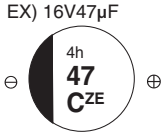
E M Z E □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



●Rated voltage symbol

Rated voltage (Vdc)	6.3	10	16	25	35	50
Symbol	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	47	E73	2.2	95	EMZE6R3ADA470ME73G
	100	F73	1.1	140	EMZE6R3ADA101MF73G
	220	F90	1.0	230	EMZE6R3ADA221MF90G
	330	F90	1.0	230	EMZE6R3ADA331MF90G
	470	HA0	0.22	600	EMZE6R3ADA471MHA0G
10	33	E73	2.2	95	EMZE100ADA330ME73G
	150	F73	1.1	140	EMZE100ADA151MF73G
16	22	E73	2.2	95	EMZE160ADA220ME73G
	47	F73	1.1	140	EMZE160ADA470MF73G
	100	F73	1.1	140	EMZE160ADA101MF73G
	150	F90	1.0	230	EMZE160ADA151MF90G
	220	F90	1.0	230	EMZE160ADA221MF90G
	330	HA0	0.22	600	EMZE160ADA331MHA0G
	470	JA0	0.16	850	EMZE160ADA471MJA0G
25	22	E73	2.2	95	EMZE250ADA220ME73G

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
25	33	F73	1.1	140	EMZE250ADA330MF73G
	47	F73	1.1	140	EMZE250ADA470MF73G
	100	F90	1.0	230	EMZE250ADA101MF90G
	220	HA0	0.22	600	EMZE250ADA221MHA0G
	330	JA0	0.16	850	EMZE250ADA331MJA0G
35	10	E73	2.2	95	EMZE350ADA100ME73G
	10	F73	1.1	140	EMZE350ADA100MF73G
	22	E73	2.2	95	EMZE350ADA220ME73G
	22	F73	1.1	140	EMZE350ADA220MF73G
	33	F90	1.0	230	EMZE350ADA330MF90G
	47	F90	1.0	230	EMZE350ADA470MF90G
	100	HA0	0.22	600	EMZE350ADA101MHA0G
	220	JA0	0.16	850	EMZE350ADA221MJA0G
50	47	HA0	0.53	350	EMZE500ADA470MHA0G
	100	JA0	0.35	670	EMZE500ADA101MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 5000-hours-life, 105℃

Alchip™-MZK Series

- Endurance : 5,000 hours at 105℃
- Low impedance
- Rated voltage range : 6.3 to 35V
- Nominal capacitance range : 10 to 150μF
- Suitable for high reliability products
- Solvent resistant type
- **RoHS Compliant**

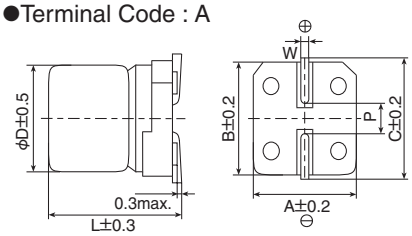
MVY —Longer life→ **MZK**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-25 to +105℃
Rated Voltage Range	6.3 to 35Vdc
Capacitance Tolerance	±20%(M) (at 20℃,120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V tanδ (Max.): 0.32, 0.28, 0.26, 0.16, 0.14 (at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc): 6.3V, 10V, 16V, 25V, 35V Z(-10℃)/Z(+20℃): 4, 3, 2, 2, 2 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

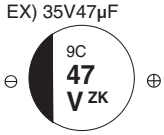
E M Z K □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,35V:350)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 35V47μF



●Rated voltage symbol

Rated voltage (Vdc)	6.3	10	16	25	35
Symbol	j	A	C	E	V

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃,100kHz)	Rated ripple current (mArms/105℃,100kHz)	Part No.
6.3	100	E61	2.2	95	EMZK6R3ADA101ME61G
10	150	F61	1.1	140	EMZK100ADA151MF61G
16	33	E61	2.2	95	EMZK160ADA330ME61G
	47	E61	2.2	95	EMZK160ADA470ME61G
	100	F61	1.1	140	EMZK160ADA101MF61G
25	68	F61	1.1	140	EMZK250ADA680MF61G
35	10	E61	2.2	95	EMZK350ADA100ME61G
	10	F61	1.1	140	EMZK350ADA100MF61G
	22	E61	2.2	95	EMZK350ADA220ME61G
	22	F61	1.1	140	EMZK350ADA220MF61G
	33	F61	1.1	140	EMZK350ADA330MF61G
	47	F61	1.1	140	EMZK350ADA470MF61G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MLA Series

- Low impedance, long life
- Rated voltage 6.3 to 50V, Capacitance 10 to 1,000μF
- Case size φ5×5.8L to φ10×10L
- Suitable for applications requiring long life and low impedance such as equipment in continuous operation, industrial applications, etc.
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

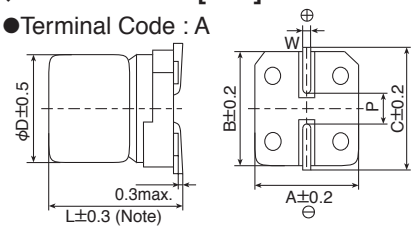
MVY —Longer life→ **MLA**

◆SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	-40 to +105℃								
Rated Voltage Range	6.3 to 50Vdc								
Capacitance Tolerance	±20%(M)								(20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage(Vdc)		6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	E61 to F61	0.28	0.24	0.22	0.16	0.13	0.12	
		F80	0.32	0.27	0.24	0.16	0.13	0.12	
		HA0 to JA0	0.28	0.24	0.22	0.16	0.13	0.12	(20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)		6.3V	10V	16V	25V	35V	50V	
	Z(-25℃)/Z(+20℃)		4	3	2	2	2	2	
	Z(-40℃)/Z(+20℃)		10	7	5	3	3	3	(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 3,000 hours at 105℃.								
	Capacitance change	≦±30% of the initial value							
	D.F. (tanδ)	≦300% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±30% of the initial value							
	D.F. (tanδ)	≦300% of the initial specified value							
	Leakage current	≦The initial specified value							

◆DIMENSIONS [mm]

●Terminal Code : A

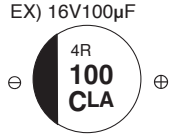


Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

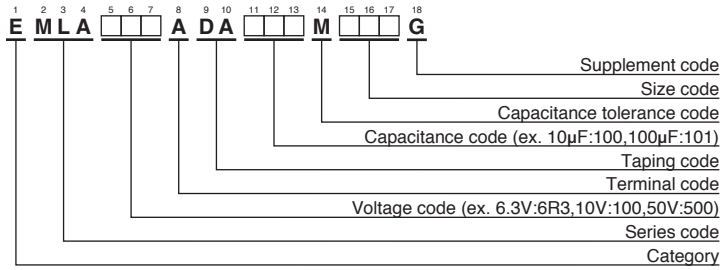
EX) 16V100μF



●Rated voltage symbol

Rated voltage (Vdc)	Symbol
6.3	j
10	A
16	C
25	E
35	V
50	H

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MLA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	47	E61	0.28	1.30	95	EMLA6R3ADA470ME61G
	100	F61	0.28	0.70	140	EMLA6R3ADA101MF61G
	150	F61	0.28	0.70	140	EMLA6R3ADA151MF61G
	220	F80	0.32	0.70	230	EMLA6R3ADA221MF80G
	330	F80	0.32	0.70	230	EMLA6R3ADA331MF80G
	330	HA0	0.28	0.16	600	EMLA6R3ADA331MHA0G
	470	HA0	0.28	0.16	600	EMLA6R3ADA471MHA0G
	1,000	JA0	0.28	0.08	850	EMLA6R3ADA102MJA0G
10	33	E61	0.24	1.30	95	EMLA100ADA330ME61G
	47	F61	0.24	0.70	140	EMLA100ADA470MF61G
	100	F61	0.24	0.70	140	EMLA100ADA101MF61G
	150	F61	0.24	0.70	140	EMLA100ADA151MF61G
	220	F80	0.27	0.70	230	EMLA100ADA221MF80G
	220	HA0	0.24	0.16	600	EMLA100ADA221MHA0G
	330	HA0	0.24	0.16	600	EMLA100ADA331MHA0G
	470	HA0	0.24	0.16	600	EMLA100ADA471MHA0G
16	22	E61	0.22	1.30	95	EMLA160ADA220ME61G
	33	F61	0.22	0.70	140	EMLA160ADA330MF61G
	47	F61	0.22	0.70	140	EMLA160ADA470MF61G
	100	F61	0.22	0.70	140	EMLA160ADA101MF61G
	100	F80	0.24	0.70	230	EMLA160ADA101MF80G
	150	F80	0.24	0.70	230	EMLA160ADA151MF80G
	220	F80	0.24	0.70	230	EMLA160ADA221MF80G
	220	HA0	0.22	0.16	600	EMLA160ADA221MHA0G
	330	HA0	0.22	0.16	600	EMLA160ADA331MHA0G
	470	HA0	0.22	0.16	600	EMLA160ADA471MHA0G
	470	JA0	0.22	0.08	850	EMLA160ADA471MJA0G
25	10	E61	0.16	1.30	95	EMLA250ADA100ME61G
	22	E61	0.16	1.30	95	EMLA250ADA220ME61G
	22	F61	0.16	0.70	140	EMLA250ADA220MF61G
25	33	F61	0.16	0.70	140	EMLA250ADA330MF61G
	47	F61	0.16	0.70	140	EMLA250ADA470MF61G
	47	F80	0.16	0.70	230	EMLA250ADA470MF80G
	100	F80	0.16	0.70	230	EMLA250ADA101MF80G
	100	HA0	0.16	0.16	600	EMLA250ADA101MHA0G
	150	HA0	0.16	0.16	600	EMLA250ADA151MHA0G
	220	HA0	0.16	0.16	600	EMLA250ADA221MHA0G
	330	HA0	0.16	0.16	600	EMLA250ADA331MHA0G
	330	JA0	0.16	0.08	850	EMLA250ADA331MJA0G
	470	JA0	0.16	0.08	850	EMLA250ADA471MJA0G
35	10	E61	0.13	1.30	95	EMLA350ADA100ME61G
	22	F61	0.13	0.70	140	EMLA350ADA220MF61G
	33	F61	0.13	0.70	140	EMLA350ADA330MF61G
	33	F80	0.13	0.70	230	EMLA350ADA330MF80G
	47	F80	0.13	0.70	230	EMLA350ADA470MF80G
	100	F80	0.13	0.70	230	EMLA350ADA101MF80G
	100	HA0	0.13	0.16	600	EMLA350ADA101MHA0G
	150	HA0	0.13	0.16	600	EMLA350ADA151MHA0G
	220	HA0	0.13	0.16	600	EMLA350ADA221MHA0G
	220	JA0	0.13	0.08	850	EMLA350ADA221MJA0G
	330	JA0	0.13	0.08	850	EMLA350ADA331MJA0G
50	10	F61	0.12	2.00	70	EMLA500ADA100MF61G
	22	F61	0.12	2.00	70	EMLA500ADA220MF61G
	33	F80	0.12	1.60	100	EMLA500ADA330MF80G
	47	F80	0.12	1.60	100	EMLA500ADA470MF80G
	47	HA0	0.12	0.34	350	EMLA500ADA470MHA0G
	100	HA0	0.12	0.34	350	EMLA500ADA101MHA0G
	100	JA0	0.12	0.18	670	EMLA500ADA101MJA0G
	150	JA0	0.12	0.18	670	EMLA500ADA151MJA0G
	220	JA0	0.12	0.18	670	EMLA500ADA221MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

10000-hours-life, 105℃

Alchip™-MLF Series

- Endurance : 10,000 hours at 105℃
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 1.0 to 1,000μF
- Suitable for high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

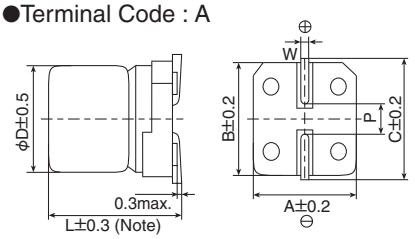
MVL —Longer life→ MLE —Longer life→ **MLF**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-25 to +105℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20%(M) (at 20℃,120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.32, 0.28, 0.26, 0.16, 0.14, 0.14 (at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V Z(-10℃)/Z(+20℃): 4, 3, 2, 2, 2, 2 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 10,000 hours at 105℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
D73	4	7.0	4.3	4.3	5.1	0.5 to 0.8	1.0
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

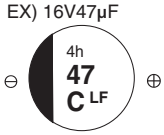
E M L F □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



●Rated voltage symbol

Rated voltage (Vdc)	6.3	10	16	25	35	50
Symbol	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mArms/105℃, 120Hz)	Part No.
6.3	22	D73	22	EMLF6R3ADA220MD73G
	47	E73	36	EMLF6R3ADA470ME73G
	100	F73	60	EMLF6R3ADA101MF73G
	220	F90	101	EMLF6R3ADA221MF90G
	330	HA0	160	EMLF6R3ADA331MHA0G
	1,000	JA0	313	EMLF6R3ADA102MJA0G
10	33	E73	35	EMLF100ADA330ME73G
	220	HA0	141	EMLF100ADA221MHA0G
16	10	D73	18	EMLF160ADA100MD73G
	22	E73	30	EMLF160ADA220ME73G
	47	F73	50	EMLF160ADA470MF73G
	100	F90	81	EMLF160ADA101MF90G
	470	JA0	254	EMLF160ADA471MJA0G
25	33	F73	48	EMLF250ADA330MF73G
	47	F90	63	EMLF250ADA470MF90G
	100	HA0	116	EMLF250ADA101MHA0G

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mArms/105℃, 120Hz)	Part No.
35	1.0	D73	6.2	EMLF350ADA1R0MD73G
	2.2	D73	11	EMLF350ADA2R2MD73G
	3.3	D73	14	EMLF350ADA3R3MD73G
	4.7	D73	15	EMLF350ADA4R7MD73G
	4.7	E73	19	EMLF350ADA4R7ME73G
	10	E73	25	EMLF350ADA100ME73G
	10	F73	30	EMLF350ADA100MF73G
	22	F73	42	EMLF350ADA220MF73G
	22	F90	49	EMLF350ADA220MF90G
	33	F90	57	EMLF350ADA330MF90G
	220	JA0	216	EMLF350ADA221MJA0G
50	33	HA0	77	EMLF500ADA330MHA0G
	47	HA0	92	EMLF500ADA470MHA0G
	100	JA0	151	EMLF500ADA101MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

7000 to 8000-hours-life, 105℃

Alchip™-MLE Series

- Endurance : 7,000 to 8,000 hours at 105℃
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 1.0 to 1,000μF
- Suitable for high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

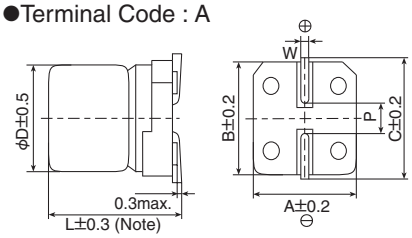
MVJ —Longer life→ MVL —Longer life→ **MLE**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-25 to +105℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20%(M) (at 20℃,120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.32, 0.28, 0.26, 0.16, 0.14, 0.14 (at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V Z(-10℃)/Z(+20℃): 4, 3, 2, 2, 2, 2 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃. Time: D73 to F73 : 7,000 hours; F90 to JA0 : 8,000 hours Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
D73	4	7.0	4.3	4.3	5.1	0.5 to 0.8	1.0
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

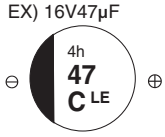
E M L E □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



●Rated voltage symbol

Rated voltage (Vdc)	6.3	10	16	25	35	50
Symbol	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mArms/105℃, 120Hz)	Part No.
6.3	22	D73	22	EMLE6R3ADA220MD73G
	47	E73	36	EMLE6R3ADA470ME73G
	100	F73	60	EMLE6R3ADA101MF73G
	220	F90	101	EMLE6R3ADA221MF90G
	330	HA0	160	EMLE6R3ADA331MHA0G
	1,000	JA0	313	EMLE6R3ADA102MJA0G
10	33	E73	35	EMLE100ADA330ME73G
	220	HA0	141	EMLE100ADA221MHA0G
16	10	D73	18	EMLE160ADA100MD73G
	22	E73	30	EMLE160ADA220ME73G
	47	F73	50	EMLE160ADA470MF73G
	100	F90	81	EMLE160ADA101MF90G
	470	JA0	254	EMLE160ADA471MJA0G
25	33	F73	48	EMLE250ADA330MF73G
	47	F90	63	EMLE250ADA470MF90G
	100	HA0	116	EMLE250ADA101MHA0G

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mArms/105℃, 120Hz)	Part No.
35	1.0	D73	6.2	EMLE350ADA1R0MD73G
	2.2	D73	11	EMLE350ADA2R2MD73G
	3.3	D73	14	EMLE350ADA3R3MD73G
	4.7	D73	15	EMLE350ADA4R7MD73G
	4.7	E73	19	EMLE350ADA4R7ME73G
	10	E73	25	EMLE350ADA100ME73G
	10	F73	30	EMLE350ADA100MF73G
	22	F73	42	EMLE350ADA220MF73G
	22	F90	49	EMLE350ADA220MF90G
	33	F90	57	EMLE350ADA330MF90G
	220	JA0	216	EMLE350ADA221MJA0G
50	33	HA0	77	EMLE500ADA330MHA0G
	47	HA0	92	EMLE500ADA470MHA0G
	100	JA0	151	EMLE500ADA101MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

5000-hours-life, 105℃

Alchip™-MLK Series

- ●6.1mm height
- ●Endurance : 5,000 hours at 105℃
- ●Rated voltage range : 6.3 to 35V
- ●Nominal capacitance range : 4.7 to 100μF
- ●Suitable to fit for downsized equipment
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

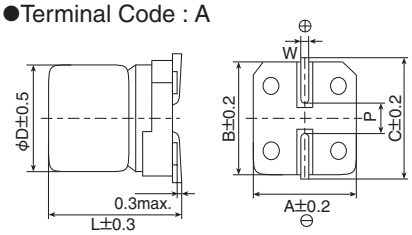
MVL → Longer life → **MLK**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-25 to +105℃
Rated Voltage Range	6.3 to 35Vdc
Capacitance Tolerance	±20%(M) (at 20℃,120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V tanδ (Max.): 0.32, 0.28, 0.26, 0.16, 0.14 (at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc): 6.3V, 10V, 16V, 25V, 35V Z(-10℃)/Z(+20℃): 4, 3, 2, 2, 2 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

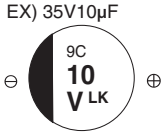
E M L K □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 4.7μF:4R7,10μF:100,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 35V10μF



●Rated voltage symbol

Rated voltage (Vdc)	6.3	10	16	25	35
Symbol	j	A	C	E	V

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
6.3	47	E61	0.32	36	EMLK6R3ADA470ME61G
	100	F61	0.32	60	EMLK6R3ADA101MF61G
10	33	E61	0.28	35	EMLK100ADA330ME61G
16	22	E61	0.26	30	EMLK160ADA220ME61G
	47	F61	0.26	50	EMLK160ADA470MF61G
25	33	F61	0.16	48	EMLK250ADA330MF61G
35	4.7	E61	0.14	19	EMLK350ADA4R7ME61G
	10	E61	0.14	25	EMLK350ADA100ME61G
	10	F61	0.14	30	EMLK350ADA100MF61G
	22	F61	0.14	42	EMLK350ADA220MF61G

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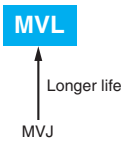
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

3000 to 5000-hours-life, 105℃

Alchip™-MVL Series

- Endurance : 3,000 to 5,000 hours at 105℃
- Suitable for applications requiring long life such as continuously operating equipment, industrial applications, etc
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

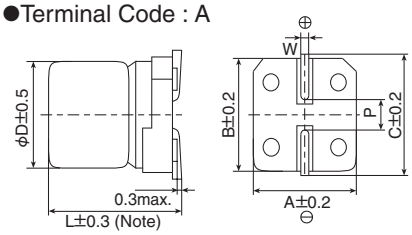


◆SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	-40 to +105℃								
Rated Voltage Range	6.3 to 50Vdc								
Capacitance Tolerance	±20%(M)								(at 20℃,120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V		
	Max. tanδ	0.28	0.24	0.20	0.16	0.13	0.12		(at 20℃,120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V		
	Z(-25℃)/Z(+20℃)	4	3	2	2	2	2		
	Z(-40℃)/Z(+20℃)	10	7	5	3	3	3		(120Hz)
Endurance	After the capacitors are subjected to the rated DC voltage for 3,000 hours (HA0 & JA0 sizes 5,000 hours) at 105℃, the following specifications shall be satisfied when the capacitors are restored to 20℃.								
	Capacitance change	≦±30% of the initial value							
	D.F. (tanδ)	≦300% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±30% of the initial value							
	D.F. (tanδ)	≦300% of the initial specified value							
	Leakage current	≦The initial specified value							

◆DIMENSIONS [mm]

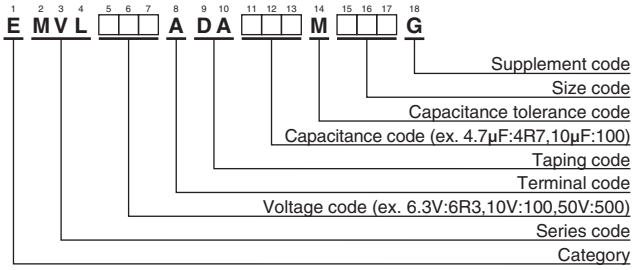
●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
D60	4	5.7	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

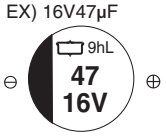
◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	22	D60	0.28	22	EMVL6R3ADA220MD60G
	47	E60	0.28	36	EMVL6R3ADA470ME60G
	100	F60	0.28	60	EMVL6R3ADA101MF60G
	220	F80	0.28	101	EMVL6R3ADA221MF80G
	330	HA0	0.28	160	EMVL6R3ADA331MHA0G
	1,000	JA0	0.28	313	EMVL6R3ADA102MJA0G
10	33	E60	0.24	35	EMVL100ADA330ME60G
	220	HA0	0.24	141	EMVL100ADA221MHA0G
16	10	D60	0.20	18	EMVL160ADA100MD60G
	22	E60	0.20	30	EMVL160ADA220ME60G
	47	F60	0.20	50	EMVL160ADA470MF60G
	100	F80	0.20	81	EMVL160ADA101MF80G
	470	JA0	0.20	254	EMVL160ADA471MJA0G
25	33	F60	0.16	48	EMVL250ADA330MF60G
	47	F80	0.16	63	EMVL250ADA470MF80G
	100	HA0	0.16	116	EMVL250ADA101MHA0G
	330	JA0	0.16	238	EMVL250ADA331MJA0G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
35	4.7	D60	0.13	15	EMVL350ADA4R7MD60G
	10	E60	0.13	25	EMVL350ADA100ME60G
	22	F60	0.13	42	EMVL350ADA220MF60G
	33	F80	0.13	57	EMVL350ADA330MF80G
	220	JA0	0.13	216	EMVL350ADA221MJA0G
50	1.0	D60	0.12	6.2	EMVL500ADA1R0MD60G
	2.2	D60	0.12	11	EMVL500ADA2R2MD60G
	3.3	D60	0.12	14	EMVL500ADA3R3MD60G
	4.7	E60	0.12	19	EMVL500ADA4R7ME60G
	10	F60	0.12	30	EMVL500ADA100MF60G
	22	F80	0.12	49	EMVL500ADA220MF80G
	33	HA0	0.12	77	EMVL500ADA330MHA0G
	47	HA0	0.12	92	EMVL500ADA470MHA0G
	100	JA0	0.12	151	EMVL500ADA101MJA0G

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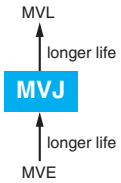
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

2000-hours-life, 105℃

Alchip™-MVJ Series

- Endurance : 2,000 hours at 105℃
- Solvent resistant type
- **RoHS Compliant**

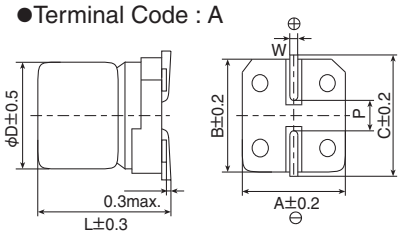


◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.30	0.24	0.20	0.16	0.14	0.12	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	12	8	6	4	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.							
	Rated voltage	6.3Vdc		10 & 16Vdc		25 to 50Vdc		
	Capacitance change	≦±30% of the initial value		≦±25% of the initial value		≦±20% of the initial value		
	D.F. (tanδ)	≦300% of the initial specified value		≦300% of the initial specified value		≦200% of the initial specified value		
	Leakage current	≦The initial specified value		≦The initial specified value		≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Rated voltage	6.3Vdc		10 & 16Vdc		25 to 50Vdc		
	Capacitance change	≦±30% of the initial value		≦±25% of the initial value		≦±20% of the initial value		
	D.F. (tanδ)	≦300% of the initial specified value		≦300% of the initial specified value		≦200% of the initial specified value		
	Leakage current	≦The initial specified value		≦The initial specified value		≦The initial specified value		

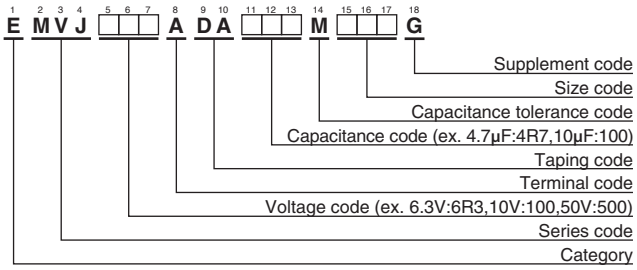
◆DIMENSIONS [mm]

- Terminal Code : A



Size code	D	L	A	B	C	W	P
D60	4	5.7	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9

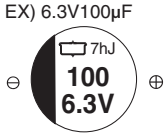
◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 6.3V100μF



◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	22	D60	0.30	21	EMVJ6R3ADA220MD60G
	47	E60	0.30	36	EMVJ6R3ADA470ME60G
	100	F60	0.30	56	EMVJ6R3ADA101MF60G
10	33	E60	0.24	34	EMVJ100ADA330ME60G
16	10	D60	0.20	16	EMVJ160ADA100MD60G
	22	E60	0.20	30	EMVJ160ADA220ME60G
	47	F60	0.20	48	EMVJ160ADA470MF60G
25	33	F60	0.16	45	EMVJ250ADA330MF60G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
35	4.7	D60	0.14	15	EMVJ350ADA4R7MD60G
	10	E60	0.14	25	EMVJ350ADA100ME60G
	22	F60	0.14	40	EMVJ350ADA220MF60G
50	1.0	D60	0.12	5.6	EMVJ500ADA1R0MD60G
	2.2	D60	0.12	10	EMVJ500ADA2R2MD60G
	3.3	D60	0.12	14	EMVJ500ADA3R3MD60G
	4.7	E60	0.12	19	EMVJ500ADA4R7ME60G
	10	F60	0.12	29	EMVJ500ADA100MF60G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

Alchip™-MVH Series

- Lower ESR, Higher ripple current
- Endurance : 1,000 to 5,000 hours at 125℃
- Suitable to fit for automotive equipment
- Solvent resistant type (10 to 50V)
- **RoHS Compliant**

MVH
125℃
MVE

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-40 to +125℃
Rated Voltage Range	10 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	Rated voltage (Vdc): 10 to 100Vdc — F60 to JA0: I=0.01CV or 3μA, whichever is greater. KE0 to MN0: I=0.03CV or 4μA, whichever is greater. 160 to 450Vdc: I=0.04CV+100 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)

Dissipation Factor (tanδ)

Rated voltage (Vdc)		10V	16V	25V	35V	50V	63V	80V	100V	160 to 250V	400 & 450V
tanδ (Max.)	F60 to JA0	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.10	—	—
	KE0 to MN0	0.22	0.18	0.16	0.14	0.12	0.14	—	0.10	0.20	0.24

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		10V	16V	25V	35V	50V	63V	80V	100V	160 to 250V	400 & 450V
F60 to JA0	Z(−25℃)/Z(+20℃)	3	2	2	2	2	2	2	2	—	—
	Z(−40℃)/Z(+20℃)	6	4	4	3	3	3	3	3	—	—
KE0 to MN0	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	—	2	3	6
	Z(−40℃)/Z(+20℃)	8	6	4	3	3	3	—	3	6	10

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified time at 125℃.

Time	F60 to H63 (10 to 100Vdc) : 1,000hours HA0 to JA0 (10 to 100Vdc) : 2,000hours KE0 to MN0 (10 to 100Vdc) : 5,000hours KE0 to MN0 (160 to 450Vdc) : 2,000hours
Capacitance change	≦±30% of the initial value
D.F. (tanδ)	≦300% of the initial specified value
Leakage current	≦The initial specified value

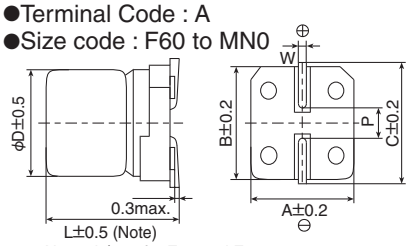
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for 400 to 450Vdc) at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage(Vdc)	10 to 50Vdc	63 to 450Vdc
Capacitance change	≦±30% of the initial value	≦±30% of the initial value
D.F. (tanδ)	≦300% of the initial specified value	≦300% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

◆DIMENSIONS [mm]

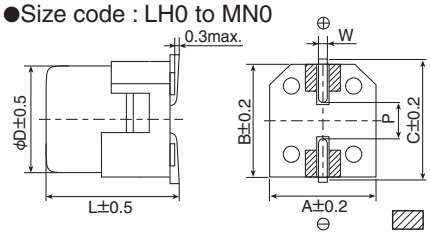
- Terminal Code : A
- Size code : F60 to MN0



Note : L±0.3 for F60 and F80

Size code	D	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H63	8	6.3	8.3	8.3	9.0	0.5 to 0.8	2.3
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

- Terminal Code : G
- Size code : LH0 to MN0



: Dummy terminals

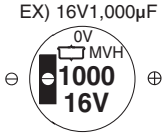
◆MARKING

F60 to JA0

EX) 35V47μF

KE0 to MN0

EX) 16V1,000μF



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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

Alchip™-MVH Series

◆PART NUMBERING SYSTEM

1 E 2 M 3 V 4 H 5 6 7 8 9 10 11 12 13 14 M 15 16 17 18

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 4.7μF:4R7,10μF:100)
- Taping·Tray code
- Terminal code (A, G)
- Voltage code (ex. 10V:100,50V:500,100V:101)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆STANDARD RATINGS

is not solvent resistant (63 to 450Vdc).

WV (Vdc)	Cap (μF)	Size code	ESR (Ωmax/100kHz) 20℃	ESR (Ωmax/100kHz) -40℃	Rated ripple current (mArms/125℃) 100kHz	Rated ripple current (mArms/125℃) 120Hz	Part No.
10	100	F80	0.90	14.0	110	—	EMVH100ADA101MF80G
	100	H63	0.90	14.0	110	—	EMVH100ADA101MH63G
	220	F80	0.90	14.0	110	—	EMVH100ADA221MF80G
	220	H63	0.90	14.0	110	—	EMVH100ADA221MH63G
	220	HA0	0.40	6.0	220	—	EMVH100ADA221MHA0G
	330	HA0	0.40	6.0	220	—	EMVH100ADA331MHA0G
	330	JA0	0.30	4.5	296	—	EMVH100ADA331MJA0G
	470	JA0	0.30	4.5	296	—	EMVH100ADA471MJA0G
	1,000	KE0	0.14	2.1	750	—	EMVH100ARA102MKE0S
	2,200	LH0	0.10	1.5	1,000	—	EMVH100□DA222MLH0S
	2,200	MH0	0.10	1.5	1,200	—	EMVH100□DA222MMH0S
	3,300	MH0	0.10	1.5	1,200	—	EMVH100□DA332MMH0S
	4,700	MN0	0.058	0.87	1,550	—	EMVH100□DA472MMN0S
16	47	F60	1.6	24.0	69	—	EMVH160ADA470MF60G
	100	HA0	0.40	6.0	220	—	EMVH160ADA101MHA0G
	220	HA0	0.40	6.0	220	—	EMVH160ADA221MHA0G
	220	JA0	0.30	4.5	296	—	EMVH160ADA221MJA0G
	330	JA0	0.30	4.5	296	—	EMVH160ADA331MJA0G
	470	KE0	0.14	2.1	750	—	EMVH160ARA471MKE0S
	680	KE0	0.14	2.1	750	—	EMVH160ARA681MKE0S
	680	LH0	0.10	1.5	1,000	—	EMVH160□DA681MLH0S
	1,000	MH0	0.10	1.5	1,200	—	EMVH160□DA102MMH0S
	2,200	MH0	0.10	1.5	1,200	—	EMVH160□DA222MMH0S
25	33	F60	1.6	24.0	69	—	EMVH250ADA330MF60G
	47	F80	0.90	14.0	110	—	EMVH250ADA470MF80G
	47	H63	0.90	14.0	110	—	EMVH250ADA470MH63G
	100	F80	0.90	14.0	110	—	EMVH250ADA101MF80G
	100	H63	0.90	14.0	110	—	EMVH250ADA101MH63G
	100	HA0	0.40	6.0	220	—	EMVH250ADA101MHA0G
	220	HA0	0.40	6.0	220	—	EMVH250ADA221MHA0G
	220	JA0	0.30	4.5	296	—	EMVH250ADA221MJA0G
	330	JA0	0.30	4.5	296	—	EMVH250ADA331MJA0G
	330	KE0	0.14	2.1	750	—	EMVH250ARA331MKE0S
	470	KE0	0.14	2.1	750	—	EMVH250ARA471MKE0S
	470	LH0	0.10	1.5	1,000	—	EMVH250□DA471MLH0S
	680	LH0	0.10	1.5	1,000	—	EMVH250□DA681MLH0S
	680	MH0	0.10	1.5	1,200	—	EMVH250□DA681MMH0S
	1,000	MN0	0.058	0.87	1,550	—	EMVH250□DA102MMN0S
35	10	F60	1.6	24.0	69	—	EMVH350ADA100MF60G
	22	F60	1.6	24.0	69	—	EMVH350ADA220MF60G
	33	F80	0.90	14.0	110	—	EMVH350ADA330MF80G
	33	H63	0.90	14.0	110	—	EMVH350ADA330MH63G
	47	F80	0.90	14.0	110	—	EMVH350ADA470MF80G
	47	H63	0.90	14.0	110	—	EMVH350ADA470MH63G
	47	HA0	0.40	6.0	220	—	EMVH350ADA470MHA0G
	100	HA0	0.40	6.0	220	—	EMVH350ADA101MHA0G
	100	JA0	0.30	4.5	296	—	EMVH350ADA101MJA0G
	220	JA0	0.30	4.5	296	—	EMVH350ADA221MJA0G
	330	KE0	0.14	2.1	750	—	EMVH350ARA331MKE0S
	330	LH0	0.10	1.5	1,000	—	EMVH350□DA331MLH0S
	470	KG5	0.11	1.5	900	—	EMVH350ARA471MKG5S
	470	LH0	0.10	1.5	1,000	—	EMVH350□DA471MLH0S
	680	MH0	0.10	1.5	1,200	—	EMVH350□DA681MMH0S
50	10	F60	2.8	42.0	51	—	EMVH500ADA100MF60G
	10	H63	1.6	30.0	83	—	EMVH500ADA100MH63G
	22	F80	2.0	30.0	83	—	EMVH500ADA220MF80G
	22	H63	1.6	30.0	83	—	EMVH500ADA220MH63G
50	33	F80	2.0	30.0	83	—	EMVH500ADA330MF80G
	33	H63	1.6	30.0	83	—	EMVH500ADA330MH63G
	33	HA0	0.70	11.0	160	—	EMVH500ADA330MHA0G
	47	HA0	0.70	11.0	160	—	EMVH500ADA470MHA0G
	47	JA0	0.50	7.5	247	—	EMVH500ADA470MJA0G
	100	JA0	0.50	7.5	247	—	EMVH500ADA101MJA0G
	100	KE0	0.23	3.5	550	—	EMVH500ARA101MKE0S
	220	KE0	0.23	3.5	550	—	EMVH500ARA221MKE0S
	220	LH0	0.15	2.3	850	—	EMVH500□DA221MLH0S
	330	KG5	0.18	2.7	700	—	EMVH500ARA331MKG5S
	330	LH0	0.15	2.3	850	—	EMVH500□DA331MLH0S
	470	MH0	0.15	2.3	920	—	EMVH500□DA471MMH0S
63	10	F80	2.0	100	60	—	EMVH630ADA100MF80G
	10	H63	2.0	110	60	—	EMVH630ADA100MH63G
	22	HA0	0.70	35.0	100	—	EMVH630ADA220MHA0G
	33	HA0	0.70	35.0	100	—	EMVH630ADA330MHA0G
	33	JA0	0.50	25.0	170	—	EMVH630ADA330MJA0G
	47	HA0	0.70	35.0	100	—	EMVH630ADA470MHA0G
	47	JA0	0.50	25.0	170	—	EMVH630ADA470MJA0G
	100	KE0	0.25	12.5	500	—	EMVH630ARA101MKE0S
	220	KG5	0.20	10.0	600	—	EMVH630ARA221MKG5S
	330	LH0	0.18	9.0	820	—	EMVH630□DA331MLH0S
	470	LN0	0.11	5.5	1,100	—	EMVH630□DA471MLN0S
80	10	HA0	0.75	50.0	70	—	EMVH800ADA100MHA0G
	22	HA0	0.75	50.0	70	—	EMVH800ADA220MHA0G
	22	JA0	0.55	35.0	115	—	EMVH800ADA220MJA0G
	33	HA0	0.75	50.0	70	—	EMVH800ADA330MHA0G
	33	JA0	0.55	35.0	115	—	EMVH800ADA330MJA0G
	47	JA0	0.55	35.0	115	—	EMVH800ADA470MJA0G
100	10	HA0	0.75	50.0	70	—	EMVH101ADA100MHA0G
	22	HA0	0.75	50.0	70	—	EMVH101ADA220MHA0G
	22	JA0	0.55	35.0	115	—	EMVH101ADA220MJA0G
	33	JA0	0.55	35.0	115	—	EMVH101ADA330MJA0G
	47	KE0	0.33	16.5	450	—	EMVH101ARA470MKE0S
	68	KG5	0.26	13.0	550	—	EMVH101ARA680MKG5S
	100	LH0	0.24	12.0	650	—	EMVH101□DA101MLH0S
	220	MN0	0.16	8.0	950	—	EMVH101□DA221MMN0S
160	10	KE0	—	—	—	100	EMVH161ARA100MKE0S
	22	LH0	—	—	—	180	EMVH161□DA220MLH0S
	33	MH0	—	—	—	245	EMVH161□DA330MMH0S
	68	MN0	—	—	—	380	EMVH161□DA680MMN0S
200	10	KE0	—	—	—	100	EMVH201ARA100MKE0S
	22	LH0	—	—	—	180	EMVH201□DA220MLH0S
	33	LN0	—	—	—	250	EMVH201□DA330MLN0S
	33	MH0	—	—	—	245	EMVH201□DA330MMH0S
	47	MN0	—	—	—	315	EMVH201□DA470MMN0S
250	10	KG5	—	—	—	110	EMVH251ARA100MKG5S
	22	LN0	—	—	—	200	EMVH251□DA220MLN0S
	22	MH0	—	—	—	205	EMVH251□DA220MMH0S
	33	MN0	—	—	—	260	EMVH251□DA330MMN0S
400	4.7	KE0	—	—	—	70	EMVH401ARA4R7MKE0S
	6.8	LH0	—	—	—	100	EMVH401□DA6R8MLH0S
	10	LN0	—	—	—	140	EMVH401□DA100MLN0S
	10	MH0	—	—	—	135	EMVH401□DA100MMH0S
450	3.3	KG5	—	—	—	65	EMVH451ARA3R3MKG5S
	4.7	LH0	—	—	—	85	EMVH451□DA4R7MLH0S
	10	MN0	—	—	—	145	EMVH451□DA100MMN0S

□ : Enter the appropriate terminal code.

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

Alchip™-MHB Series

- ESR : Less than MVH
- Endurance : 2,000 hours at 125℃
- Rated Voltage Range : 10 to 35V
- Nominal capacitance range : 47 to 470μF
- Solvent resistant type
- **RoHS Compliant**

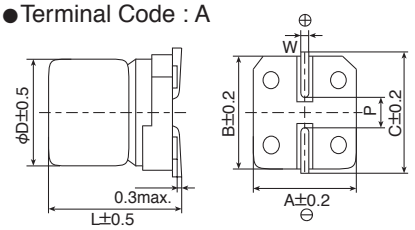
MHB
↑ Lower ESR
MVH

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-40 to +125℃
Rated Voltage Range	10 to 35Vdc
Capacitance Tolerance	±20%(M) (20℃, 120Hz)
Leakage Current	I=0.01CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage(Vdc): 10V, 16V, 25V, 35V tanδ (Max.): 0.24, 0.20, 0.16, 0.14 (20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc): 10V, 16V, 25V, 35V Z(-25℃)/Z(+20℃): 3, 2, 2, 2 Z(-40℃)/Z(+20℃): 4, 3, 3, 3 (120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 125℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value ESR(-40℃, 400kHz): HA0 :≦ 6Ω; JA0 : ≦4.5Ω
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E M H B □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470, 470μF:471)
- Taping code
- Terminal code
- Voltage code (ex. 10V:100, 35V:350)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V220μF

●Rated voltage symbol

Rated voltage (Vdc)	Symbol
10	A
16	C
25	E
35	V

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	ESR (Ω max/100k to 400kHz) 20℃	ESR (Ω max/100k to 400kHz) -40℃	Rated ripple current (mArms/125℃, 100k to 400kHz)	Part No.
10	330	HA0	0.3	3.0	240	EMHB100ADA331MHA0G
	470	JA0	0.2	2.0	330	EMHB100ADA471MJA0G
16	100	HA0	0.3	3.0	240	EMHB160ADA101MHA0G
	220	HA0	0.3	3.0	240	EMHB160ADA221MHA0G
25	100	HA0	0.3	3.0	240	EMHB250ADA101MHA0G
	220	HA0	0.3	3.0	240	EMHB250ADA221MHA0G
	330	JA0	0.2	2.0	330	EMHB250ADA331MJA0G
35	47	HA0	0.3	3.0	240	EMHB350ADA470MHA0G
	100	HA0	0.3	3.0	240	EMHB350ADA101MHA0G
	100	JA0	0.2	2.0	330	EMHB350ADA101MJA0G
	220	JA0	0.2	2.0	330	EMHB350ADA221MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

Alchip™-MHJ Series

- Endurance : 2,000 hours at 125℃
- Rated voltage range : 10 to 35V
- Nominal capacitance range : 47 to 470μF
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

MHJ
↑ Lower ESR
MHB

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-40 to +125℃
Rated Voltage Range	10 to 35Vdc
Capacitance Tolerance	±20%(M) (20℃, 120Hz)
Leakage Current	I=0.01CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)

Dissipation Factor (tanδ)

Rated voltage(Vdc)	10V	16V	25V	35V
tanδ (Max.)	0.30	0.23	0.18	0.16

(20℃, 120Hz)

Low Temperature Characteristics (Max. impedance Ratio)

Rated voltage(Vdc)	10V	16V	25V	35V
Z(-25℃)/Z(+20℃)	3	2	2	2
Z(-40℃)/Z(+20℃)	4	3	3	3

(120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 125℃.

Capacitance change	≦±30% of the initial value
D.F. (tanδ)	≦300% of the initial specified value
Leakage current	≦The initial specified value

ESR (Ωmax./100kHz)	F80	HA0	JA0
20℃	3.5	0.60	0.40
-40℃	40	4.5	3.5

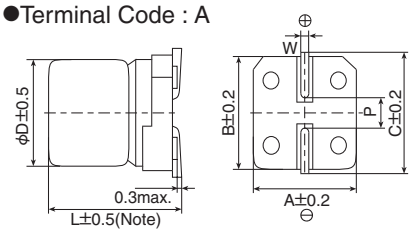
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Capacitance change	≦±30% of the initial value
D.F. (tanδ)	≦300% of the initial specified value
Leakage current	≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L±0.3 for F80

Size code	φD	L	A	B	C	W	P
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E M H J □□□ A D A □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470, 100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 16V:160, 35V:350)
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V100μF

●Rated voltage symbol

Rated voltage (Vdc)	Symbol
10	A
16	C
25	E
35	V

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	ESR (Ωmax/100kHz) 20℃	ESR (Ωmax/100kHz) −40℃	Rated ripple current (mArms/125℃, 100kHz)	Part No.
10	220	HA0	0.15	3.0	350	EMHJ100ADA221MHA0G
	330	HA0	0.15	3.0	350	EMHJ100ADA331MHA0G
	330	JA0	0.12	2.0	550	EMHJ100ADA331MJA0G
	470	JA0	0.12	2.0	550	EMHJ100ADA471MJA0G
16	100	F80	0.45	5.0	220	EMHJ160ADA101MF80G
	100	HA0	0.15	3.0	350	EMHJ160ADA101MHA0G
	220	HA0	0.15	3.0	350	EMHJ160ADA221MHA0G
	330	JA0	0.12	2.0	550	EMHJ160ADA331MJA0G
	470	JA0	0.12	2.0	550	EMHJ160ADA471MJA0G
25	100	HA0	0.15	3.0	350	EMHJ250ADA101MHA0G
	220	JA0	0.12	2.0	550	EMHJ250ADA221MJA0G
	330	JA0	0.12	2.0	550	EMHJ250ADA331MJA0G
35	47	F80	0.45	5.0	220	EMHJ350ADA470MF80G
	47	HA0	0.15	3.0	350	EMHJ350ADA470MHA0G
	100	HA0	0.15	3.0	350	EMHJ350ADA101MHA0G
	220	JA0	0.12	2.0	550	EMHJ350ADA221MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low ESR, 105℃

Alchip™-MKB Series

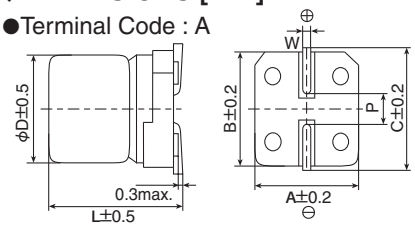
- Low ESR
- Endurance : 3,000 hours at 105℃
- Rated voltage 400V, Capacitance 2.2 to 4.7μF
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	-40 to +105℃		
Rated Voltage Range	400Vdc		
Capacitance Tolerance	±20%(M)		(20℃, 120Hz)
Leakage Current	I=0.04CV+100(max.) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 1 minute)
Dissipation Factor (tanδ)	Rated voltage(Vdc)	400V	
	tanδ (Max.)	0.25	(20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)	400V	
	Z(-25℃)/Z(+20℃)	6	
	Z(-40℃)/Z(+20℃)	10	(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 3,000 hours at 105℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	

◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 400V3.9μF

●Rated voltage symbol

Rated voltage (Vdc)	Symbol
400	2G

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E MKB 401 A DA □□□ M □□□ G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 2.2μF:2R2)
- Taping code
- Terminal code
- Voltage code
- Series code
- Category

Please refer to "Product code guide (surface mount type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	ESR (Ωmax/120Hz) 20℃	ESR (Ωmax/120Hz) -40℃	Rated ripple current (mArms/105℃,120Hz)	Part No.
400	2.2	HA0	20	1,000	26	EMKB401ADA2R2MHA0G
	3.3	JA0	10	500	37	EMKB401ADA3R3MJA0G
	3.9	JA0	10	500	38	EMKB401ADA3R9MJA0G
	4.7	JA0	10	500	39	EMKB401ADA4R7MJA0G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

Alchip™-MV-BP Series

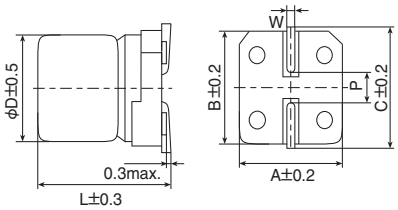
- Bi-polar chip type for the circuit, of which polarity is frequently reversed
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +85℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.05CV or 10μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.32	0.26	0.24	0.22	0.20	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	10	8	6	4	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃, however the polarization shall be reversed every 250 hours.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS **C 5101-4**.							
	Capacitance change	≦±15% of the initial value						
	D.F. (tanδ)	≦150% of the initial specified value						
	Leakage current	≦The initial specified value						

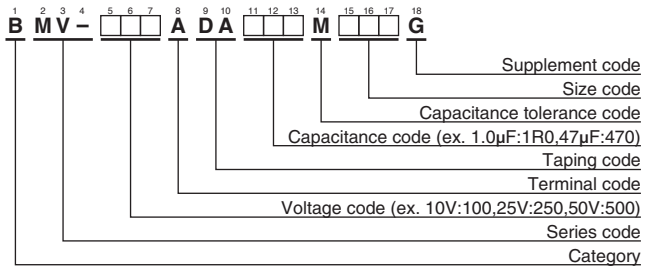
◆DIMENSIONS [mm]

- Terminal Code : A



Size code	D	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 35V4.7μF

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/85℃,120Hz)	Part No.
6.3	10	D55	0.32	13	BMV-6R3ADA100MD55G
	22	E55	0.32	23	BMV-6R3ADA220ME55G
	47	F55	0.32	36	BMV-6R3ADA470MF55G
10	33	F55	0.26	33	BMV-100ADA330MF55G
16	4.7	D55	0.24	11	BMV-160ADA4R7MD55G
	10	E55	0.24	18	BMV-160ADA100ME55G
	22	F55	0.24	28	BMV-160ADA220MF55G
25	3.3	D55	0.22	9.0	BMV-250ADA3R3MD55G
35	2.2	D55	0.20	8.0	BMV-350ADA2R2MD55G
	4.7	E55	0.20	13	BMV-350ADA4R7ME55G
	10	F55	0.20	21	BMV-350ADA100MF55G
50	1.0	D55	0.20	5.5	BMV-500ADA1R0MD55G
	2.2	E55	0.20	9.0	BMV-500ADA2R2ME55G
	3.3	E55	0.20	11	BMV-500ADA3R3ME55G
	4.7	F55	0.20	14	BMV-500ADA4R7MF55G

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NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

Alchip™-MVK-BP Series

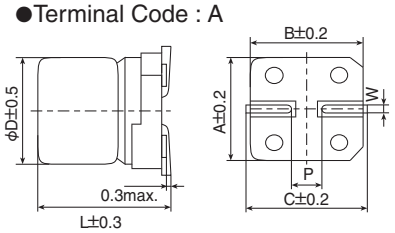
- Bi-polar chip type for the circuit, of which polarity is frequently reversed
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.05CV or 10μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.35	0.26	0.24	0.20	0.18	0.18	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	10	8	6	4	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃, however the polarization shall be reversed every 250 hours.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±25% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						

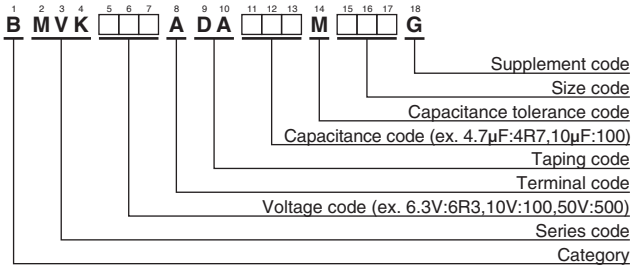
◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
D60	4	5.7	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 35V4.7μF

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
6.3	10	D60	0.35	14	BMVK6R3ADA100MD60G
	22	E60	0.35	25	BMVK6R3ADA220ME60G
	47	F60	0.35	39	BMVK6R3ADA470MF60G
10	33	F60	0.26	35	BMVK100ADA330MF60G
16	4.7	D60	0.24	12	BMVK160ADA4R7MD60G
	10	E60	0.24	20	BMVK160ADA100ME60G
	22	F60	0.24	32	BMVK160ADA220MF60G
25	3.3	D60	0.20	10	BMVK250ADA3R3MD60G
35	2.2	D60	0.18	8.8	BMVK350ADA2R2MD60G
	4.7	E60	0.18	15	BMVK350ADA4R7ME60G
	10	F60	0.18	23	BMVK350ADA100MF60G
50	1.0	D60	0.18	5.5	BMVK500ADA1R0MD60G
	2.2	E60	0.18	10	BMVK500ADA2R2ME60G
	3.3	E60	0.18	13	BMVK500ADA3R3ME60G
	4.7	F60	0.18	16	BMVK500ADA4R7MF60G

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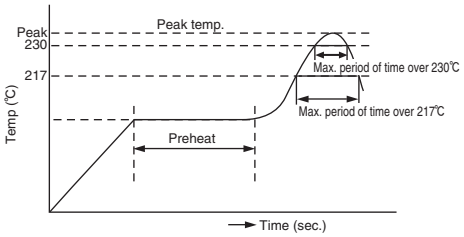
RECOMMENDED REFLOW SOLDERING CONDITIONS

Alchip™ MVA/MVE/MZJ/MZA/MVY/MZF/MZE/MZK/MLA/MLF/MLE/MLK/ MVL/MVJ/MVH/MHB/MHJ/MKB/MV-BP/MVK-BP

The following conditions are recommended for air convection and infrared reflow soldering on the SMD products on to a glass epoxy circuit boards by cream solder. The dimensions of the glass epoxy boards with resist are 90×50×0.8mm for D55 to KG5 case code SMD capacitors and 180×90×0.8mm for LH0 to MN0 case codes SMD capacitors.
The temperatures shown are the surface temperature values on the top of the can and on the capacitor terminals.
Reflow should be performed twice or less.
Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.
Consult with us when performing reflow profile in IPC / JEDEC (J-STD-020)

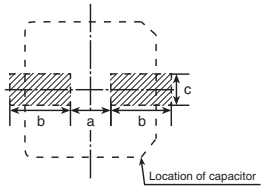
●Recommended soldering heat conditions (Except for Conductive Polymer Aluminum Solid Capacitors)



SMD type	Size code	Voltage range (Vdc)	Preheat	Time maintained above 217℃	Time maintained above 230℃	Peak temp.	Reflow number
Vertical	D55 to F90	4 to 63V (Except 63V for MVH)	150 to 180℃ 120sec. max.	90sec. max	60sec. max.	260℃max.	2 times or less
		63V(MVH), 80V		60sec. max.	40sec. max.	250℃max.	2 times or less
	H63 to JA0	4 to 50V		60sec. max.	30sec. max.	245℃max.	2 times or less
		63 to 100, 400V		30sec. max.	20sec. max.	240℃max.	2 times or less
	KE0 to MN0	6.3 to 50V		30sec. max.	20sec. max.	240℃max.	2 times or less
		63 to 450V		20sec. max.	—	230℃max.	2 times or less

●Recommended Solder Land on PC Board

Series : MVA/MVE/MZJ/MZA/MVY/MZF/MZE/MZK/MLA/MLF/ MLE/MLK/MVL/MVJ/MVH/MHB/MHJ/MKB/MV-BP MVK-BP



: Solder land on PC board

[mm]

Size code	Terminal code : A			Terminal code : G		
	a	b	c	a	b	c
D55, D60, D61, D73	1.0	2.6	1.6			
E55, E60, E61, E73	1.4	3.0	1.6			
F55, F60, F61, F73, F80, F90	1.9	3.5	1.6			
H63	2.3	4.5	1.6			
HA0	3.1	4.2	2.2	3.1	4.2	3.5
JA0	4.5	4.4	2.2	4.5	4.4	3.5
KE0, KG5	4.0	5.7	2.5	3.4	6.3	9.3
LH0, LN0	6.0	6.9	2.5	4.7	7.8	9.6
MH0, MN0	6.0	7.9	2.5	4.7	8.8	9.6

◆PRECAUTIONS FOR USERS

Soldering method
The capacitors of Alchip-series have no capability to withstand such dip or wave soldering as totally immerses components into a solder bath.

Reflow soldering
Reflow the capacitors within recommended reflow soldering conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult us if other reflow conditions are employed.

1. Location of components : Temperature increases at the edge of PC board more than the center.
2. Population of PC board : The lower the component population is, the more temperature rises.
3. Material of PC board : A ceramic made board needs more heat than a glass epoxy made board. The heat increase may cause damage to the capacitors.
4. Thickness of PC board : A thicker board needs more heat than a thinner board. The heat increase may damage the capacitors.
5. Size of PC board : A larger board needs more heat than a smaller board. The heat increase may damage the capacitors.
6. Solder thickness
   If very thin cream solder paste is to be used for SMD types, please consult with us.
7. Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8. Vapor phase soldering (VPS) is not used.

Rework of soldering
Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

Mechanical stress
Do not use the capacitors for lifting the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

Cleaning assembly board
Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

Coating on assembly board
1. Before curing coating material, remove the cleaning solvents from the assembly board.
2. Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

Molding with resin
Internal chemical reaction gradually produces gas in the capacitor; then, increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine contained resin will penetrate into the end seal, reach the inside element, and cause damage of the capacitor.

Others
Refer to PRECAUTIONS AND GUIDELINES.

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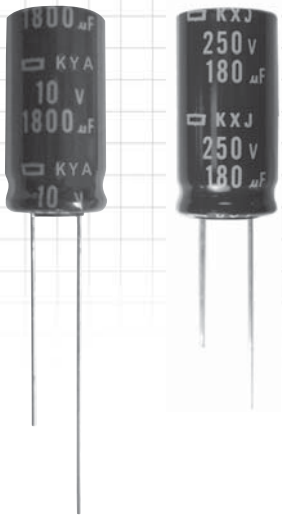
Miniature Aluminum Electrolytic Capacitors



PART NUMBERING SYSTEM

Product code guide (Radial lead type)

(Example : KMQ series, 450V-100µF, ϕ18×40L, Long lead with bulk)

Please refer to the following table

Contents	Code
Polar	E
Bi-polar	B

Series	Code
KMQ	KMQ
FL	FL-

Type	Code
Radial lead	E

Tol.(%)	Code
±20	M
±10	K
-10～+30	Q
-10～+50	T

Sleeve materia	Terminal plating material	Code
PET	Sn-Bi	D
	Sn	S
Sleeveless (Coating case)	Sn-Bi	G
	Sn	H

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
E	KMQ	451	E	LL	101	M	M40	S
Category	Series code	Voltage code	Terminal code	Lead forming/ Taping code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
4	4R0
6.3	6R3
10	100
25	250
100	101
250	251
⋮	⋮

Type	Contents	Code
Lead forming (Bulk)	Long Lead	LL
	Cut(3.5mm)	C3
	Cut(5.0mm)	C5
	Forming Cut	FC
	Snap-in ϕD=5～8	FM
	Snap-in ϕD=10～18	MC
	Snap-in ϕD=20～22	RC
	Horizontal	BC
Taping	Straight	TD
	Gradual forming	
	Straight (Skip a hole)	TE
	Forming (F=2.5mm)	TA
	Forming (F=3.5mm)	TB
	Forming (F=5.0mm)	TC

Refer to product guide for lead forming and taping specifications.

Cap.(µF)	Code
1.0	1R0
4.7	4R7
10	100
47	470
100	101
470	471
1,000	102
⋮	⋮

ϕD(mm)	Code
4	D
5	E
6.3	F
8	H
10	J
12.5	K
14.5	U
16	L
18	M
20	N
22	P

L(mm)	Code
5	05
7	07
9	09
11	11
11.5	B5
12.5	C5
13	13
15	15
16	16
20	20
25	25
30	30
31.5	N3
35	35
35.5	P1
40	40
45	45
50	50
55	55
60	60

*Refer to the appendix (Part number) for codes not listed here.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 5mm height, 85℃

SRM Series

SRM
Downsized
SRE

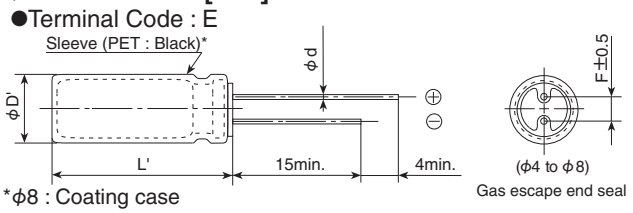
- Downsized from current standard SRE series
- 5mm height
- Endurance : 1,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−40 to +85℃									
Rated Voltage Range	4 to 50Vdc									
Capacitance Tolerance	±20% (M)									(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V		
	tanδ (Max.)	0.40	0.38	0.30	0.23	0.17	0.15	0.13		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V		
	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2		
	Z(−40℃)/Z(+20℃)	15	8	8	6	4	3	3		(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

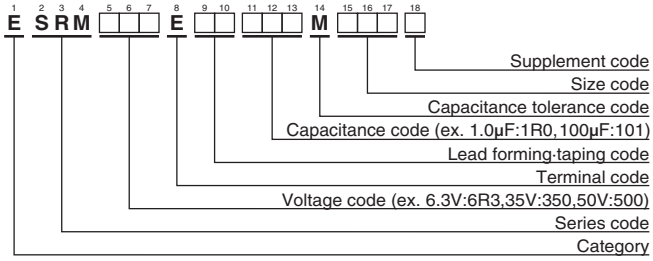
●Terminal Code : E



*φ8 : Coating case

φD	4	5	6.3	8
φd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	2.5
φD'	φD+0.5max.			
L'	L+1.0max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	100	5×5	0.40	55	ESRM4R0E□□101ME05D
	220	6.3×5	0.40	88	ESRM4R0E□□221MF05D
6.3	22	4×5	0.38	22	ESRM6R3E□□220MD05D
	47	4×5	0.38	40	ESRM6R3E□□470MD05D
	330	8×5	0.38	141	ESRM6R3E□□331MH05G
10	33	4×5	0.30	36	ESRM100E□□330MD05D
	100	6.3×5	0.30	78	ESRM100E□□101MF05D
	220	8×5	0.30	148	ESRM100E□□221MH05G
16	10	4×5	0.23	18	ESRM160E□□100MD05D
	22	4×5	0.23	33	ESRM160E□□220MD05D
	33	5×5	0.23	47	ESRM160E□□330ME05D
	47	5×5	0.23	55	ESRM160E□□470ME05D
25	4.7	4×5	0.17	13	ESRM250E□□4R7MD05D
	10	4×5	0.17	25	ESRM250E□□100MD05D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
25	22	5×5	0.17	41	ESRM250E□□220ME05D
	47	6.3×5	0.17	63	ESRM250E□□470MF05D
	100	8×5	0.17	116	ESRM250E□□101MH05G
35	3.3	4×5	0.15	12	ESRM350E□□3R3MD05D
	33	6.3×5	0.15	56	ESRM350E□□330MF05D
	47	8×5	0.15	85	ESRM350E□□470MH05G
50	1.0	4×5	0.13	7.2	ESRM500E□□1R0MD05D
	2.2	4×5	0.13	10	ESRM500E□□2R2MD05D
	3.3	4×5	0.13	14	ESRM500E□□3R3MD05D
	4.7	4×5	0.13	19	ESRM500E□□4R7MD05D
	10	5×5	0.13	31	ESRM500E□□100ME05D
	22	6.3×5	0.13	49	ESRM500E□□220MF05D
	33	8×5	0.13	76	ESRM500E□□330MH05G

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 85℃

SRE Series

- ●5mm height
- ●Endurance : 1,000 hours at 85℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

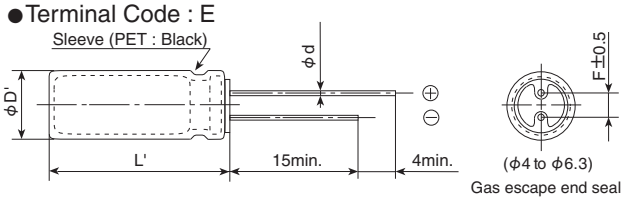
SRM
↑
Downsized
SRE

◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−40 to +85℃									
Rated Voltage Range	4 to 50Vdc									
Capacitance Tolerance	±20% (M)									(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V		
	tanδ (Max.)	0.35	0.24	0.20	0.16	0.14	0.12	0.10		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V		
	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2		
	Z(−40℃)/Z(+20℃)	15	10	8	6	4	3	3		(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

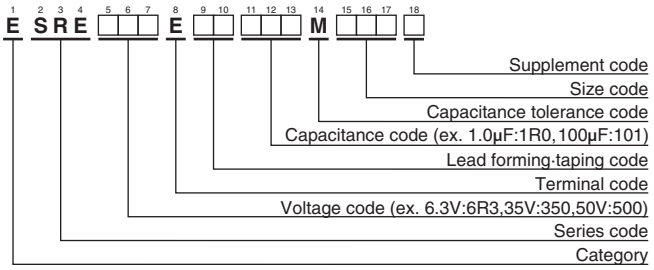
◆DIMENSIONS [mm]

●Terminal Code : E



φD	4	5	6.3
φd	0.45	0.45	0.45
F	1.5	2.0	2.5
φD'	φD+0.5max.		
L'	L+1.0max.		

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	33	4×5	0.35	23	ESRE4R0E□□330MD05D
6.3	10	4×5	0.24	12	ESRE6R3E□□100MD05D
	22	4×5	0.24	23	ESRE6R3E□□220MD05D
	47	5×5	0.24	38	ESRE6R3E□□470ME05D
	100	6.3×5	0.24	60	ESRE6R3E□□101MF05D
10	33	5×5	0.20	35	ESRE100E□□330ME05D
16	4.7	4×5	0.16	10	ESRE160E□□4R7MD05D
	10	4×5	0.16	17	ESRE160E□□100MD05D
	22	5×5	0.16	32	ESRE160E□□220ME05D
	47	6.3×5	0.16	50	ESRE160E□□470MF05D
25	3.3	4×5	0.14	9.3	ESRE250E□□3R3MD05D
	4.7	4×5	0.14	12	ESRE250E□□4R7MD05D
	33	6.3×5	0.14	45	ESRE250E□□330MF05D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
35	2.2	4×5	0.12	8.3	ESRE350E□□2R2MD05D
	3.3	4×5	0.12	11	ESRE350E□□3R3MD05D
	4.7	4×5	0.12	15	ESRE350E□□4R7MD05D
	10	5×5	0.12	25	ESRE350E□□100ME05D
	22	6.3×5	0.12	40	ESRE350E□□220MF05D
50	1.0	4×5	0.10	6.2	ESRE500E□□1R0MD05D
	2.2	4×5	0.10	10	ESRE500E□□2R2MD05D
	3.3	4×5	0.10	14	ESRE500E□□3R3MD05D
	4.7	5×5	0.10	19	ESRE500E□□4R7ME05D
	10	6.3×5	0.10	29	ESRE500E□□100MF05D

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 105℃

KRE Series

KRE
105℃
SRE

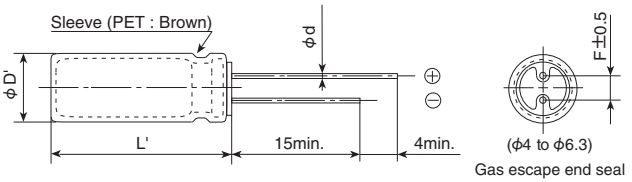
- ●5mm height
- ●Endurance : 1,000 hours at 105℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **●RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−55 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.27	0.23	0.19	0.15	0.13	0.11	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	3	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	9	7	5	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

●Terminal Code : E



φD	4	5	6.3
φd	0.45	0.45	0.45
F	1.5	2.0	2.5
φD'	φD+0.5max.		
L'	L+1.0max.		

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E KRE □□□ E □□ □□□ M □□□ □

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,50V:500)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	10	4×5	0.27	12	EKRE6R3E□□100MD05D
	22	4×5	0.27	21	EKRE6R3E□□220MD05D
	47	5×5	0.27	36	EKRE6R3E□□470ME05D
	100	6.3×5	0.27	56	EKRE6R3E□□101MF05D
10	33	5×5	0.23	34	EKRE100E□□330ME05D
16	4.7	4×5	0.19	9.4	EKRE160E□□4R7MD05D
	10	4×5	0.19	16	EKRE160E□□100MD05D
	22	5×5	0.19	30	EKRE160E□□220ME05D
	47	6.3×5	0.19	48	EKRE160E□□470MF05D
25	3.3	4×5	0.15	8.8	EKRE250E□□3R3MD05D
	4.7	4×5	0.15	12	EKRE250E□□4R7MD05D
	33	6.3×5	0.15	45	EKRE250E□□330MF05D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
35	2.2	4×5	0.13	7.7	EKRE350E□□2R2MD05D
	3.3	4×5	0.13	11	EKRE350E□□3R3MD05D
	4.7	4×5	0.13	15	EKRE350E□□4R7MD05D
	10	5×5	0.13	25	EKRE350E□□100ME05D
	22	6.3×5	0.13	40	EKRE350E□□220MF05D
50	1.0	4×5	0.11	5.6	EKRE500E□□1R0MD05D
	2.2	4×5	0.11	10	EKRE500E□□2R2MD05D
	3.3	4×5	0.11	14	EKRE500E□□3R3MD05D
	4.7	5×5	0.11	19	EKRE500E□□4R7ME05D
	10	6.3×5	0.11	29	EKRE500E□□100MF05D

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 85℃

SRA Series

SRG
Downsized
SRA

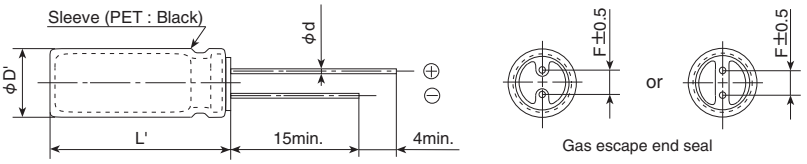
- ●7mm height
- ●Endurance : 1,000 hours at 85℃
- ●Non solvent resistant type
- **●RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−40 to +85℃									
Rated Voltage Range	4 to 63Vdc									
Capacitance Tolerance	±20% (M)									(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V	
	tanδ (Max.)	0.35	0.24	0.20	0.16	0.14	0.12	0.10	0.08	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V	
	Z(−25℃)/Z(+20℃)	4	4	3	2	2	2	2	2	
	Z(−40℃)/Z(+20℃)	10	10	8	6	4	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS **C 5101-4**.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

●Terminal Code : E



φD	4	5	6.3	8
φd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	3.5
φD'	φD+0.5max.			
L'	L+1.0max.			

◆PART NUMBERING SYSTEM

1 E 2 S 3 R 4 A 5 6 7 8 E 9 10 11 12 13 14 M 15 16 17 18 D

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 1.0μF:1R0,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,50V:500)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	33	4×7	0.35	26	ESRA4R0E□□330MD07D
	47	4×7	0.35	34	ESRA4R0E□□470MD07D
	100	5×7	0.35	61	ESRA4R0E□□101ME07D
	220	6.3×7	0.35	95	ESRA4R0E□□221MF07D
	470	8×7	0.35	154	ESRA4R0E□□471MH07D
6.3	22	4×7	0.24	31	ESRA6R3E□□220MD07D
	47	5×7	0.24	47	ESRA6R3E□□470ME07D
	330	8×7	0.24	156	ESRA6R3E□□331MH07D
10	33	5×7	0.20	43	ESRA100E□□330ME07D
	100	6.3×7	0.20	80	ESRA100E□□101MF07D
	220	8×7	0.20	140	ESRA100E□□221MH07D
16	10	4×7	0.16	25	ESRA160E□□100MD07D
	22	5×7	0.16	39	ESRA160E□□220ME07D
	47	6.3×7	0.16	59	ESRA160E□□470MF07D
	100	6.3×7	0.16	97	ESRA160E□□101MF07D
25	33	6.3×7	0.14	53	ESRA250E□□330MF07D
	47	6.3×7	0.14	71	ESRA250E□□470MF07D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
35	4.7	4×7	0.12	20	ESRA350E□□4R7MD07D
	10	5×7	0.12	30	ESRA350E□□100ME07D
	22	6.3×7	0.12	47	ESRA350E□□220MF07D
	33	6.3×7	0.12	64	ESRA350E□□330MF07D
	47	8×7	0.12	83	ESRA350E□□470MH07D
50	1.0	4×7	0.10	10	ESRA500E□□1R0MD07D
	2.2	4×7	0.10	15	ESRA500E□□2R2MD07D
	3.3	4×7	0.10	18	ESRA500E□□3R3MD07D
	4.7	5×7	0.10	23	ESRA500E□□4R7ME07D
	10	6.3×7	0.10	34	ESRA500E□□100MF07D
	22	6.3×7	0.10	57	ESRA500E□□220MF07D
	33	8×7	0.10	76	ESRA500E□□330MH07D
63	1.0	4×7	0.08	11	ESRA630E□□1R0MD07D
	2.2	4×7	0.08	17	ESRA630E□□2R2MD07D
	3.3	5×7	0.08	21	ESRA630E□□3R3ME07D
	4.7	6.3×7	0.08	26	ESRA630E□□4R7MF07D
	10	6.3×7	0.08	47	ESRA630E□□100MF07D

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 105℃

KMA Series

KMA

105℃

SRA

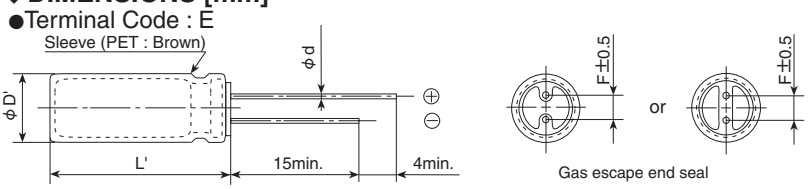
- ●7mm height
- ●Endurance : 1,000 hours at 105℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **●RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics										
Category Temperature Range	−55 to +105℃										
Rated Voltage Range	4 to 63Vdc										
Capacitance Tolerance	±20% (M)										(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)										(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V		
	tanδ (Max.)	0.35	0.22	0.19	0.16	0.14	0.12	0.10	0.08		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V		
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	2	2		
	Z(−40℃)/Z(+20℃)	10	6	5	3	3	3	3	3		(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃.										
	Rated voltage	4 to 16Vdc				25 to 63Vdc					
	Capacitance change	≦±25% of the initial value				≦±20% of the initial value					
	D.F. (tanδ)	≦200% of the initial specified value									
	Leakage current	≦The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.										
	Rated voltage	4 to 16Vdc				25 to 63Vdc					
	Capacitance change	≦±25% of the initial value				≦±20% of the initial value					
	D.F. (tanδ)	≦200% of the initial specified value									
	Leakage current	≦The initial specified value									

◆DIMENSIONS [mm]

●Terminal Code : E



φD	4	5	6.3
φd	0.45	0.45	0.45
F	1.5	2.0	2.5
φD'	φD+0.5max.		
L'	L+1.0max.		

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E KMA □□□ E □□ □□□ M □□□ D

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,50V:500)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 105℃

KMA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
4	33	4×7	0.35	26	EKMA4R0E□□330MD07D
	47	4×7	0.35	34	EKMA4R0E□□470MD07D
	100	5×7	0.35	61	EKMA4R0E□□101ME07D
	220	6.3×7	0.35	95	EKMA4R0E□□221MF07D
6.3	22	4×7	0.22	31	EKMA6R3E□□220MD07D
	47	5×7	0.22	47	EKMA6R3E□□470ME07D
10	33	5×7	0.19	43	EKMA100E□□330ME07D
	100	6.3×7	0.19	80	EKMA100E□□101MF07D
16	10	4×7	0.16	25	EKMA160E□□100MD07D
	22	5×7	0.16	39	EKMA160E□□220ME07D
	47	6.3×7	0.16	59	EKMA160E□□470MF07D
	100	6.3×7	0.16	97	EKMA160E□□101MF07D
25	33	6.3×7	0.14	53	EKMA250E□□330MF07D
	47	6.3×7	0.14	71	EKMA250E□□470MF07D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
35	4.7	4×7	0.12	20	EKMA350E□□4R7MD07D
	10	5×7	0.12	30	EKMA350E□□100ME07D
	22	6.3×7	0.12	47	EKMA350E□□220MF07D
	33	6.3×7	0.12	64	EKMA350E□□330MF07D
50	1.0	4×7	0.10	10	EKMA500E□□1R0MD07D
	2.2	4×7	0.10	15	EKMA500E□□2R2MD07D
	3.3	4×7	0.10	18	EKMA500E□□3R3MD07D
	4.7	5×7	0.10	23	EKMA500E□□4R7ME07D
	10	6.3×7	0.10	34	EKMA500E□□100MF07D
	22	6.3×7	0.10	57	EKMA500E□□220MF07D
63	1.0	4×7	0.08	11	EKMA630E□□1R0MD07D
	2.2	4×7	0.08	17	EKMA630E□□2R2MD07D
	3.3	5×7	0.08	21	EKMA630E□□3R3ME07D
	4.7	6.3×7	0.08	26	EKMA630E□□4R7MF07D
	10	6.3×7	0.08	43	EKMA630E□□100MF07D

□□ : Enter the appropriate lead forming or taping code.

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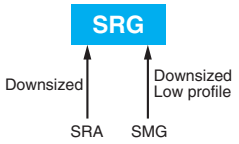
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 85℃

SRG Series

- Low profile : φ4×7mm to φ18×25mm
- Endurance : 1,000 to 2,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

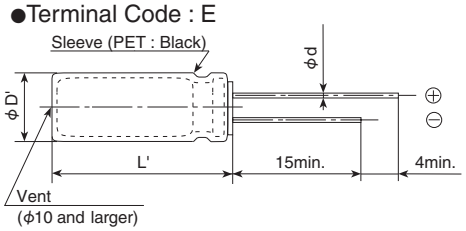


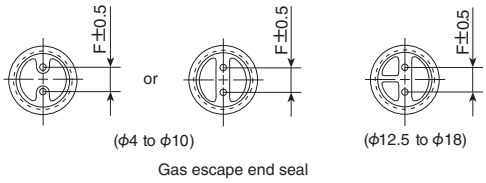
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃
Rated Voltage Range	4 to 50Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 4V, 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.38, 0.28, 0.24, 0.20, 0.16, 0.14, 0.12 When nominal capacitance exceeds 1,000μF, add 0.03 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 4V, 6.3V, 10V, 16V, 25V, 35V, 50V Z(−25℃)/Z(+20℃): 6, 5, 4, 3, 2, 2, 2 Z(−40℃)/Z(+20℃): 12, 12, 10, 8, 5, 4, 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (1,000 hours for φ8 and smaller) at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

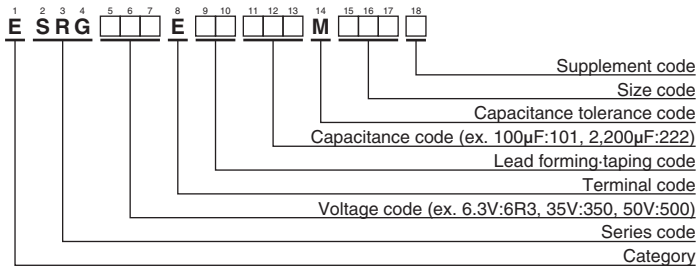
- Terminal Code : E





φD		4	5	6.3	8	10 & 12.5	16 & 18
φd	7L	0.45	0.45	0.45	0.45	—	—
	≧9L	–	0.5	0.5	0.6	0.6	0.8
F		1.5	2.0	2.5	3.5	5.0	7.5
φD'		φD+0.5max.					
L'		L+1.5max. (7L : L+1.0max.)					

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 85℃

SRG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case code φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	470	8×7	0.38	154	ESRG4R0E□□471MH07D
6.3	47	4×7	0.28	50	ESRG6R3E□□470MD07D
	100	5×7	0.28	87	ESRG6R3E□□101ME07D
	220	6.3×7	0.28	133	ESRG6R3E□□221MF07D
	330	6.3×9	0.28	247	ESRG6R3E□□331MF09D
	330	8×7	0.28	191	ESRG6R3E□□331MH07D
	1,000	10×9	0.28	505	ESRG6R3E□□102MJ09S
	4,700	16×15	0.37	1,410	ESRG6R3E□□472ML15S
	6,800	18×15	0.43	1,660	ESRG6R3E□□682MM15S
	10,000	18×20	0.55	2,020	ESRG6R3E□□103MM20S
10	33	4×7	0.24	46	ESRG100E□□330MD07D
	100	5×9	0.24	132	ESRG100E□□101ME09D
	220	6.3×9	0.24	218	ESRG100E□□221MF09D
	220	8×7	0.24	171	ESRG100E□□221MH07D
	470	8×9	0.24	385	ESRG100E□□471MH09D
	1,000	10×12.5	0.24	625	ESRG100E□□102MJC5S
	2,200	12.5×15	0.27	970	ESRG100E□□222MK15S
	3,300	16×15	0.30	1,310	ESRG100E□□332ML15S
	4,700	18×15	0.33	1,560	ESRG100E□□472MM15S
	6,800	18×20	0.39	1,870	ESRG100E□□682MM20S
	10,000	18×25	0.51	2,370	ESRG100E□□103MM25S
16	22	4×7	0.20	42	ESRG160E□□220MD07D
	47	5×7	0.20	73	ESRG160E□□470ME07D
	100	6.3×7	0.20	110	ESRG160E□□101MF07D
	220	8×9	0.20	290	ESRG160E□□221MH09D
	330	8×9	0.20	355	ESRG160E□□331MH09D
	470	10×9	0.20	410	ESRG160E□□471MJ09S
	1,000	12.5×13	0.20	715	ESRG160E□□102MK13S
	2,200	16×15	0.23	1,160	ESRG160E□□222ML15S
	3,300	18×15	0.26	1,460	ESRG160E□□332MM15S
	4,700	18×20	0.29	1,770	ESRG160E□□472MM20S
	6,800	18×25	0.35	2,170	ESRG160E□□682MM25S
25	33	5×7	0.16	66	ESRG250E□□330ME07D
	47	5×9	0.16	105	ESRG250E□□470ME09D
	47	6.3×7	0.16	80	ESRG250E□□470MF07D
	100	6.3×9	0.16	172	ESRG250E□□101MF09D
	330	10×9	0.16	380	ESRG250E□□331MJ09S
25	470	10×12.5	0.16	525	ESRG250E□□471MJC5S
	1,000	12.5×15	0.16	830	ESRG250E□□102MK15S
	2,200	18×15	0.19	1,360	ESRG250E□□222MM15S
	3,300	18×20	0.22	1,720	ESRG250E□□332MM20S
	4,700	18×25	0.25	2,070	ESRG250E□□472MM25S
35	10	4×7	0.14	32	ESRG350E□□100MD07D
	22	5×7	0.14	57	ESRG350E□□220ME07D
	33	5×9	0.14	94	ESRG350E□□330ME09D
	33	6.3×7	0.14	73	ESRG350E□□330MF07D
	47	8×7	0.14	101	ESRG350E□□470MH07D
	100	8×9	0.14	220	ESRG350E□□101MH09D
	220	10×9	0.14	335	ESRG350E□□221MJ09S
	330	10×12.5	0.14	475	ESRG350E□□331MJC5S
	470	12.5×13	0.14	585	ESRG350E□□471MK13S
	1,000	16×15	0.14	1,010	ESRG350E□□102ML15S
	2,200	18×20	0.17	1,560	ESRG350E□□222MM20S
50	1.0	4×7	0.12	10	ESRG500E□□1R0MD07D
	1.0	5×9	0.12	13	ESRG500E□□1R0ME09D
	2.2	4×7	0.12	15	ESRG500E□□2R2MD07D
	2.2	5×9	0.12	26	ESRG500E□□2R2ME09D
	3.3	4×7	0.12	19	ESRG500E□□3R3MD07D
	3.3	5×9	0.12	32	ESRG500E□□3R3ME09D
	4.7	4×7	0.12	24	ESRG500E□□4R7MD07D
	4.7	5×9	0.12	38	ESRG500E□□4R7ME09D
	10	5×7	0.12	42	ESRG500E□□100ME07D
	10	5×9	0.12	64	ESRG500E□□100ME09D
	22	5×9	0.12	86	ESRG500E□□220ME09D
	22	6.3×7	0.12	64	ESRG500E□□220MF07D
	33	6.3×9	0.12	113	ESRG500E□□330MF09D
	33	8×7	0.12	93	ESRG500E□□330MH07D
	47	6.3×9	0.12	135	ESRG500E□□470MF09D
	100	10×9	0.12	240	ESRG500E□□101MJ09S
	220	10×12.5	0.12	415	ESRG500E□□221MJC5S
	330	12.5×13	0.12	525	ESRG500E□□331MK13S
	470	16×15	0.12	745	ESRG500E□□471ML15S
	1,000	18×20	0.12	1,160	ESRG500E□□102MM20S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

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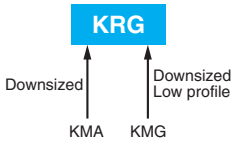
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 105℃

KRG Series

- Low profile : φ4×7mm to φ18×25mm
- Endurance : 1,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

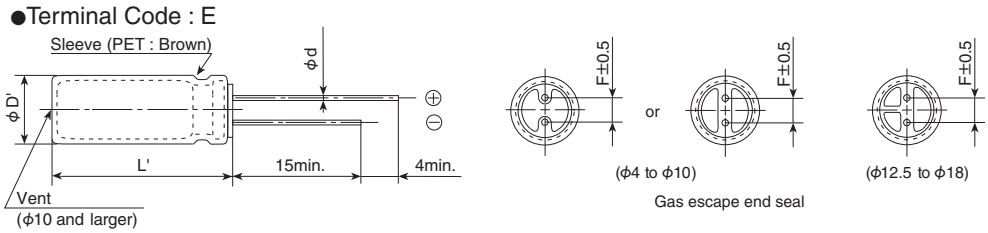


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.28, 0.24, 0.20, 0.16, 0.14, 0.12 When nominal capacitance exceeds 1,000μF, add 0.03 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V Z(−25℃)/Z(+20℃): 5, 4, 3, 2, 2, 2 Z(−40℃)/Z(+20℃): 10, 8, 6, 4, 3, 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃. Rated voltage: 6.3 to 16Vdc / 25 to 50Vdc Capacitance change: ≦±25% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage: 6.3 to 16Vdc / 25 to 50Vdc Capacitance change: ≦±25% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦The initial specified value

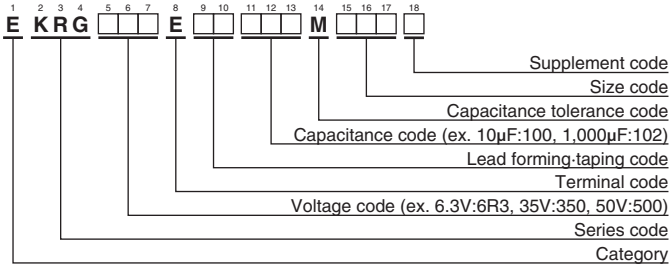
◆DIMENSIONS [mm]

- Terminal Code : E



φD		4	5	6.3	8	10 & 12.5	16 & 18
φd	7L	0.45	0.45	0.45	–	—	—
	≧9L	–	0.5	0.5	0.6	0.6	0.8
F		1.5	2.0	2.5	3.5	5.0	7.5
φD'		φD+0.5max.					
L'		L+1.5max. (7L : L+1.0max.)					

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 105℃

KRG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	47	5×7	0.28	50	EKRG6R3E□□470ME07D
	330	6.3×9	0.28	175	EKRG6R3E□□331MF09D
	1,000	10×9	0.28	365	EKRG6R3E□□102MJ09S
	4,700	16×15	0.37	1,010	EKRG6R3E□□472ML15S
	6,800	18×15	0.43	1,190	EKRG6R3E□□682MM15S
	10,000	18×20	0.55	1,440	EKRG6R3E□□103MM20S
10	22	4×7	0.24	35	EKRG100E□□220MD07D
	100	5×9	0.24	93	EKRG100E□□101ME09D
	100	6.3×7	0.24	80	EKRG100E□□101MF07D
	220	6.3×9	0.24	154	EKRG100E□□221MF09D
	470	8×9	0.24	272	EKRG100E□□471MH09D
	1,000	10×12.5	0.24	445	EKRG100E□□102MJC5S
	2,200	12.5×15	0.27	690	EKRG100E□□222MK15S
	3,300	16×15	0.30	940	EKRG100E□□332ML15S
	4,700	18×15	0.33	1,120	EKRG100E□□472MM15S
	6,800	18×20	0.39	1,330	EKRG100E□□682MM20S
	10,000	18×25	0.51	1,700	EKRG100E□□103MM25S
16	33	5×7	0.20	53	EKRG160E□□330ME07D
	47	6.3×7	0.20	68	EKRG160E□□470MF07D
	100	6.3×7	0.20	97	EKRG160E□□101MF07D
	220	8×9	0.20	205	EKRG160E□□221MH09D
	330	8×9	0.20	251	EKRG160E□□331MH09D
	470	10×9	0.20	290	EKRG160E□□471MJ09S
	1,000	12.5×13	0.20	515	EKRG160E□□102MK13S
	2,200	16×15	0.23	830	EKRG160E□□222ML15S
	3,300	18×15	0.26	1,050	EKRG160E□□332MM15S
	4,700	18×20	0.29	1,260	EKRG160E□□472MM20S
	6,800	18×25	0.35	1,560	EKRG160E□□682MM25S
25	10	4×7	0.16	30	EKRG250E□□100MD07D
	22	5×7	0.16	46	EKRG250E□□220ME07D
	33	6.3×7	0.16	63	EKRG250E□□330MF07D
	47	5×9	0.16	75	EKRG250E□□470ME09D
	47	6.3×7	0.16	71	EKRG250E□□470MF07D
	100	6.3×9	0.16	121	EKRG250E□□101MF09D
	330	10×9	0.16	270	EKRG250E□□331MJ09S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
25	470	10×12.5	0.16	370	EKRG250E□□471MJC5S
	1,000	12.5×15	0.16	590	EKRG250E□□102MK15S
	2,200	18×15	0.19	970	EKRG250E□□222MM15S
	3,300	18×20	0.22	1,220	EKRG250E□□332MM20S
	4,700	18×25	0.25	1,470	EKRG250E□□472MM25S
35	10	5×7	0.14	36	EKRG350E□□100ME07D
	22	6.3×7	0.14	57	EKRG350E□□220MF07D
	33	5×9	0.14	67	EKRG350E□□330ME09D
	33	6.3×7	0.14	64	EKRG350E□□330MF07D
	100	8×9	0.14	155	EKRG350E□□101MH09D
	220	10×9	0.14	235	EKRG350E□□221MJ09S
	330	10×12.5	0.14	340	EKRG350E□□331MJC5S
	470	12.5×13	0.14	415	EKRG350E□□471MK13S
	1,000	16×15	0.14	720	EKRG350E□□102ML15S
	2,200	18×20	0.17	1,110	EKRG350E□□222MM20S
50	1.0	4×7	0.12	10	EKRG500E□□1R0MD07D
	1.0	5×9	0.12	12	EKRG500E□□1R0ME09D
	2.2	4×7	0.12	15	EKRG500E□□2R2MD07D
	2.2	5×9	0.12	18	EKRG500E□□2R2ME09D
	3.3	4×7	0.12	18	EKRG500E□□3R3MD07D
	3.3	5×9	0.12	22	EKRG500E□□3R3ME09D
	4.7	4×7	0.12	25	EKRG500E□□4R7MD07D
	4.7	5×9	0.12	27	EKRG500E□□4R7ME09D
	10	5×9	0.12	46	EKRG500E□□100ME09D
	10	6.3×7	0.12	44	EKRG500E□□100MF07D
	22	5×9	0.12	61	EKRG500E□□220ME09D
	22	6.3×7	0.12	57	EKRG500E□□220MF07D
	33	6.3×9	0.12	80	EKRG500E□□330MF09D
	47	6.3×9	0.12	95	EKRG500E□□470MF09D
	100	10×9	0.12	170	EKRG500E□□101MJ09S
	220	10×12.5	0.12	290	EKRG500E□□221MJC5S
	330	12.5×13	0.12	370	EKRG500E□□331MK13S
	470	16×15	0.12	535	EKRG500E□□471ML15S
	1,000	18×20	0.12	830	EKRG500E□□102MM20S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMQ Series

- Downsized from current standard SMG series
- Endurance : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

SMQ
↑ Downsized
SMG

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃(6.3 to 400Vdc)　−25 to +85℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: ≦ϕ18: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute); ≧ϕ20: I=0.03CV (at 20℃ after 3 minutes) 160 to 450Vdc (at 20℃): CV≦1,000 — I=0.1CV+40 max.; CV>1,000 — I=0.04CV+100 max. (Time: After 1minute) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	315 to 400V	450V
tanδ(Max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.09	0.08	0.20	0.24	0.24

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 200V	250V	350V	400V	450V
Z(−25℃)/Z(+20℃)	≦ϕ8	5	4	3	2	2	2	2	2	3	3	4	4	6
	≧ϕ10	5	4	3	2	2	2	2	2	3	3	4	4	6
Z(−40℃)/Z(+20℃)	≦ϕ8	12	10	8	5	4	3	3	3	8	10	8	8	—
	≧ϕ10	12	10	8	5	4	3	3	3	4	4	6	6	—

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.

Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

Shelf Life

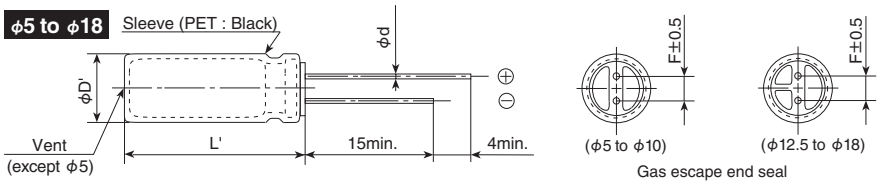
The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	6.3 to 100Vdc	160 to 450Vdc
Capacitance change	≦±20% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

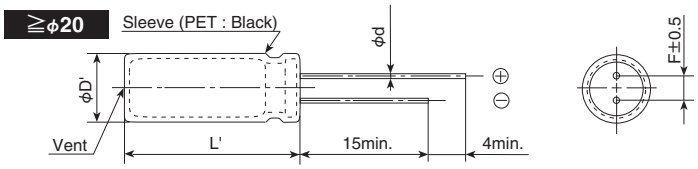
◆DIMENSIONS [mm]

- Terminal Code : E

ϕ5 to ϕ18

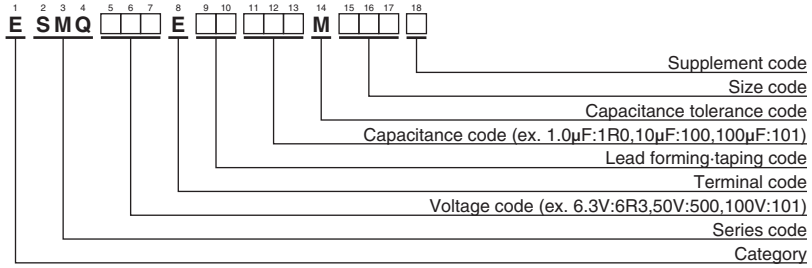


≧ϕ20



ϕD	5	6.3	8	10	12.5	16	18	20	22
ϕd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0
ϕD'	ϕD+0.5max.							ϕD+0.5max.	
L'	L+1.5max.							L+2.0max.	

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
6.3	1,000	8×11.5	0.28	540	ESMQ6R3E□□102MHB5D
	2,200	10×16	0.30	890	ESMQ6R3E□□222MJ16S
	3,300	10×20	0.32	1,190	ESMQ6R3E□□332MJ20S
	4,700	12.5×20	0.34	1,550	ESMQ6R3E□□472MK20S
	6,800	12.5×25	0.38	1,920	ESMQ6R3E□□682MK25S
	10,000	16×25	0.46	2,350	ESMQ6R3E□□103ML25S
	15,000	16×31.5	0.56	2,550	ESMQ6R3E□□153MLN3S
	22,000	18×35.5	0.70	3,200	ESMQ6R3E□□223MMP1S
	33,000	20×40	0.92	3,500	ESMQ6R3E□□333MN40S
	47,000	20×50	1.20	3,900	ESMQ6R3E□□473MP50S
10	220	5×11	0.24	240	ESMQ100E□□221ME11D
	330	6.3×11	0.24	290	ESMQ100E□□331MF11D
	470	6.3×11	0.24	350	ESMQ100E□□471MF11D
	1,000	10×12.5	0.24	650	ESMQ100E□□102MJC5S
	2,200	10×16	0.26	990	ESMQ100E□□222MJ16S
	3,300	12.5×20	0.28	1,450	ESMQ100E□□332MK20S
	4,700	12.5×25	0.30	1,800	ESMQ100E□□472MK25S
	6,800	16×25	0.34	2,250	ESMQ100E□□682ML25S
	10,000	16×31.5	0.42	2,550	ESMQ100E□□103MLN3S
	15,000	16×35.5	0.52	2,880	ESMQ100E□□153MLP1S
	22,000	18×40	0.66	3,400	ESMQ100E□□223MM40S
	33,000	22×50	0.88	4,500	ESMQ100E□□333MP50S
16	220	6.3×11	0.20	260	ESMQ160E□□221MF11D
	330	6.3×11	0.20	320	ESMQ160E□□331MF11D
	470	8×11.5	0.20	440	ESMQ160E□□471MHB5D
	1,000	10×12.5	0.20	700	ESMQ160E□□102MJC5S
	2,200	10×20	0.22	1,000	ESMQ160E□□222MJ20S
	3,300	12.5×25	0.24	1,700	ESMQ160E□□332MK25S
	4,700	16×25	0.26	2,100	ESMQ160E□□472ML25S
	6,800	16×25	0.30	2,250	ESMQ160E□□682ML25S
	10,000	16×35.5	0.38	2,710	ESMQ160E□□103MLP1S
	15,000	18×40	0.48	3,100	ESMQ160E□□153MM40S
	22,000	22×40	0.62	3,800	ESMQ160E□□223MP40S
25	100	5×11	0.16	180	ESMQ250E□□101ME11D
	220	6.3×11	0.16	280	ESMQ250E□□221MF11D
	330	8×11.5	0.16	440	ESMQ250E□□331MHB5D
	470	10×12.5	0.16	550	ESMQ250E□□471MJC5S
	1,000	10×16	0.16	860	ESMQ250E□□102MJ16S
	2,200	12.5×25	0.18	1,550	ESMQ250E□□222MK25S
	3,300	16×25	0.20	1,980	ESMQ250E□□332ML25S
	4,700	16×25	0.22	2,200	ESMQ250E□□472ML25S
	6,800	16×35.5	0.26	2,600	ESMQ250E□□682MLP1S
	10,000	18×40	0.34	2,800	ESMQ250E□□103MM40S
	15,000	22×50	0.44	3,800	ESMQ250E□□153MP50S
35	47	5×11	0.14	130	ESMQ350E□□470ME11D
	68	6.3×11	0.14	160	ESMQ350E□□680MF11D
	100	6.3×11	0.14	210	ESMQ350E□□101MF11D
	220	8×11.5	0.14	385	ESMQ350E□□221MHB5D
	330	10×12.5	0.14	490	ESMQ350E□□331MJC5S
	470	10×16	0.14	650	ESMQ350E□□471MJ16S
	1,000	12.5×20	0.14	1,150	ESMQ350E□□102MK20S
	2,200	16×25	0.16	1,800	ESMQ350E□□222ML25S
	3,300	16×31.5	0.18	2,100	ESMQ350E□□332MLN3S
	4,700	16×35.5	0.20	2,500	ESMQ350E□□472MLP1S
	6,800	18×40	0.24	2,800	ESMQ350E□□682MM40S
	10,000	22×50	0.32	3,700	ESMQ350E□□103MP50S
50	1.0	5×11	0.12	17	ESMQ500E□□1R0ME11D
	2.2	5×11	0.12	28	ESMQ500E□□2R2ME11D
	3.3	5×11	0.12	35	ESMQ500E□□3R3ME11D
	4.7	5×11	0.12	41	ESMQ500E□□4R7ME11D
	10	5×11	0.12	60	ESMQ500E□□100ME11D
	22	5×11	0.12	95	ESMQ500E□□220ME11D
	33	5×11	0.12	125	ESMQ500E□□330ME11D
	47	6.3×11	0.12	155	ESMQ500E□□470MF11D
	68	6.3×11	0.12	210	ESMQ500E□□680MF11D
	100	8×11.5	0.12	260	ESMQ500E□□101MHB5D
	220	10×12.5	0.12	430	ESMQ500E□□221MJC5S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
50	330	10×16	0.12	590	ESMQ500E□□331MJ16S
	470	10×20	0.12	760	ESMQ500E□□471MJ20S
	1,000	12.5×25	0.12	1,350	ESMQ500E□□102MK25S
	2,200	16×31.5	0.14	1,980	ESMQ500E□□222MLN3S
	3,300	18×35.5	0.16	2,500	ESMQ500E□□332MMP1S
	4,700	20×40	0.18	2,900	ESMQ500E□□472MN40S
	6,800	22×50	0.22	3,500	ESMQ500E□□682MP50S
63	22	5×11	0.09	100	ESMQ630E□□220ME11D
	33	6.3×11	0.09	140	ESMQ630E□□330MF11D
	47	6.3×11	0.09	170	ESMQ630E□□470MF11D
	68	8×11.5	0.09	220	ESMQ630E□□680MHB5D
	100	8×11.5	0.09	280	ESMQ630E□□101MHB5D
	220	10×16	0.09	490	ESMQ630E□□221MJ16S
	330	10×20	0.09	710	ESMQ630E□□331MJ20S
	470	12.5×20	0.09	900	ESMQ630E□□471MK20S
	1,000	16×25	0.09	1,300	ESMQ630E□□102ML25S
	2,200	18×35.5	0.11	2,300	ESMQ630E□□222MMP1S
	3,300	20×40	0.13	2,700	ESMQ630E□□332MN40S
	4,700	22×50	0.15	3,400	ESMQ630E□□472MP50S
100	1.0	5×11	0.08	21	ESMQ101E□□1R0ME11D
	2.2	5×11	0.08	30	ESMQ101E□□2R2ME11D
	3.3	5×11	0.08	40	ESMQ101E□□3R3ME11D
	4.7	5×11	0.08	45	ESMQ101E□□4R7ME11D
	10	5×11	0.08	70	ESMQ101E□□100ME11D
	22	6.3×11	0.08	130	ESMQ101E□□220MF11D
	33	8×11.5	0.08	180	ESMQ101E□□330MHB5D
	47	8×11.5	0.08	200	ESMQ101E□□470MHB5D
	68	10×12.5	0.08	270	ESMQ101E□□680MJC5S
	100	10×16	0.08	340	ESMQ101E□□101MJ16S
	220	12.5×20	0.08	550	ESMQ101E□□221MK20S
	330	12.5×25	0.08	760	ESMQ101E□□331MK25S
	470	16×25	0.08	1,000	ESMQ101E□□471ML25S
	1,000	18×35.5	0.08	1,350	ESMQ101E□□102MMP1S
	2,200	22×50	0.10	2,400	ESMQ101E□□222MP50S
160	10	8×11.5	0.20	80	ESMQ161E□□100MHB5D
	22	10×12.5	0.20	130	ESMQ161E□□220MJC5S
	33	10×16	0.20	180	ESMQ161E□□330MJ16S
	47	10×20	0.20	210	ESMQ161E□□470MJ20S
	68	12.5×20	0.20	350	ESMQ161E□□680MK20S
	100	12.5×25	0.20	430	ESMQ161E□□101MK25S
	220	16×31.5	0.20	760	ESMQ161E□□221MLN3S
	330	18×35.5	0.20	995	ESMQ161E□□331MMP1S
	470	18×40	0.20	1,200	ESMQ161E□□471MM40S
200	1.0	6.3×11	0.20	22	ESMQ201E□□1R0MF11D
	2.2	6.3×11	0.20	33	ESMQ201E□□2R2MF11D
	3.3	6.3×11	0.20	40	ESMQ201E□□3R3MF11D
	4.7	6.3×11	0.20	50	ESMQ201E□□4R7MF11D
	10	8×11.5	0.20	80	ESMQ201E□□100MHB5D
	22	10×16	0.20	150	ESMQ201E□□220MJ16S
	33	10×20	0.20	205	ESMQ201E□□330MJ20S
	47	12.5×20	0.20	270	ESMQ201E□□470MK20S
	68	12.5×25	0.20	350	ESMQ201E□□680MK25S
	100	16×25	0.20	475	ESMQ201E□□101ML25S
	220	16×35.5	0.20	700	ESMQ201E□□221MLP1S
	330	18×40	0.20	950	ESMQ201E□□331MM40S
250	3.3	6.3×11	0.20	40	ESMQ251E□□3R3MF11D
	4.7	6.3×11	0.20	50	ESMQ251E□□4R7MF11D
	10	10×12.5	0.20	100	ESMQ251E□□100MJC5S
	22	10×20	0.20	170	ESMQ251E□□220MJ20S
	33	10×20	0.20	200	ESMQ251E□□330MJ20S
	47	12.5×20	0.20	270	ESMQ251E□□470MK20S
	68	16×25	0.20	380	ESMQ251E□□680ML25S
	100	16×25	0.20	440	ESMQ251E□□101ML25S
	220	18×35.5	0.20	680	ESMQ251E□□221MMP1S
350	2.2	6.3×11	0.24	30	ESMQ351E□□2R2MF11D
	3.3	8×11.5	0.24	46	ESMQ351E□□3R3MHB5D
	4.7	8×11.5	0.24	55	ESMQ351E□□4R7MHB5D

□□ : Enter the appropriate lead forming or taping code.

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
350	10	10×12.5	0.24	90	ESMQ351E□□100MJC5S
	22	12.5×20	0.24	185	ESMQ351E□□220MK20S
	33	12.5×25	0.24	240	ESMQ351E□□330MK25S
	47	16×25	0.24	325	ESMQ351E□□470ML25S
	68	16×25	0.24	400	ESMQ351E□□680ML25S
	100	18×31.5	0.24	530	ESMQ351E□□101MMN3S
400	1.0	6.3×11	0.24	22	ESMQ401E□□1R0MF11D
	2.2	8×11.5	0.24	38	ESMQ401E□□2R2MHB5D
	3.3	8×11.5	0.24	48	ESMQ401E□□3R3MHB5D
	4.7	10×12.5	0.24	60	ESMQ401E□□4R7MJC5S
	10	10×16	0.24	90	ESMQ401E□□100MJ16S
	22	12.5×25	0.24	205	ESMQ401E□□220MK25S
	33	16×25	0.24	275	ESMQ401E□□330ML25S
	47	16×25	0.24	280	ESMQ401E□□470ML25S
	68	16×31.5	0.24	340	ESMQ401E□□680MLN3S
	100	18×35.5	0.24	440	ESMQ401E□□101MMP1S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
450	2.2	8×11.5	0.24	28	ESMQ451E□□2R2MHB5D
	3.3	10×12.5	0.24	40	ESMQ451E□□3R3MJC5S
	4.7	10×12.5	0.24	46	ESMQ451E□□4R7MJC5S
	10	10×20	0.24	80	ESMQ451E□□100MJ20S
	22	12.5×25	0.24	140	ESMQ451E□□220MK25S
	33	16×25	0.24	180	ESMQ451E□□330ML25S
	47	16×31.5	0.24	220	ESMQ451E□□470MLN3S
	68	18×35.5	0.24	260	ESMQ451E□□680MMP1S
	100	18×40	0.24	280	ESMQ451E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 toφ18)

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
1.0 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 68	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(φ20 toφ22)

Rated Voltage (Vdc) \ Frequency (Hz)	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

KMQ Series

- Downsized from current standard KMG series
- Solvent resistant type except 160 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

KMQ
↑ Downsized
KMG

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃(6.3 to 100Vdc) −40 to +105℃(160 to 400Vdc) -25 to +105℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: ≦φ18: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute); ≧φ20: I=0.03CV max. (at 20℃ after 3 minutes) 160 to 450Vdc (at 20℃): CV≦1,000 — After 1minute: I=0.1CV+40 max.; CV>1,000 — After 1minute: I=0.04CV+100 max. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V
tanδ (Max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.24	0.24

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63 to 100V	160 to 200V	250V	350V	400V	450V
Z(-25℃)/Z(+20℃)	≧φ8	5	4	3	2	2	2	2	3	3	4	4	6
	≧φ10	5	4	3	2	2	2	2	3	3	4	4	6
Z(-40℃)/Z(+20℃)	≧φ8	10	8	6	4	3	3	3	8	10	8	8	—
	≧φ10	10	8	6	4	3	3	3	4	4	6	6	—

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 1,000 hours (2,000 hours for φ10 and more at 105℃).

Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

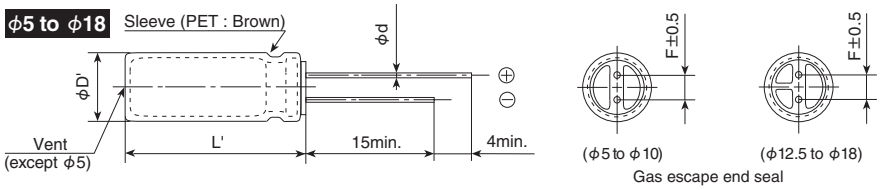
Shelf Life

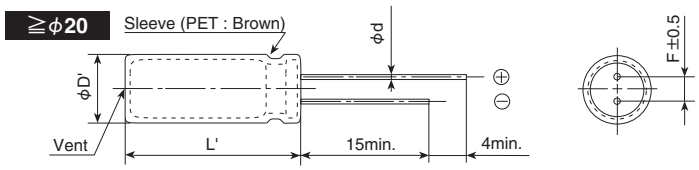
The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	6.3 to 100Vdc	160 to 450Vdc
Capacitance change	≦±20% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E





φD	5	6.3	8	10	12.5	16	18	20	22
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0
φD'	φD+0.5max.							φD+0.5max.	
L'	L+1.5max.							L+2.0max.	

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E KMQ □□□ E □□ □□□ M □□□ □

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 1.0μF:1R0,10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,100V:101)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

KMQ Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	1,000	8×11.5	0.28	390	EKMQ6R3E□□102MHB5D
	2,200	10×16	0.30	635	EKMQ6R3E□□222MJ16S
	3,300	10×20	0.32	840	EKMQ6R3E□□332MJ20S
	4,700	12.5×20	0.34	1,090	EKMQ6R3E□□472MK20S
	6,800	12.5×25	0.38	1,350	EKMQ6R3E□□682MK25S
	10,000	16×25	0.46	1,650	EKMQ6R3E□□103ML25S
	15,000	16×31.5	0.56	1,820	EKMQ6R3E□□153MLN3S
	22,000	18×35.5	0.70	2,280	EKMQ6R3E□□223MMP1S
	33,000	20×40	0.92	2,500	EKMQ6R3E□□333MN40S
	47,000	22×50	1.20	2,780	EKMQ6R3E□□473MP50S
10	220	5×11	0.24	155	EKMQ100E□□221ME11D
	330	6.3×11	0.24	210	EKMQ100E□□331MF11D
	470	6.3×11	0.24	250	EKMQ100E□□471MF11D
	1,000	10×12.5	0.24	460	EKMQ100E□□102MJC5S
	2,200	10×16	0.26	705	EKMQ100E□□222MJ16S
	3,300	12.5×20	0.28	1,000	EKMQ100E□□332MK20S
	4,700	12.5×25	0.30	1,260	EKMQ100E□□472MK25S
	6,800	16×25	0.34	1,570	EKMQ100E□□682ML25S
	10,000	16×31.5	0.42	1,820	EKMQ100E□□103MLN3S
	15,000	16×35.5	0.52	2,050	EKMQ100E□□153MLP1S
	22,000	18×40	0.66	2,420	EKMQ100E□□223MM40S
	33,000	22×50	0.88	3,210	EKMQ100E□□333MP50S
16	220	6.3×11	0.20	190	EKMQ160E□□221MF11D
	330	6.3×11	0.20	225	EKMQ160E□□331MF11D
	470	8×11.5	0.20	315	EKMQ160E□□471MHB5D
	1,000	10×12.5	0.20	500	EKMQ160E□□102MJC5S
	2,200	10×20	0.22	710	EKMQ160E□□222MJ20S
	3,300	12.5×25	0.24	1,170	EKMQ160E□□332MK25S
	4,700	16×25	0.26	1,500	EKMQ160E□□472ML25S
	6,800	16×25	0.30	1,600	EKMQ160E□□682ML25S
	10,000	16×35.5	0.38	1,930	EKMQ160E□□103MLP1S
	15,000	18×40	0.48	2,210	EKMQ160E□□153MM40S
	22,000	22×40	0.62	2,710	EKMQ160E□□223MP40S
25	100	5×11	0.16	125	EKMQ250E□□101ME11D
	220	6.3×11	0.16	200	EKMQ250E□□221MF11D
	330	8×11.5	0.16	310	EKMQ250E□□331MHB5D
	470	10×12.5	0.16	380	EKMQ250E□□471MJC5S
	1,000	10×16	0.16	610	EKMQ250E□□102MJ16S
	2,200	12.5×25	0.18	1,090	EKMQ250E□□222MK25S
	3,300	16×25	0.20	1,400	EKMQ250E□□332ML25S
	4,700	16×25	0.22	1,570	EKMQ250E□□472ML25S
	6,800	16×35.5	0.26	1,850	EKMQ250E□□682MLP1S
	10,000	18×40	0.34	2,000	EKMQ250E□□103MM40S
	15,000	22×50	0.44	2,750	EKMQ250E□□153MP50S
35	47	5×11	0.14	93	EKMQ350E□□470ME11D
	68	6.3×11	0.14	110	EKMQ350E□□680MF11D
	100	6.3×11	0.14	150	EKMQ350E□□101MF11D
	220	8×11.5	0.14	270	EKMQ350E□□221MHB5D
	330	10×12.5	0.14	350	EKMQ350E□□331MJC5S
	470	10×16	0.14	460	EKMQ350E□□471MJ16S
	1,000	12.5×20	0.14	810	EKMQ350E□□102MK20S
	2,200	16×25	0.16	1,260	EKMQ350E□□222ML25S
	3,300	16×31.5	0.18	1,500	EKMQ350E□□332MLN3S
	4,700	16×35.5	0.20	1,780	EKMQ350E□□472MLP1S
	6,800	18×40	0.24	2,000	EKMQ350E□□682MM40S
	10,000	22×50	0.32	2,650	EKMQ350E□□103MP50S
50	1.0	5×11	0.12	13	EKMQ500E□□1R0ME11D
	2.2	5×11	0.12	20	EKMQ500E□□2R2ME11D
	3.3	5×11	0.12	25	EKMQ500E□□3R3ME11D
	4.7	5×11	0.12	30	EKMQ500E□□4R7ME11D
	10	5×11	0.12	46	EKMQ500E□□100ME11D
	22	5×11	0.12	68	EKMQ500E□□220ME11D
	33	5×11	0.12	90	EKMQ500E□□330ME11D
	47	6.3×11	0.12	115	EKMQ500E□□470MF11D
	68	6.3×11	0.12	150	EKMQ500E□□680MF11D
	100	8×11.5	0.12	190	EKMQ500E□□101MHB5D
	220	10×12.5	0.12	300	EKMQ500E□□221MJC5S
50	330	10×16	0.12	410	EKMQ500E□□331MJ16S
	470	10×20	0.12	540	EKMQ500E□□471MJ20S
	1,000	12.5×25	0.12	950	EKMQ500E□□102MK25S
	2,200	16×31.5	0.14	1,410	EKMQ500E□□222MLN3S
	3,300	18×35.5	0.16	1,770	EKMQ500E□□332MMP1S
	4,700	20×40	0.18	2,100	EKMQ500E□□472MN40S
	6,800	22×50	0.22	2,500	EKMQ500E□□682MP50S
63	22	5×11	0.10	71	EKMQ630E□□220ME11D
	33	6.3×11	0.10	100	EKMQ630E□□330MF11D
	47	6.3×11	0.10	120	EKMQ630E□□470MF11D
	68	8×11.5	0.10	155	EKMQ630E□□680MHB5D
	100	8×11.5	0.10	200	EKMQ630E□□101MHB5D
	220	10×16	0.10	335	EKMQ630E□□221MJ16S
	330	10×20	0.10	510	EKMQ630E□□331MJ20S
	470	12.5×20	0.10	640	EKMQ630E□□471MK20S
	1,000	16×25	0.10	930	EKMQ630E□□102ML25S
	2,200	18×35.5	0.12	1,650	EKMQ630E□□222MMP1S
	3,300	20×40	0.14	1,950	EKMQ630E□□332MN40S
	4,700	22×50	0.16	2,450	EKMQ630E□□472MP50S
100	1.0	5×11	0.08	15	EKMQ101E□□1R0ME11D
	2.2	5×11	0.08	21	EKMQ101E□□2R2ME11D
	3.3	5×11	0.08	29	EKMQ101E□□3R3ME11D
	4.7	5×11	0.08	32	EKMQ101E□□4R7ME11D
	10	5×11	0.08	50	EKMQ101E□□100ME11D
	22	6.3×11	0.08	93	EKMQ101E□□220MF11D
	33	8×11.5	0.08	130	EKMQ101E□□330MHB5D
	47	8×11.5	0.08	140	EKMQ101E□□470MHB5D
	68	10×12.5	0.08	190	EKMQ101E□□680MJC5S
	100	10×16	0.08	240	EKMQ101E□□101MJ16S
	220	12.5×20	0.08	390	EKMQ101E□□221MK20S
	330	12.5×25	0.08	540	EKMQ101E□□331MK25S
	470	16×25	0.08	715	EKMQ101E□□471ML25S
	1,000	18×35.5	0.08	960	EKMQ101E□□102MMP1S
	2,200	22×50	0.10	1,750	EKMQ101E□□222MP50S
160	10	8×11.5	0.20	41	EKMQ161E□□100MHB5D
	22	10×12.5	0.20	92	EKMQ161E□□220MJC5S
	33	10×16	0.20	125	EKMQ161E□□330MJ16S
	47	10×20	0.20	150	EKMQ161E□□470MJ20S
	68	12.5×20	0.20	250	EKMQ161E□□680MK20S
	100	12.5×25	0.20	310	EKMQ161E□□101MK25S
	220	16×31.5	0.20	540	EKMQ161E□□221MLN3S
	330	18×35.5	0.20	705	EKMQ161E□□331MMP1S
	470	18×40	0.20	855	EKMQ161E□□471MM40S
200	1.0	6.3×11	0.20	16	EKMQ201E□□1R0MF11D
	2.2	6.3×11	0.20	25	EKMQ201E□□2R2MF11D
	3.3	6.3×11	0.20	30	EKMQ201E□□3R3MF11D
	4.7	6.3×11	0.20	35	EKMQ201E□□4R7MF11D
	10	8×11.5	0.20	57	EKMQ201E□□100MHB5D
	22	10×16	0.20	105	EKMQ201E□□220MJ16S
	33	10×20	0.20	140	EKMQ201E□□330MJ20S
	47	12.5×20	0.20	195	EKMQ201E□□470MK20S
	68	12.5×25	0.20	250	EKMQ201E□□680MK25S
	100	16×25	0.20	335	EKMQ201E□□101ML25S
	220	16×35.5	0.20	500	EKMQ201E□□221MLP1S
	330	18×40	0.20	675	EKMQ201E□□331MM40S
250	3.3	6.3×11	0.20	28	EKMQ251E□□3R3MF11D
	4.7	6.3×11	0.20	35	EKMQ251E□□4R7MF11D
	10	10×12.5	0.20	71	EKMQ251E□□100MJC5S
	22	10×20	0.20	105	EKMQ251E□□220MJ20S
	33	10×20	0.20	140	EKMQ251E□□330MJ20S
	47	12.5×20	0.20	190	EKMQ251E□□470MK20S
	68	16×25	0.20	270	EKMQ251E□□680ML25S
	100	16×25	0.20	310	EKMQ251E□□101ML25S
	220	18×35.5	0.20	485	EKMQ251E□□221MMP1S
350	2.2	6.3×11	0.24	21	EKMQ351E□□2R2MF11D
	3.3	8×11.5	0.24	30	EKMQ351E□□3R3MHB5D
	4.7	8×11.5	0.24	39	EKMQ351E□□4R7MHB5D

□□: Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

KMQ Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
350	10	10×12.5	0.24	64	EKMQ351E□□100MJC5S
	22	12.5×20	0.24	130	EKMQ351E□□220MK20S
	33	12.5×25	0.24	170	EKMQ351E□□330MK25S
	47	16×25	0.24	230	EKMQ351E□□470ML25S
	68	16×25	0.24	285	EKMQ351E□□680ML25S
	100	18×31.5	0.24	375	EKMQ351E□□101MMN3S
400	1.0	6.3×11	0.24	15	EKMQ401E□□1R0MF11D
	2.2	8×11.5	0.24	27	EKMQ401E□□2R2MHB5D
	3.3	8×11.5	0.24	34	EKMQ401E□□3R3MHB5D
	4.7	10×12.5	0.24	42	EKMQ401E□□4R7MJC5S
	10	10×16	0.24	64	EKMQ401E□□100MJ16S
	22	12.5×25	0.24	145	EKMQ401E□□220MK25S
	33	16×25	0.24	195	EKMQ401E□□330ML25S
	47	16×25	0.24	200	EKMQ401E□□470ML25S
	68	16×31.5	0.24	240	EKMQ401E□□680MLN3S
	100	18×35.5	0.24	310	EKMQ401E□□101MMP1S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
450	2.2	8×11.5	0.24	20	EKMQ451E□□2R2MHB5D
	3.3	10×12.5	0.24	28	EKMQ451E□□3R3MJC5S
	4.7	10×12.5	0.24	32	EKMQ451E□□4R7MJC5S
	10	10×20	0.24	56	EKMQ451E□□100MJ20S
	22	12.5×25	0.24	100	EKMQ451E□□220MK25S
	33	16×25	0.24	125	EKMQ451E□□330ML25S
	47	16×31.5	0.24	155	EKMQ451E□□470MLN3S
	68	18×35.5	0.24	185	EKMQ451E□□680MMP1S
	100	18×40	0.24	200	EKMQ451E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 to φ18)

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
1.0 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 68	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(φ20 to φ22)

Rated Voltage (Vdc) \ Frequency (Hz)	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

- Endurance : 2,000 hours at 85℃
- Solvent resistant type except 315 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

SMQ
↑ Downsized
SMG

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃(6.3 to 400Vdc)　−25 to +85℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: ≦φ18: I=0.03CV or 4μA, whichever is greater. ≧φ20: I=0.03CV (at 20℃ after 3 minutes) 160 to 450Vdc (at 20℃): CV≦1,000: After 1minute I=0.1CV+40 max.; After 5minute I=0.03CV+15 max. CV>1,000: After 1minute I=0.04CV+100 max.; After 5minute I=0.02CV+25 max. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	315 to 400V	450V
tanδ (Max.)	≦φ18	0.34	0.24	0.20	0.16	0.14	0.12	0.09	0.08	0.20	0.24	0.24
	≧φ20	0.28	0.24	0.20	0.16	0.14	0.12	0.09	0.08	0.15	0.15	0.20

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	315 to 400V	450V
Z(−25℃)/Z(+20℃)	≦φ18	5	4	3	2	2	2	2	2	3	6	6
	≧φ20	5	4	3	2	2	2	2	2	4	6	6
Z(−40℃)/Z(+20℃)	≦φ18	12	10	8	5	4	3	3	3	4	6	—

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.

Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

Shelf Life

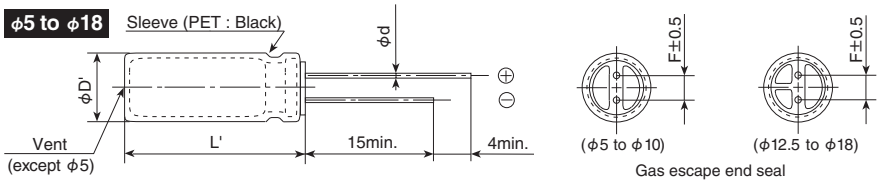
The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	6.3 to 100Vdc	160 to 450Vdc
Capacitance change	≦±20% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

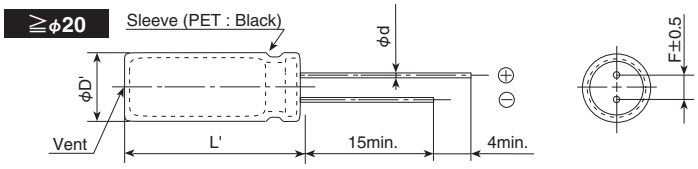
◆DIMENSIONS [mm]

- Terminal Code : E

φ5 to φ18

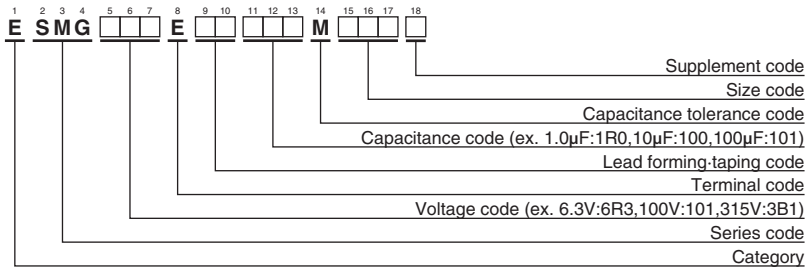


≧φ20



φD	5	6.3	8	10	12.5	16	18	20	22
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0
φD'	φD+0.5max.							φD+0.5max.	
L'	L+1.5max.							L+2.0max.	

◆PART NUMBERING SYSTEM



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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
6.3	220	5×11	0.34	200	ESMG6R3E□□221ME11D
	330	6.3×11	0.34	270	ESMG6R3E□□331MF11D
	470	6.3×11	0.34	320	ESMG6R3E□□471MF11D
	1,000	8×11.5	0.34	540	ESMG6R3E□□102MHB5D
	2,200	10×20	0.36	1,000	ESMG6R3E□□222MJ20S
	3,300	10×20	0.38	1,185	ESMG6R3E□□332MJ20S
	4,700	12.5×20	0.40	1,545	ESMG6R3E□□472MK20S
	6,800	12.5×25	0.44	1,915	ESMG6R3E□□682MK25S
	10,000	16×25	0.52	2,330	ESMG6R3E□□103ML25S
	10,000	20×25	0.46	2,310	ESMG6R3E□□103MN25S
	15,000	16×35.5	0.62	2,845	ESMG6R3E□□153MLP1S
	15,000	20×30	0.56	2,660	ESMG6R3E□□153MN30S
	18,000	20×35	0.62	2,890	ESMG6R3E□□183MN35S
	18,000	22×30	0.62	2,860	ESMG6R3E□□183MP30S
	22,000	18×40	0.76	3,320	ESMG6R3E□□223MM40S
	22,000	20×40	0.70	3,130	ESMG6R3E□□223MN40S
	22,000	22×35	0.70	3,130	ESMG6R3E□□223MP35S
	27,000	22×40	0.80	3,280	ESMG6R3E□□273MP40S
10	220	5×11	0.24	240	ESMG100E□□221ME11D
	330	6.3×11	0.24	290	ESMG100E□□331MF11D
	470	6.3×11	0.24	350	ESMG100E□□471MF11D
	1,000	10×12.5	0.24	650	ESMG100E□□102MJC5S
	2,200	10×20	0.26	1,070	ESMG100E□□222MJ20S
	3,300	12.5×20	0.28	1,420	ESMG100E□□332MK20S
	4,700	12.5×25	0.30	1,780	ESMG100E□□472MK25S
	6,800	16×25	0.34	2,220	ESMG100E□□682ML25S
	6,800	20×20	0.34	2,080	ESMG100E□□682MN20S
	10,000	16×35.5	0.42	2,670	ESMG100E□□103MLP1S
	10,000	20×25	0.42	2,410	ESMG100E□□103MN25S
	12,000	20×30	0.46	2,620	ESMG100E□□123MN30S
	15,000	18×35.5	0.52	3,080	ESMG100E□□153MMP1S
	15,000	20×35	0.52	2,870	ESMG100E□□153MN35S
	15,000	22×30	0.52	2,660	ESMG100E□□153MP30S
	18,000	22×35	0.58	3,050	ESMG100E□□183MP35S
	22,000	22×40	0.66	3,480	ESMG100E□□223MP40S
16	100	5×11	0.20	160	ESMG160E□□101ME11D
	220	6.3×11	0.20	260	ESMG160E□□221MF11D
	330	8×11.5	0.20	370	ESMG160E□□331MHB5D
	470	8×11.5	0.20	440	ESMG160E□□471MHB5D
	1,000	10×16	0.20	785	ESMG160E□□102MJ16S
	2,200	12.5×20	0.22	1,295	ESMG160E□□222MK20S
	3,300	12.5×25	0.24	1,655	ESMG160E□□332MK25S
	4,700	16×25	0.26	2,090	ESMG160E□□472ML25S
	4,700	20×20	0.26	1,960	ESMG160E□□472MN20S
	6,800	16×31.5	0.30	2,520	ESMG160E□□682MLN3S
	6,800	20×25	0.30	2,330	ESMG160E□□682MN25S
	8,200	20×30	0.34	2,500	ESMG160E□□822MN30S
	10,000	18×35.5	0.38	2,920	ESMG160E□□103MMP1S
	10,000	20×35	0.38	2,720	ESMG160E□□103MN35S
	10,000	22×30	0.38	2,660	ESMG160E□□103MP30S
	12,000	20×40	0.42	2,900	ESMG160E□□123MN40S
	12,000	22×35	0.42	2,900	ESMG160E□□123MP35S
	15,000	22×40	0.48	3,380	ESMG160E□□153MP40S
25	47	5×11	0.16	115	ESMG250E□□470ME11D
	100	6.3×11	0.16	190	ESMG250E□□101MF11D
	220	8×11.5	0.16	330	ESMG250E□□221MHB5D
	330	8×11.5	0.16	440	ESMG250E□□331MHB5D
	470	10×12.5	0.16	545	ESMG250E□□471MJC5S
	1,000	10×20	0.16	955	ESMG250E□□102MJ20S
	2,200	12.5×25	0.18	1,540	ESMG250E□□222MK25S
	3,300	16×25	0.20	1,975	ESMG250E□□332ML25S
	3,300	20×20	0.20	1,850	ESMG250E□□332MN20S
	4,700	16×31.5	0.22	2,420	ESMG250E□□472MLN3S
	4,700	20×25	0.22	2,420	ESMG250E□□472MN25S
	5,600	20×30	0.24	2,430	ESMG250E□□562MN30S
	6,800	18×35.5	0.26	2,880	ESMG250E□□682MMP1S
	6,800	20×35	0.26	2,680	ESMG250E□□682MN35S
25	6,800	22×30	0.26	2,510	ESMG250E□□682MP30S
	8,200	20×40	0.30	2,810	ESMG250E□□822MN40S
	8,200	22×35	0.30	2,810	ESMG250E□□822MP35S
	10,000	22×40	0.34	3,240	ESMG250E□□103MP40S
	12,000	22×40	0.38	3,240	ESMG250E□□123MP40S
35	47	5×11	0.14	130	ESMG350E□□470ME11D
	100	6.3×11	0.14	210	ESMG350E□□101MF11D
	220	8×11.5	0.14	385	ESMG350E□□221MHB5D
	330	10×12.5	0.14	490	ESMG350E□□331MJC5S
	470	10×16	0.14	645	ESMG350E□□471MJ16S
	1,000	12.5×20	0.14	1,145	ESMG350E□□102MK20S
	2,200	16×25	0.16	1,785	ESMG350E□□222ML25S
	2,200	20×20	0.16	1,670	ESMG350E□□222MN20S
	3,300	16×35.5	0.18	2,275	ESMG350E□□332MLP1S
	3,300	20×25	0.18	2,050	ESMG350E□□332MN25S
	3,900	20×30	0.18	2,310	ESMG350E□□392MN30S
	4,700	18×35.5	0.20	2,700	ESMG350E□□472MMP1S
	4,700	20×35	0.20	2,510	ESMG350E□□472MN35S
	4,700	22×30	0.20	2,380	ESMG350E□□472MP30S
	5,600	20×40	0.22	2,690	ESMG350E□□562MN40S
	5,600	22×35	0.22	2,690	ESMG350E□□562MP35S
	6,800	22×40	0.24	3,090	ESMG350E□□682MP40S
50	1.0	5×11	0.12	17	ESMG500E□□1R0ME11D
	2.2	5×11	0.12	28	ESMG500E□□2R2ME11D
	3.3	5×11	0.12	35	ESMG500E□□3R3ME11D
	4.7	5×11	0.12	41	ESMG500E□□4R7ME11D
	10	5×11	0.12	60	ESMG500E□□100ME11D
	22	5×11	0.12	95	ESMG500E□□220ME11D
	33	5×11	0.12	125	ESMG500E□□330ME11D
	47	6.3×11	0.12	155	ESMG500E□□470MF11D
	100	8×11.5	0.12	260	ESMG500E□□101MHB5D
	220	10×12.5	0.12	430	ESMG500E□□221MJC5S
	330	10×16	0.12	585	ESMG500E□□331MJ16S
	470	10×20	0.12	755	ESMG500E□□471MJ20S
	1,000	12.5×25	0.12	1,340	ESMG500E□□102MK25S
	1,500	20×20	0.12	1,570	ESMG500E□□152MN20S
	2,200	16×35.5	0.14	2,075	ESMG500E□□222MLP1S
	2,200	20×25	0.14	1,880	ESMG500E□□222MN25S
	2,700	20×30	0.14	2,150	ESMG500E□□272MN30S
	3,300	18×35.5	0.16	2,500	ESMG500E□□332MMP1S
	3,300	20×35	0.16	2,420	ESMG500E□□332MN35S
	3,300	22×30	0.16	2,420	ESMG500E□□332MP30S
	3,900	20×40	0.16	2,590	ESMG500E□□392MN40S
	3,900	22×35	0.16	2,590	ESMG500E□□392MP35S
	4,700	22×40	0.18	2,960	ESMG500E□□472MP40S
63	10	5×11	0.09	65	ESMG630E□□100ME11D
	22	5×11	0.09	100	ESMG630E□□220ME11D
	33	6.3×11	0.09	140	ESMG630E□□330MF11D
	47	6.3×11	0.09	170	ESMG630E□□470MF11D
	100	10×12.5	0.09	300	ESMG630E□□101MJC5S
	220	10×16	0.09	490	ESMG630E□□221MJ16S
	330	10×20	0.09	710	ESMG630E□□331MJ20S
	470	12.5×20	0.09	900	ESMG630E□□471MK20S
	820	20×20	0.09	1,370	ESMG630E□□821MN20S
	1,000	16×25	0.09	1,300	ESMG630E□□102ML25S
	1,000	20×25	0.09	1,600	ESMG630E□□102MN25S
	1,500	20×30	0.09	1,850	ESMG630E□□152MN30S
	2,200	20×35	0.11	2,330	ESMG630E□□222MN35S
	2,200	22×30	0.11	2,190	ESMG630E□□222MP30S
	2,700	20×40	0.11	2,640	ESMG630E□□272MN40S
	3,300	22×40	0.13	2,810	ESMG630E□□332MP40S
100	1.0	5×11	0.08	21	ESMG101E□□1R0ME11D
	2.2	5×11	0.08	30	ESMG101E□□2R2ME11D
	3.3	5×11	0.08	40	ESMG101E□□3R3ME11D
	4.7	5×11	0.08	45	ESMG101E□□4R7ME11D
	10	6.3×11	0.08	75	ESMG101E□□100MF11D
	22	8×11.5	0.08	130	ESMG101E□□220MHB5D

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
100	33	8×11.5	0.08	180	ESMG101E□□330MHB5D
	47	10×12.5	0.08	230	ESMG101E□□470MJC5S
	100	10×20	0.08	370	ESMG101E□□101MJ20S
	220	12.5×25	0.08	620	ESMG101E□□221MK25S
	330	12.5×25	0.08	760	ESMG101E□□331MK25S
	330	20×20	0.08	870	ESMG101E□□331MN20S
	470	16×25	0.08	1,000	ESMG101E□□471ML25S
	680	20×30	0.08	1,360	ESMG101E□□681MN30S
	820	22×30	0.08	1,540	ESMG101E□□821MP30S
	1,000	18×40	0.08	1,380	ESMG101E□□102MM40S
	1,000	20×35	0.08	1,720	ESMG101E□□102MN35S
	1,200	22×40	0.08	1,980	ESMG101E□□122MP40S
160	3.3	6.3×11	0.20	40	ESMG161E□□3R3MF11D
	4.7	6.3×11	0.20	48	ESMG161E□□4R7MF11D
	10	10×12.5	0.20	94	ESMG161E□□100MJC5S
	22	10×20	0.20	170	ESMG161E□□220MJ20S
	33	10×20	0.20	205	ESMG161E□□330MJ20S
	47	12.5×20	0.20	270	ESMG161E□□470MK20S
	100	12.5×25	0.20	430	ESMG161E□□101MK25S
	220	16×31.5	0.20	760	ESMG161E□□221MLN3S
	220	20×25	0.15	730	ESMG161E□□221MN25S
	330	18×35.5	0.20	995	ESMG161E□□331MMP1S
	330	20×30	0.15	920	ESMG161E□□331MN30S
	390	20×35	0.15	1,160	ESMG161E□□391MN35S
	390	22×30	0.15	1,160	ESMG161E□□391MP30S
	470	20×40	0.15	1,340	ESMG161E□□471MN40S
	470	22×35	0.15	1,340	ESMG161E□□471MP35S
	560	22×40	0.15	1,470	ESMG161E□□561MP40S
200	3.3	6.3×11	0.20	40	ESMG201E□□3R3MF11D
	4.7	8×11.5	0.20	55	ESMG201E□□4R7MHB5D
	10	10×12.5	0.20	94	ESMG201E□□100MJC5S
	22	10×20	0.20	170	ESMG201E□□220MJ20S
	33	10×20	0.20	205	ESMG201E□□330MJ20S
	47	12.5×20	0.20	270	ESMG201E□□470MK20S
	100	16×25	0.20	475	ESMG201E□□101ML25S
	100	20×20	0.15	460	ESMG201E□□101MN20S
	180	20×25	0.15	660	ESMG201E□□181MN25S
	220	18×35.5	0.20	810	ESMG201E□□221MMP1S
	220	20×30	0.15	750	ESMG201E□□221MN30S
	270	20×30	0.15	830	ESMG201E□□271MN30S
	330	20×35	0.15	1,070	ESMG201E□□331MN35S
	330	22×30	0.15	1,070	ESMG201E□□331MP30S
	390	20×40	0.15	1,190	ESMG201E□□391MN40S
	390	22×30	0.15	1,160	ESMG201E□□391MP30S
	470	22×40	0.15	1,350	ESMG201E□□471MP40S
	560	22×40	0.15	1,430	ESMG201E□□561MP40S
250	2.2	6.3×11	0.20	32	ESMG251E□□2R2MF11D
	3.3	8×11.5	0.20	46	ESMG251E□□3R3MHB5D
	4.7	8×11.5	0.20	55	ESMG251E□□4R7MHB5D
	10	10×16	0.20	105	ESMG251E□□100MJ16S
	22	10×20	0.20	170	ESMG251E□□220MJ20S
	33	12.5×20	0.20	230	ESMG251E□□330MK20S
	47	12.5×25	0.20	295	ESMG251E□□470MK25S
	82	20×20	0.15	420	ESMG251E□□820MN20S
	100	16×31.5	0.20	515	ESMG251E□□101MLN3S
	100	20×25	0.15	490	ESMG251E□□101MN25S
	120	20×25	0.15	530	ESMG251E□□121MN25S
	180	20×30	0.15	680	ESMG251E□□181MN30S
	220	18×40	0.20	825	ESMG251E□□221MM40S
	220	20×35	0.15	780	ESMG251E□□221MN35S
	220	22×30	0.15	820	ESMG251E□□221MP30S
	270	20×40	0.15	880	ESMG251E□□271MN40S
	270	22×35	0.15	880	ESMG251E□□271MP35S
	330	22×40	0.15	1,060	ESMG251E□□331MP40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
315	47	20×20	0.15	310	ESMG3B1E□□470MN20S
	68	20×25	0.15	400	ESMG3B1E□□680MN25S
	82	20×25	0.15	440	ESMG3B1E□□820MN25S
	100	20×30	0.15	500	ESMG3B1E□□101MN30S
	120	20×30	0.15	550	ESMG3B1E□□121MN30S
	180	20×40	0.15	720	ESMG3B1E□□181MN40S
	180	22×35	0.15	720	ESMG3B1E□□181MP35S
	220	22×40	0.15	810	ESMG3B1E□□221MP40S
350	1.0	6.3×11	0.24	22	ESMG351E□□1R0MF11D
	2.2	8×11.5	0.24	38	ESMG351E□□2R2MHB5D
	3.3	8×11.5	0.24	46	ESMG351E□□3R3MHB5D
	4.7	10×12.5	0.24	65	ESMG351E□□4R7MJC5S
	10	10×20	0.24	115	ESMG351E□□100MJ20S
	22	12.5×20	0.24	185	ESMG351E□□220MK20S
	33	16×25	0.24	275	ESMG351E□□330ML25S
	47	16×25	0.24	325	ESMG351E□□470ML25S
	47	20×20	0.15	310	ESMG351E□□470MN20S
	68	20×25	0.15	400	ESMG351E□□680MN25S
	100	18×31.5	0.24	530	ESMG351E□□101MMN3S
	100	20×30	0.15	500	ESMG351E□□101MN30S
	120	20×35	0.15	560	ESMG351E□□121MN35S
400	1.0	6.3×11	0.24	22	ESMG401E□□1R0MF11D
	2.2	8×11.5	0.24	38	ESMG401E□□2R2MHB5D
	3.3	10×12.5	0.24	54	ESMG401E□□3R3MJC5S
	4.7	10×16	0.24	71	ESMG401E□□4R7MJ16S
	10	10×20	0.24	115	ESMG401E□□100MJ20S
	22	12.5×25	0.24	205	ESMG401E□□220MK25S
	33	16×25	0.24	275	ESMG401E□□330ML25S
	33	20×20	0.15	260	ESMG401E□□330MN20S
	47	16×31.5	0.24	350	ESMG401E□□470MLN3S
	56	20×25	0.15	350	ESMG401E□□560MN25S
	68	20×30	0.15	420	ESMG401E□□680MN30S
	100	20×35	0.15	520	ESMG401E□□101MN35S
	100	22×30	0.15	520	ESMG401E□□101MP30S
	120	20×40	0.15	580	ESMG401E□□121MN40S
	120	22×35	0.15	580	ESMG401E□□121MP35S
450	2.2	10×12.5	0.24	32	ESMG451E□□2R2MJC5S
	3.3	10×16	0.24	44	ESMG451E□□3R3MJ16S
	4.7	10×20	0.24	56	ESMG451E□□4R7MJ20S
	10	12.5×20	0.24	91	ESMG451E□□100MK20S
	22	16×25	0.24	165	ESMG451E□□220ML25S
	22	20×20	0.20	180	ESMG451E□□220MN20S
	33	16×31.5	0.24	215	ESMG451E□□330MLN3S
	33	20×25	0.20	240	ESMG451E□□330MN25S
	47	16×35.5	0.24	265	ESMG451E□□470MLP1S
	47	20×25	0.20	290	ESMG451E□□470MN25S
	56	20×30	0.20	320	ESMG451E□□560MN30S
	68	20×35	0.20	370	ESMG451E□□680MN35S
	68	22×30	0.20	370	ESMG451E□□680MP30S
	82	20×40	0.20	420	ESMG451E□□820MN40S
	82	22×35	0.20	420	ESMG451E□□820MP35S
	100	22×40	0.20	470	ESMG451E□□101MP40S

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

(φ5 to φ18)

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
1.0 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(φ20, φ22)

Rated Voltage (V_{DC}) \ Frequency (Hz)	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20
160 to 250	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

KMG Series

●Endurance with ripple current : 1,000 to 2,000 hours at 105℃
●Solvent resistant type except 350 to 450Vdc
(see PRECAUTIONS AND GUIDELINES)
●**RoHS Compliant**

KMQ
↑ Downsized
KMG

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃(6.3 to 100Vdc) −40 to +105℃(160 to 400Vdc) -25 to +105℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute) 160 to 450Vdc: CV≦1,000 — After 1minute: I=0.1CV+40 max. — After 5minutes: I=0.03CV+15 max.; CV>1,000 — After 1minute: I=0.04CV+100 max. — After 5minutes: I=0.02CV+25 max. (at 20℃) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V
tanδ (Max.)	0.34	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.24	0.24

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V
Z(−25℃)/Z(+20℃)	5	4	3	2	2	2	2	2	3	6	6
Z(−40℃)/Z(+20℃)	12	10	8	5	4	3	3	3	4	6	—

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 1,000 hours (2,000 hours to meet the following two conditions 1): 160Vdc and larger, 2) : φ12.5 and larger) at 105℃.

Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

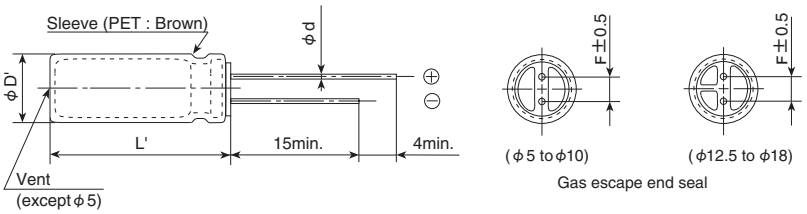
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	6.3 to 100Vcd	160 to 450Vdc
Capacitance change	≦±20% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

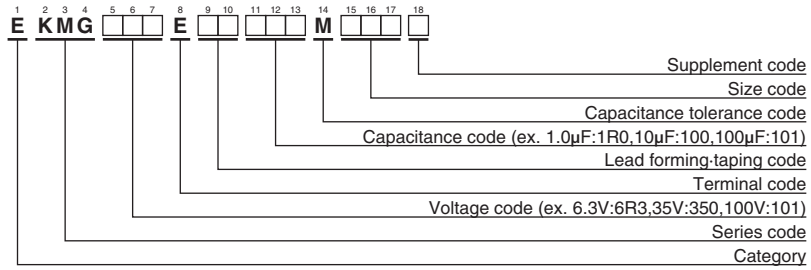
◆DIMENSIONS [mm]

●Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max						
L'	L+1.5max						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

KMG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	220	5×11	0.34	140	EKMG6R3E□□221ME11D
	330	6.3×11	0.34	190	EKMG6R3E□□331MF11D
	470	6.3×11	0.34	230	EKMG6R3E□□471MF11D
	1,000	8×11.5	0.34	380	EKMG6R3E□□102MHB5D
	2,200	10×20	0.36	710	EKMG6R3E□□222MJ20S
	3,300	10×20	0.38	840	EKMG6R3E□□332MJ20S
	4,700	12.5×20	0.40	1,090	EKMG6R3E□□472MK20S
	6,800	12.5×25	0.44	1,350	EKMG6R3E□□682MK25S
	10,000	16×25	0.52	1,650	EKMG6R3E□□103ML25S
	15,000	16×35.5	0.62	2,010	EKMG6R3E□□153MLP1S
	22,000	18×40	0.76	2,350	EKMG6R3E□□223MM40S
10	220	6.3×11	0.24	170	EKMG100E□□221MF11D
	330	6.3×11	0.24	200	EKMG100E□□331MF11D
	470	8×11.5	0.24	250	EKMG100E□□471MHB5D
	1,000	10×12.5	0.24	460	EKMG100E□□102MJC5S
	2,200	10×20	0.26	760	EKMG100E□□222MJ20S
	3,300	12.5×20	0.28	1,000	EKMG100E□□332MK20S
	4,700	12.5×25	0.30	1,260	EKMG100E□□472MK25S
	6,800	16×25	0.34	1,570	EKMG100E□□682ML25S
	10,000	16×35.5	0.42	1,890	EKMG100E□□103MLP1S
	15,000	18×35.5	0.52	2,180	EKMG100E□□153MMP1S
16	100	5×11	0.20	110	EKMG160E□□101ME11D
	220	6.3×11	0.20	180	EKMG160E□□221MF11D
	330	8×11.5	0.20	260	EKMG160E□□331MHB5D
	470	8×11.5	0.20	310	EKMG160E□□471MHB5D
	1,000	10×16	0.20	560	EKMG160E□□102MJ16S
	2,200	12.5×20	0.22	920	EKMG160E□□222MK20S
	3,300	12.5×25	0.24	1,170	EKMG160E□□332MK25S
	4,700	16×25	0.26	1,480	EKMG160E□□472ML25S
	6,800	16×31.5	0.30	1,780	EKMG160E□□682MLN3S
	10,000	18×35.5	0.38	2,060	EKMG160E□□103MMP1S
25	47	5×11	0.16	80	EKMG250E□□470ME11D
	100	6.3×11	0.16	130	EKMG250E□□101MF11D
	220	8×11.5	0.16	230	EKMG250E□□221MHB5D
	330	8×11.5	0.16	310	EKMG250E□□331MHB5D
	470	10×12.5	0.16	380	EKMG250E□□471MJC5S
	1,000	10×20	0.16	680	EKMG250E□□102MJ20S
	2,200	12.5×25	0.18	1,090	EKMG250E□□222MK25S
	3,300	16×25	0.20	1,400	EKMG250E□□332ML25S
	4,700	16×31.5	0.22	1,710	EKMG250E□□472MLN3S
	6,800	18×35.5	0.26	2,040	EKMG250E□□682MMP1S
35	47	5×11	0.14	90	EKMG350E□□470ME11D
	100	6.3×11	0.14	150	EKMG350E□□101MF11D
	220	8×11.5	0.14	270	EKMG350E□□221MHB5D
	330	10×12.5	0.14	350	EKMG350E□□331MJC5S
	470	10×16	0.14	460	EKMG350E□□471MJ16S
	1,000	12.5×20	0.14	810	EKMG350E□□102MK20S
	2,200	16×25	0.16	1,260	EKMG350E□□222ML25S
	3,300	16×35.5	0.18	1,610	EKMG350E□□332MLP1S
	4,700	18×35.5	0.20	1,910	EKMG350E□□472MMP1S
50	1.0	5×11	0.12	13	EKMG500E□□1R0ME11D
	2.2	5×11	0.12	20	EKMG500E□□2R2ME11D
	3.3	5×11	0.12	25	EKMG500E□□3R3ME11D
	4.7	5×11	0.12	30	EKMG500E□□4R7ME11D
	10	5×11	0.12	40	EKMG500E□□100ME11D
	22	5×11	0.12	65	EKMG500E□□220ME11D
	33	5×11	0.12	90	EKMG500E□□330ME11D
	47	6.3×11	0.12	110	EKMG500E□□470MF11D
	100	8×11.5	0.12	180	EKMG500E□□101MHB5D
	220	10×12.5	0.12	300	EKMG500E□□221MJC5S
	330	10×16	0.12	410	EKMG500E□□331MJ16S
	470	10×20	0.12	530	EKMG500E□□471MJ20S
	1,000	12.5×25	0.12	950	EKMG500E□□102MK25S
	2,200	16×35.5	0.14	1,470	EKMG500E□□222MLP1S
	3,300	18×35.5	0.16	1,770	EKMG500E□□332MMP1S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
63	10	5×11	0.10	46	EKMG630E□□100ME11D
	22	5×11	0.10	71	EKMG630E□□220ME11D
	33	6.3×11	0.10	100	EKMG630E□□330MF11D
	47	6.3×11	0.10	120	EKMG630E□□470MF11D
	100	10×12.5	0.10	215	EKMG630E□□101MJC5S
	220	10×16	0.10	335	EKMG630E□□221MJ16S
	330	10×20	0.10	510	EKMG630E□□331MJ20S
	470	12.5×20	0.10	640	EKMG630E□□471MK20S
	1,000	16×25	0.10	930	EKMG630E□□102ML25S
100	1.0	5×11	0.08	15	EKMG101E□□1R0ME11D
	2.2	5×11	0.08	21	EKMG101E□□2R2ME11D
	3.3	5×11	0.08	29	EKMG101E□□3R3ME11D
	4.7	5×11	0.08	32	EKMG101E□□4R7ME11D
	10	6.3×11	0.08	54	EKMG101E□□100MF11D
	22	8×11.5	0.08	93	EKMG101E□□220MHB5D
	33	8×11.5	0.08	130	EKMG101E□□330MHB5D
	47	10×12.5	0.08	165	EKMG101E□□470MJC5S
	100	10×20	0.08	265	EKMG101E□□101MJ20S
	220	12.5×25	0.08	440	EKMG101E□□221MK25S
	330	16×25	0.08	540	EKMG101E□□331ML25S
	470	16×31.5	0.08	715	EKMG101E□□471MLN3S
	1,000	18×40	0.08	985	EKMG101E□□102MM40S
160	3.3	6.3×11	0.20	28	EKMG161E□□3R3MF11D
	4.7	6.3×11	0.20	34	EKMG161E□□4R7MF11D
	10	10×12.5	0.20	67	EKMG161E□□100MJC5S
	22	10×20	0.20	120	EKMG161E□□220MJ20S
	33	10×20	0.20	145	EKMG161E□□330MJ20S
	47	12.5×20	0.20	195	EKMG161E□□470MK20S
	100	16×25	0.20	335	EKMG161E□□101ML25S
	220	16×31.5	0.20	540	EKMG161E□□221MLN3S
	330	18×35.5	0.20	705	EKMG161E□□331MMP1S
200	3.3	6.3×11	0.20	28	EKMG201E□□3R3MF11D
	4.7	8×11.5	0.20	39	EKMG201E□□4R7MHB5D
	10	10×16	0.20	74	EKMG201E□□100MJ16S
	22	10×20	0.20	120	EKMG201E□□220MJ20S
	33	12.5×20	0.20	160	EKMG201E□□330MK20S
	47	12.5×20	0.20	195	EKMG201E□□470MK20S
	100	16×25	0.20	335	EKMG201E□□101ML25S
	220	18×35.5	0.20	575	EKMG201E□□221MMP1S
250	2.2	6.3×11	0.20	23	EKMG251E□□2R2MF11D
	3.3	8×11.5	0.20	32	EKMG251E□□3R3MHB5D
	4.7	8×11.5	0.20	39	EKMG251E□□4R7MHB5D
	10	10×16	0.20	74	EKMG251E□□100MJ16S
	22	12.5×20	0.20	130	EKMG251E□□220MK20S
	33	12.5×20	0.20	160	EKMG251E□□330MK20S
	47	12.5×25	0.20	210	EKMG251E□□470MK25S
	100	16×31.5	0.20	365	EKMG251E□□101MLN3S
	220	18×40	0.20	585	EKMG251E□□221MM40S
350	1.0	6.3×11	0.24	15	EKMG351E□□1R0MF11D
	2.2	8×11.5	0.24	26	EKMG351E□□2R2MHB5D
	3.3	10×12.5	0.24	38	EKMG351E□□3R3MJC5S
	4.7	10×16	0.24	50	EKMG351E□□4R7MJ16S
	10	10×20	0.24	80	EKMG351E□□100MJ20S
	22	12.5×20	0.24	130	EKMG351E□□220MK20S
	33	16×25	0.24	195	EKMG351E□□330ML25S
	47	16×25	0.24	230	EKMG351E□□470ML25S
	100	18×31.5	0.24	375	EKMG351E□□101MMN3S
400	1.0	6.3×11	0.24	15	EKMG401E□□1R0MF11D
	2.2	8×11.5	0.24	26	EKMG401E□□2R2MHB5D
	3.3	10×12.5	0.24	38	EKMG401E□□3R3MJC5S
	4.7	10×16	0.24	50	EKMG401E□□4R7MJ16S
	10	10×20	0.24	80	EKMG401E□□100MJ20S
	22	12.5×25	0.24	145	EKMG401E□□220MK25S
	33	16×25	0.24	195	EKMG401E□□330ML25S
	47	16×31.5	0.24	250	EKMG401E□□470MLN3S
	100	16×40	0.24	350	EKMG401E□□101ML40S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

KMG Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
450	2.2	10×12.5	0.24	23	EKMG451E□□2R2MJC5S
	3.3	10×16	0.24	31	EKMG451E□□3R3MJ16S
	4.7	10×20	0.24	40	EKMG451E□□4R7MJ20S
	10	12.5×20	0.24	65	EKMG451E□□100MK20S
	22	16×25	0.24	115	EKMG451E□□220ML25S
	33	16×31.5	0.24	155	EKMG451E□□330MLN3S
	47	16×35.5	0.24	185	EKMG451E□□470MLP1S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
1.0 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

SME-BP Series

- Standard Bi-polar type
- Endurance : 2,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.06CV or 10μA, whichever is greater. (at 20℃ after 2 minutes) I=0.03CV or 3μA, whichever is greater. (at 20℃ after 5 minutes) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
tanδ (Max.)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.12	0.10

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	2
Z(−40℃)/Z(+20℃)	10	8	6	4	3	3	3	3	3

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃, however the polarization shall be reversed every 250 hours.

Rated voltage	6.3 to 16Vdc	25 to 100Vdc
Capacitance change	≦±25% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦150% of the initial specified value	
Leakage current	≦The initial specified value	

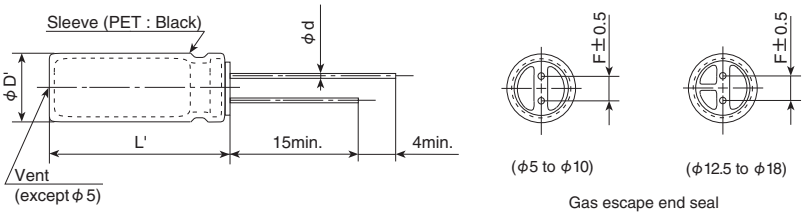
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	6.3 to 16Vdc	25 to 100Vdc
Capacitance change	≦±25% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦150% of the initial specified value	
Leakage current	≦The initial specified value	

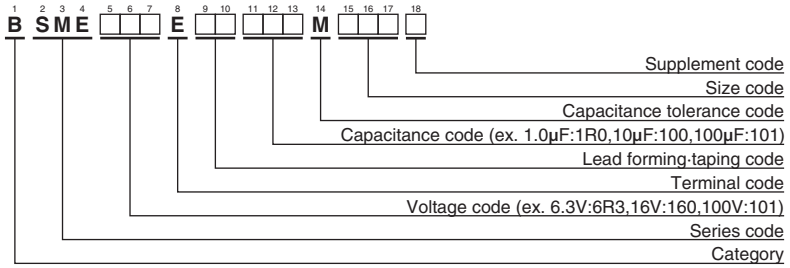
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

SME-BP Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
6.3	33	5×11	0.24	64	BSME6R3E□□330ME11D
	47	5×11	0.24	76	BSME6R3E□□470ME11D
	100	6.3×11	0.24	125	BSME6R3E□□101MF11D
	220	8×11.5	0.24	215	BSME6R3E□□221MHB5D
	330	8×11.5	0.24	265	BSME6R3E□□331MHB5D
	470	10×12.5	0.24	370	BSME6R3E□□471MJC5S
	1,000	10×20	0.24	650	BSME6R3E□□102MJ20S
	2,200	12.5×25	0.26	1,160	BSME6R3E□□222MK25S
	3,300	16×25	0.28	1,570	BSME6R3E□□332ML25S
	4,700	16×31.5	0.30	2,020	BSME6R3E□□472MLN3S
	6,800	18×35.5	0.34	2,600	BSME6R3E□□682MMP1S
10	22	5×11	0.24	57	BSME100E□□220ME11D
	33	5×11	0.24	64	BSME100E□□330ME11D
	47	5×11	0.24	76	BSME100E□□470ME11D
	100	6.3×11	0.24	125	BSME100E□□101MF11D
	220	8×11.5	0.24	215	BSME100E□□221MHB5D
	330	10×16	0.24	345	BSME100E□□331MJ16S
	470	10×16	0.24	410	BSME100E□□471MJ16S
	1,000	12.5×20	0.24	720	BSME100E□□102MK20S
	2,200	16×25	0.26	1,280	BSME100E□□222ML25S
	3,300	16×31.5	0.28	1,690	BSME100E□□332MLN3S
	4,700	18×35.5	0.30	2,160	BSME100E□□472MMP1S
16	10	5×11	0.20	42	BSME160E□□100ME11D
	22	5×11	0.20	57	BSME160E□□220ME11D
	33	5×11	0.20	70	BSME160E□□330ME11D
	47	6.3×11	0.20	95	BSME160E□□470MF11D
	100	8×11.5	0.20	160	BSME160E□□101MHB5D
	220	10×12.5	0.20	275	BSME160E□□221MJC5S
	330	10×16	0.20	375	BSME160E□□331MJ16S
	470	10×20	0.20	485	BSME160E□□471MJ20S
	1,000	12.5×25	0.20	855	BSME160E□□102MK25S
	2,200	16×31.5	0.22	1,510	BSME160E□□222MLN3S
	3,300	18×35.5	0.24	1,980	BSME160E□□332MMP1S
25	10	5×11	0.20	42	BSME250E□□100ME11D
	22	6.3×11	0.20	65	BSME250E□□220MF11D
	33	6.3×11	0.20	80	BSME250E□□330MF11D
	47	6.3×11	0.20	95	BSME250E□□470MF11D
	100	8×11.5	0.20	160	BSME250E□□101MHB5D
	220	10×16	0.20	305	BSME250E□□221MJ16S
	330	12.5×20	0.20	450	BSME250E□□331MK20S
	470	12.5×20	0.20	540	BSME250E□□471MK20S
	1,000	16×25	0.20	950	BSME250E□□102ML25S
	2,200	18×35.5	0.22	1,620	BSME250E□□222MMP1S
35	4.7	5×11	0.16	34	BSME350E□□4R7ME11D
	10	5×11	0.16	43	BSME350E□□100ME11D
	22	6.3×11	0.16	73	BSME350E□□220MF11D
	33	8×11.5	0.16	100	BSME350E□□330MHB5D
	47	8×11.5	0.16	120	BSME350E□□470MHB5D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
35	100	10×16	0.16	230	BSME350E□□101MJ16S
	220	12.5×20	0.16	410	BSME350E□□221MK20S
	330	12.5×20	0.16	505	BSME350E□□331MK20S
	470	12.5×25	0.16	655	BSME350E□□471MK25S
	1,000	16×31.5	0.16	1,140	BSME350E□□102MLN3S
50	1.0	5×11	0.14	17	BSME500E□□1R0ME11D
	2.2	5×11	0.14	25	BSME500E□□2R2ME11D
	3.3	5×11	0.14	27	BSME500E□□3R3ME11D
	4.7	5×11	0.14	34	BSME500E□□4R7ME11D
	10	6.3×11	0.14	52	BSME500E□□100MF11D
	22	8×11.5	0.14	89	BSME500E□□220MHB5D
	33	8×11.5	0.14	105	BSME500E□□330MHB5D
	47	10×12.5	0.14	150	BSME500E□□470MJC5S
	100	10×20	0.14	265	BSME500E□□101MJ20S
	220	12.5×25	0.14	480	BSME500E□□221MK25S
	330	16×25	0.14	650	BSME500E□□331ML25S
	470	16×31.5	0.14	835	BSME500E□□471MLN3S
63	3.3	5×11	0.12	28	BSME630E□□3R3ME11D
	4.7	6.3×11	0.12	34	BSME630E□□4R7MF11D
	10	6.3×11	0.12	57	BSME630E□□100MF11D
	22	8×11.5	0.12	95	BSME630E□□220MHB5D
	33	10×12.5	0.12	135	BSME630E□□330MJC5S
	47	10×16	0.12	180	BSME630E□□470MJ16S
	100	12.5×20	0.12	320	BSME630E□□101MK20S
	220	16×25	0.12	575	BSME630E□□221ML25S
	330	16×31.5	0.12	655	BSME630E□□331MLN3S
	470	18×35.5	0.12	965	BSME630E□□471MMP1S
80	2.2	5×11	0.12	29	BSME800E□□2R2ME11D
	3.3	6.3×11	0.12	39	BSME800E□□3R3MF11D
	4.7	6.3×11	0.12	47	BSME800E□□4R7MF11D
	10	8×11.5	0.12	65	BSME800E□□100MHB5D
	22	10×16	0.12	125	BSME800E□□220MJ16S
	33	10×16	0.12	150	BSME800E□□330MJ16S
	47	10×20	0.12	195	BSME800E□□470MJ20S
	100	12.5×25	0.12	350	BSME800E□□101MK25S
	220	16×31.5	0.12	615	BSME800E□□221MLN3S
	330	18×35.5	0.12	755	BSME800E□□331MMP1S
100	1.0	5×11	0.10	21	BSME101E□□1R0ME11D
	2.2	6.3×11	0.10	34	BSME101E□□2R2MF11D
	3.3	6.3×11	0.10	39	BSME101E□□3R3MF11D
	4.7	6.3×11	0.10	47	BSME101E□□4R7MF11D
	10	8×11.5	0.10	71	BSME101E□□100MHB5D
	22	10×16	0.10	135	BSME101E□□220MJ16S
	33	12.5×20	0.10	220	BSME101E□□330MK20S
	47	12.5×20	0.10	240	BSME101E□□470MK20S
	100	16×25	0.10	425	BSME101E□□101ML25S
	220	18×35.5	0.10	720	BSME101E□□221MMP1S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
1.0 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

KME-BP Series

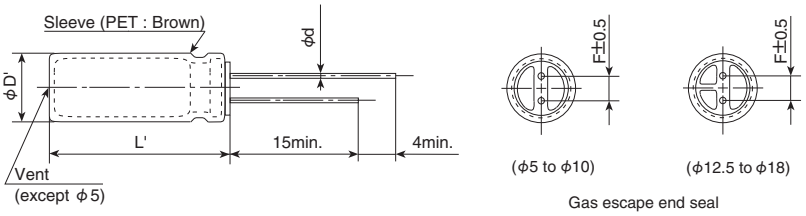
- Standard Bi-polar type
- Endurance : 1,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.06CV or 10μA, whichever is greater. (at 20℃ after 2 minutes) I=0.03CV or 3μA, whichever is greater. (at 20℃ after 5 minutes) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V tanδ (Max.): 0.24, 0.24, 0.20, 0.20, 0.16, 0.14, 0.12, 0.12, 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V Z(−25℃)/Z(+20℃): 4, 3, 2, 2, 2, 2, 2, 2, 2 Z(−40℃)/Z(+20℃): 10, 8, 6, 4, 3, 3, 3, 3, 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃, however the polarization shall be reversed every 250 hours. Rated voltage: 6.3 to 16Vdc / 25 to 100Vdc Capacitance change: ≦±25% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage: 6.3 to 16Vdc / 25 to 100Vdc Capacitance change: ≦±25% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

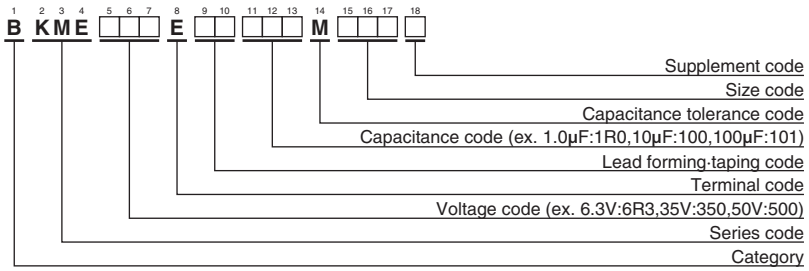
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

KME-BP Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	33	5×11	0.24	45	BKME6R3E□□330ME11D
	47	5×11	0.24	54	BKME6R3E□□470ME11D
	100	6.3×11	0.24	90	BKME6R3E□□101MF11D
	220	8×11.5	0.24	150	BKME6R3E□□221MHB5D
	330	8×11.5	0.24	185	BKME6R3E□□331MHB5D
	470	10×12.5	0.24	260	BKME6R3E□□471MJC5S
	1,000	10×20	0.24	460	BKME6R3E□□102MJ20S
	2,200	12.5×25	0.26	820	BKME6R3E□□222MK25S
	3,300	16×25	0.28	1,110	BKME6R3E□□332ML25S
	4,700	16×31.5	0.30	1,430	BKME6R3E□□472MLN3S
	6,800	18×35.5	0.34	1,830	BKME6R3E□□682MMP1S
10	22	5×11	0.24	37	BKME100E□□220ME11D
	33	5×11	0.24	45	BKME100E□□330ME11D
	47	5×11	0.24	54	BKME100E□□470ME11D
	100	6.3×11	0.24	90	BKME100E□□101MF11D
	220	8×11.5	0.24	150	BKME100E□□221MHB5D
	330	10×16	0.24	240	BKME100E□□331MJ16S
	470	10×16	0.24	290	BKME100E□□471MJ16S
	1,000	12.5×20	0.24	510	BKME100E□□102MK20S
	2,200	16×25	0.26	910	BKME100E□□222ML25S
	3,300	16×31.5	0.28	1,200	BKME100E□□332MLN3S
	4,700	18×35.5	0.30	1,520	BKME100E□□472MMP1S
16	10	5×11	0.20	27	BKME160E□□100ME11D
	22	5×11	0.20	40	BKME160E□□220ME11D
	33	5×11	0.20	49	BKME160E□□330ME11D
	47	6.3×11	0.20	67	BKME160E□□470MF11D
	100	8×11.5	0.20	110	BKME160E□□101MHB5D
	220	10×12.5	0.20	195	BKME160E□□221MJC5S
	330	10×16	0.20	265	BKME160E□□331MJ16S
	470	10×20	0.20	345	BKME160E□□471MJ20S
	1,000	12.5×25	0.20	605	BKME160E□□102MK25S
	2,200	16×31.5	0.22	1,070	BKME160E□□222MLN3S
	3,300	18×35.5	0.24	1,400	BKME160E□□332MMP1S
25	10	5×11	0.20	27	BKME250E□□100ME11D
	22	6.3×11	0.20	46	BKME250E□□220MF11D
	33	6.3×11	0.20	56	BKME250E□□330MF11D
	47	6.3×11	0.20	67	BKME250E□□470MF11D
	100	8×11.5	0.20	110	BKME250E□□101MHB5D
	220	10×16	0.20	215	BKME250E□□221MJ16S
	330	12.5×20	0.20	320	BKME250E□□331MK20S
	470	12.5×20	0.20	380	BKME250E□□471MK20S
	1,000	16×25	0.20	670	BKME250E□□102ML25S
	2,200	18×35.5	0.22	1,140	BKME250E□□222MMP1S
35	4.7	5×11	0.16	21	BKME350E□□4R7ME11D
	10	5×11	0.16	30	BKME350E□□100ME11D
	22	6.3×11	0.16	51	BKME350E□□220MF11D
	33	8×11.5	0.16	72	BKME350E□□330MHB5D
	47	8×11.5	0.16	86	BKME350E□□470MHB5D
35	100	10×16	0.16	160	BKME350E□□101MJ16S
	220	12.5×20	0.16	290	BKME350E□□221MK20S
	330	12.5×20	0.16	350	BKME350E□□331MK20S
	470	12.5×25	0.16	465	BKME350E□□471MK25S
	1,000	16×31.5	0.16	805	BKME350E□□102MLN3S
50	1.0	5×11	0.14	10	BKME500E□□1R0ME11D
	2.2	5×11	0.14	15	BKME500E□□2R2ME11D
	3.3	5×11	0.14	18	BKME500E□□3R3ME11D
	4.7	5×11	0.14	22	BKME500E□□4R7ME11D
	10	6.3×11	0.14	37	BKME500E□□100MF11D
	22	8×11.5	0.14	63	BKME500E□□220MHB5D
	33	8×11.5	0.14	77	BKME500E□□330MHB5D
	47	10×12.5	0.14	105	BKME500E□□470MJC5S
	100	10×20	0.14	190	BKME500E□□101MJ20S
	220	12.5×25	0.14	340	BKME500E□□221MK25S
	330	16×25	0.14	460	BKME500E□□331ML25S
	470	16×31.5	0.14	590	BKME500E□□471MLN3S
63	3.3	5×11	0.12	20	BKME630E□□3R3ME11D
	4.7	6.3×11	0.12	24	BKME630E□□4R7MF11D
	10	6.3×11	0.12	40	BKME630E□□100MF11D
	22	8×11.5	0.12	68	BKME630E□□220MHB5D
	33	10×12.5	0.12	98	BKME630E□□330MJC5S
	47	10×16	0.12	130	BKME630E□□470MJ16S
	100	12.5×20	0.12	225	BKME630E□□101MK20S
	220	16×25	0.12	405	BKME630E□□221ML25S
	330	16×31.5	0.12	535	BKME630E□□331MLN3S
	470	18×35.5	0.12	680	BKME630E□□471MMP1S
80	2.2	5×11	0.12	16	BKME800E□□2R2ME11D
	3.3	6.3×11	0.12	23	BKME800E□□3R3MF11D
	4.7	6.3×11	0.12	27	BKME800E□□4R7MF11D
	10	8×11.5	0.12	46	BKME800E□□100MHB5D
	22	10×16	0.12	89	BKME800E□□220MJ16S
	33	10×16	0.12	105	BKME800E□□330MJ16S
	47	10×20	0.12	140	BKME800E□□470MJ20S
	100	12.5×25	0.12	245	BKME800E□□101MK25S
	220	16×31.5	0.12	435	BKME800E□□221MLN3S
	330	18×35.5	0.12	570	BKME800E□□331MMP1S
100	1.0	5×11	0.10	12	BKME101E□□1R0ME11D
	2.2	6.3×11	0.10	20	BKME101E□□2R2MF11D
	3.3	6.3×11	0.10	25	BKME101E□□3R3MF11D
	4.7	6.3×11	0.10	30	BKME101E□□4R7MF11D
	10	8×11.5	0.10	50	BKME101E□□100MHB5D
	22	10×16	0.10	97	BKME101E□□220MJ16S
	33	12.5×20	0.10	140	BKME101E□□330MK20S
	47	12.5×20	0.10	170	BKME101E□□470MK20S
	100	16×25	0.10	300	BKME101E□□101ML25S
	220	18×35.5	0.10	510	BKME101E□□221MMP1S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
1.0 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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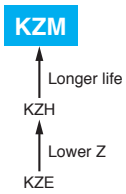
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZM Series

- Long-Life version of KZH series
- Endurance with ripple current : 6,000 to 10,000 hours at 105℃
- Newly innovative electrolyte is employed to minimize ESR
- Rated voltage range : 6.3 to 50Vdc, Nominal capacitance range : 27 to 10,000μF
- Non solvent resistant type
- **RoHS Compliant**

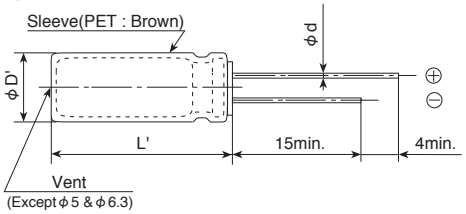


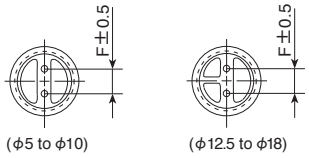
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.22, 0.19, 0.16, 0.14, 0.12, 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics	Z(−25℃)/Z(+20℃): 2 max. Z(−40℃)/Z(+20℃): 3 max. (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. Time: φ5 &φ6.3 : 6,000hours φ8 : 8,000hours φ10 to φ18 : 10,000hours Capacitance change: ≦±25% of the initial value (6.3, 10Vdc : ≦± 30%) D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±25% of the initial value (6.3, 10Vdc : ≦±30%) D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E

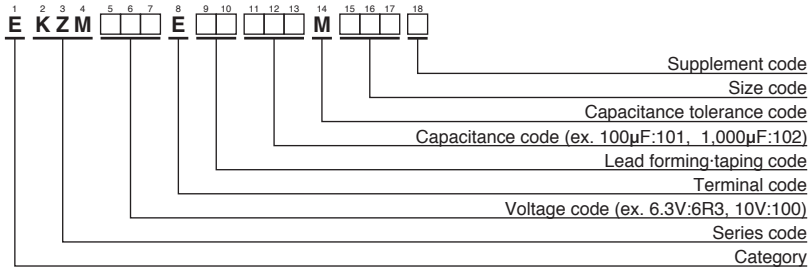




Gas escape end seal

φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
27 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 10,000	0.85	0.95	0.98	1.00

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃,100kHz)	Part No.
6.3	220	5 ×11	0.22	0.22	0.80	345	EKZM6R3E□□221ME11D
	470	6.3 ×11	0.22	0.094	0.35	540	EKZM6R3E□□471MF11D
	820	8 ×11.5	0.22	0.056	0.19	945	EKZM6R3E□□821MHB5D
	1,200	8 ×15	0.22	0.045	0.15	1,250	EKZM6R3E□□122MH15D
	1,200	10 ×12.5	0.22	0.039	0.14	1,330	EKZM6R3E□□122MJC5S
	1,500	8 ×20	0.22	0.029	0.11	1,500	EKZM6R3E□□152MH20D
	1,800	10 ×16	0.22	0.028	0.10	1,760	EKZM6R3E□□182MJ16S
	2,200	10 ×20	0.24	0.020	0.060	1,960	EKZM6R3E□□222MJ20S
	2,700	10 ×25	0.24	0.018	0.054	2,250	EKZM6R3E□□272MJ25S
	3,900	12.5 ×20	0.26	0.017	0.043	2,480	EKZM6R3E□□392MK20S
	4,700	12.5 ×25	0.28	0.015	0.038	2,900	EKZM6R3E□□472MK25S
	5,600	12.5 ×30	0.30	0.013	0.033	3,450	EKZM6R3E□□562MK30S
	6,800	12.5 ×35	0.32	0.012	0.031	3,570	EKZM6R3E□□682MK35S
	6,800	16 ×20	0.32	0.015	0.038	3,250	EKZM6R3E□□682ML20S
	8,200	16 ×25	0.36	0.013	0.035	3,630	EKZM6R3E□□822ML25S
	10,000	18 ×25	0.40	0.012	0.031	3,650	EKZM6R3E□□103MM25S
10	150	5 ×11	0.19	0.22	0.80	345	EKZM100E□□151ME11D
	330	6.3 ×11	0.19	0.094	0.35	540	EKZM100E□□331MF11D
	680	8 ×11.5	0.19	0.056	0.19	945	EKZM100E□□681MHB5D
	1,000	8 ×15	0.19	0.045	0.15	1,250	EKZM100E□□102MH15D
	1,000	10 ×12.5	0.19	0.039	0.14	1,330	EKZM100E□□102MJC5S
	1,500	8 ×20	0.19	0.029	0.11	1,500	EKZM100E□□152MH20D
	1,500	10 ×16	0.19	0.028	0.10	1,760	EKZM100E□□152MJ16S
	1,800	10 ×20	0.19	0.020	0.060	1,960	EKZM100E□□182MJ20S
	2,200	10 ×25	0.21	0.018	0.054	2,250	EKZM100E□□222MJ25S
	3,300	12.5 ×20	0.23	0.017	0.043	2,480	EKZM100E□□332MK20S
	3,900	12.5 ×25	0.23	0.015	0.038	2,900	EKZM100E□□392MK25S
	4,700	12.5 ×30	0.25	0.013	0.033	3,450	EKZM100E□□472MK30S
	4,700	16 ×20	0.25	0.015	0.038	3,250	EKZM100E□□472ML20S
	5,600	12.5 ×35	0.27	0.012	0.031	3,570	EKZM100E□□562MK35S
	6,800	16 ×25	0.29	0.013	0.035	3,630	EKZM100E□□682ML25S
	8,200	18 ×25	0.33	0.012	0.031	3,650	EKZM100E□□822MM25S
16	100	5 ×11	0.16	0.22	0.80	345	EKZM160E□□101ME11D
	220	6.3 ×11	0.16	0.094	0.35	540	EKZM160E□□221MF11D
	470	8 ×11.5	0.16	0.056	0.19	945	EKZM160E□□471MHB5D
	680	8 ×15	0.16	0.045	0.15	1,250	EKZM160E□□681MH15D
	680	10 ×12.5	0.16	0.039	0.14	1,330	EKZM160E□□681MJC5S
	1,000	8 ×20	0.16	0.029	0.11	1,500	EKZM160E□□102MH20D
	1,000	10 ×16	0.16	0.028	0.10	1,760	EKZM160E□□102MJ16S
	1,500	10 ×20	0.16	0.020	0.060	1,960	EKZM160E□□152MJ20S
	1,800	10 ×25	0.16	0.018	0.054	2,250	EKZM160E□□182MJ25S
	2,200	12.5 ×20	0.18	0.017	0.043	2,480	EKZM160E□□222MK20S
	2,700	12.5 ×25	0.18	0.015	0.038	2,900	EKZM160E□□272MK25S
	3,300	12.5 ×30	0.20	0.013	0.033	3,450	EKZM160E□□332MK30S
	3,300	16 ×20	0.20	0.015	0.038	3,250	EKZM160E□□332ML20S
	3,900	12.5 ×35	0.20	0.012	0.031	3,570	EKZM160E□□392MK35S
	4,700	16 ×25	0.22	0.013	0.035	3,630	EKZM160E□□472ML25S
	5,600	18 ×25	0.24	0.012	0.031	3,650	EKZM160E□□562MM25S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃,100kHz)	Part No.
25	68	5 × 11	0.14	0.22	0.80	345	EKZM250E□□680ME11D
	150	6.3 × 11	0.14	0.094	0.35	540	EKZM250E□□151MF11D
	330	8 × 11.5	0.14	0.056	0.19	945	EKZM250E□□331MHB5D
	390	8 × 15	0.14	0.045	0.15	1,250	EKZM250E□□391MH15D
	470	10 × 12.5	0.14	0.039	0.14	1,330	EKZM250E□□471MJC5S
	560	8 × 20	0.14	0.029	0.11	1,500	EKZM250E□□561MH20D
	680	10 × 16	0.14	0.028	0.10	1,760	EKZM250E□□681MJ16S
	820	10 × 20	0.14	0.020	0.060	1,960	EKZM250E□□821MJ20S
	1,000	10 × 25	0.14	0.018	0.054	2,250	EKZM250E□□102MJ25S
	1,500	12.5 × 20	0.14	0.017	0.043	2,480	EKZM250E□□152MK20S
	1,800	12.5 × 25	0.14	0.015	0.038	2,900	EKZM250E□□182MK25S
	2,200	12.5 × 30	0.16	0.013	0.033	3,450	EKZM250E□□222MK30S
	2,200	16 × 20	0.16	0.015	0.038	3,250	EKZM250E□□222ML20S
	2,700	12.5 × 35	0.16	0.012	0.031	3,570	EKZM250E□□272MK35S
	3,300	16 × 25	0.18	0.013	0.035	3,630	EKZM250E□□332ML25S
	3,900	18 × 25	0.18	0.012	0.031	3,650	EKZM250E□□392MM25S
35	47	5 × 11	0.12	0.22	0.80	345	EKZM350E□□470ME11D
	100	6.3 × 11	0.12	0.094	0.35	540	EKZM350E□□101MF11D
	220	8 × 11.5	0.12	0.056	0.19	945	EKZM350E□□221MHB5D
	270	8 × 15	0.12	0.045	0.15	1,250	EKZM350E□□271MH15D
	330	10 × 12.5	0.12	0.039	0.14	1,330	EKZM350E□□331MJC5S
	390	8 × 20	0.12	0.029	0.11	1,500	EKZM350E□□391MH20D
	470	10 × 16	0.12	0.028	0.10	1,760	EKZM350E□□471MJ16S
	560	10 × 20	0.12	0.020	0.060	1,960	EKZM350E□□561MJ20S
	680	10 × 25	0.12	0.018	0.054	2,250	EKZM350E□□681MJ25S
	1,000	12.5 × 20	0.12	0.017	0.043	2,480	EKZM350E□□102MK20S
	1,200	12.5 × 25	0.12	0.015	0.038	2,900	EKZM350E□□122MK25S
	1,500	12.5 × 30	0.12	0.013	0.033	3,450	EKZM350E□□152MK30S
	1,500	16 × 20	0.12	0.015	0.038	3,250	EKZM350E□□152ML20S
	1,800	12.5 × 35	0.12	0.012	0.031	3,570	EKZM350E□□182MK35S
	2,200	16 × 25	0.14	0.013	0.035	3,630	EKZM350E□□222ML25S
	2,700	18 × 25	0.14	0.012	0.031	3,650	EKZM350E□□272MM25S
50	27	5 × 11	0.10	0.34	1.18	238	EKZM500E□□270ME11D
	56	6.3 × 11	0.10	0.14	0.50	385	EKZM500E□□560MF11D
	100	8 × 11.5	0.10	0.074	0.22	724	EKZM500E□□101MHB5D
	120	8 × 15	0.10	0.061	0.18	950	EKZM500E□□121MH15D
	150	10 × 12.5	0.10	0.061	0.18	979	EKZM500E□□151MJC5S
	180	8 × 20	0.10	0.046	0.14	1,190	EKZM500E□□181MH20D
	220	10 × 16	0.10	0.042	0.12	1,370	EKZM500E□□221MJ16S
	270	10 × 20	0.10	0.030	0.090	1,580	EKZM500E□□271MJ20S
	330	10 × 25	0.10	0.028	0.085	1,870	EKZM500E□□331MJ25S
	470	12.5 × 20	0.10	0.027	0.068	2,050	EKZM500E□□471MK20S
	560	12.5 × 25	0.10	0.023	0.059	2,410	EKZM500E□□561MK25S
	680	12.5 × 30	0.10	0.021	0.052	2,860	EKZM500E□□681MK30S
	820	12.5 × 35	0.10	0.019	0.051	2,960	EKZM500E□□821MK35S
	820	16 × 20	0.10	0.023	0.059	2,730	EKZM500E□□821ML20S
	1,000	16 × 25	0.10	0.021	0.056	3,010	EKZM500E□□102ML25S
	1,500	18 × 25	0.10	0.019	0.051	3,290	EKZM500E□□152MM25S

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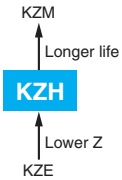
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZH Series

- Ultra Low impedance for Personal Computers Storage Equipment
- Endurance with ripple current: 5,000 to 6,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

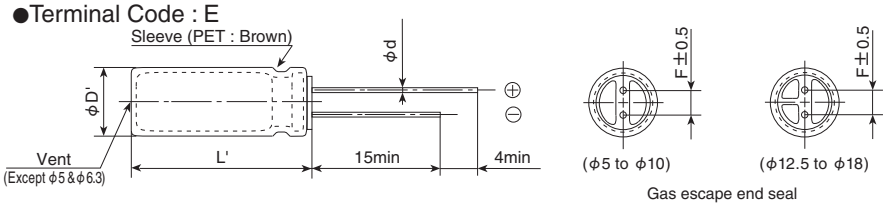


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	6.3 to 35Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V tanδ (Max.): 0.22, 0.19, 0.16, 0.14, 0.12 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z (-25℃) / Z (+20℃): 2max. Z (-40℃) / Z (+20℃): 3max. (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage)for the specified period of time at 105℃. Time: φ5 & φ6.3 : 5,000hours φ8 to φ16 : 6,000hours Capacitance change: ≦±25% of the initial value (6.3, 10Vdc :≦±30%) D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±25% of the initial value (6.3, 10Vdc :≦±30%) D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

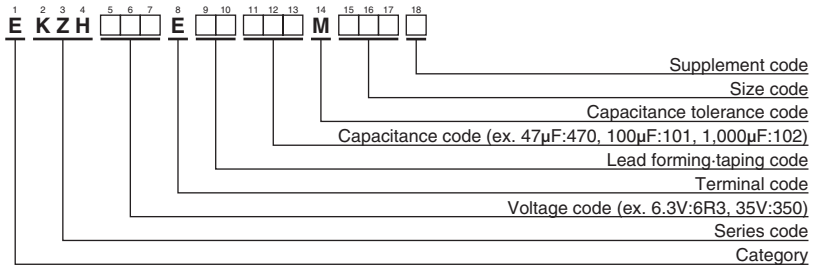
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16
φd	0.5	0.5	0.6	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5
φD'	φD+0.5max.					
L'	L+1.5max.					

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	220	5×11	0.24	0.80	330	EKZH6R3E□□221ME11D
	470	6.3×11	0.11	0.35	500	EKZH6R3E□□471MF11D
	820	8×11.5	0.062	0.19	900	EKZH6R3E□□821MHB5D
	1,200	8×15	0.048	0.15	1,210	EKZH6R3E□□122MH15D
	1,200	10×12.5	0.045	0.14	1,240	EKZH6R3E□□122MJC5S
	1,500	8×20	0.033	0.11	1,410	EKZH6R3E□□152MH20D
	1,800	10×16	0.032	0.10	1,650	EKZH6R3E□□182MJ16S
	2,200	10×20	0.020	0.060	1,960	EKZH6R3E□□222MJ20S
	2,700	10×25	0.018	0.054	2,250	EKZH6R3E□□272MJ25S
	3,900	12.5×20	0.017	0.043	2,480	EKZH6R3E□□392MK20S
	4,700	12.5×25	0.015	0.038	2,900	EKZH6R3E□□472MK25S
	5,600	12.5×30	0.013	0.033	3,450	EKZH6R3E□□562MK30S
	6,800	12.5×35	0.012	0.031	3,570	EKZH6R3E□□682MK35S
	6,800	16×20	0.015	0.038	3,250	EKZH6R3E□□682ML20S
	8,200	16×25	0.013	0.035	3,630	EKZH6R3E□□822ML25S
10	150	5×11	0.24	0.80	330	EKZH100E□□151ME11D
	330	6.3×11	0.11	0.35	500	EKZH100E□□331MF11D
	680	8×11.5	0.062	0.19	900	EKZH100E□□681MHB5D
	1,000	8×15	0.048	0.15	1,210	EKZH100E□□102MH15D
	1,000	10×12.5	0.045	0.14	1,240	EKZH100E□□102MJC5S
	1,500	8×20	0.033	0.11	1,410	EKZH100E□□152MH20D
	1,500	10×16	0.032	0.10	1,650	EKZH100E□□152MJ16S
	1,800	10×20	0.020	0.060	1,960	EKZH100E□□182MJ20S
	2,200	10×25	0.018	0.054	2,250	EKZH100E□□222MJ25S
	3,300	12.5×20	0.017	0.043	2,480	EKZH100E□□332MK20S
	3,900	12.5×25	0.015	0.038	2,900	EKZH100E□□392MK25S
	4,700	12.5×30	0.013	0.033	3,450	EKZH100E□□472MK30S
	4,700	16×20	0.015	0.038	3,250	EKZH100E□□472ML20S
	5,600	12.5×35	0.012	0.031	3,570	EKZH100E□□562MK35S
	6,800	16×25	0.013	0.035	3,630	EKZH100E□□682ML25S
16	100	5×11	0.24	0.80	330	EKZH160E□□101ME11D
	220	6.3×11	0.11	0.35	500	EKZH160E□□221MF11D
	470	8×11.5	0.062	0.19	900	EKZH160E□□471MHB5D
	680	8×15	0.048	0.15	1,210	EKZH160E□□681MH15D
	680	10×12.5	0.045	0.14	1,240	EKZH160E□□681MJC5S
	1,000	8×20	0.033	0.11	1,410	EKZH160E□□102MH20D
	1,000	10×16	0.032	0.10	1,650	EKZH160E□□102MJ16S
	1,500	10×20	0.020	0.06	1,960	EKZH160E□□152MJ20S
16	1,800	10×25	0.018	0.054	2,250	EKZH160E□□182MJ25S
	2,200	12.5×20	0.017	0.043	2,480	EKZH160E□□222MK20S
	2,700	12.5×25	0.015	0.038	2,900	EKZH160E□□272MK25S
	3,300	12.5×30	0.013	0.033	3,450	EKZH160E□□332MK30S
	3,300	16×20	0.015	0.038	3,250	EKZH160E□□332ML20S
	3,900	12.5×35	0.012	0.031	3,570	EKZH160E□□392MK35S
	4,700	16×25	0.013	0.035	3,630	EKZH160E□□472ML25S
25	68	5×11	0.24	0.80	330	EKZH250E□□680ME11D
	150	6.3×11	0.11	0.35	500	EKZH250E□□151MF11D
	330	8×11.5	0.062	0.19	900	EKZH250E□□331MHB5D
	390	8×15	0.048	0.15	1,210	EKZH250E□□391MH15D
	470	10×12.5	0.045	0.14	1,240	EKZH250E□□471MJC5S
	560	8×20	0.033	0.11	1,410	EKZH250E□□561MH20D
	680	10×16	0.032	0.10	1,650	EKZH250E□□681MJ16S
	820	10×20	0.020	0.060	1,960	EKZH250E□□821MJ20S
	1,000	10×25	0.018	0.054	2,250	EKZH250E□□102MJ25S
	1,500	12.5×20	0.017	0.043	2,480	EKZH250E□□152MK20S
	1,800	12.5×25	0.015	0.038	2,900	EKZH250E□□182MK25S
	2,200	12.5×30	0.013	0.033	3,450	EKZH250E□□222MK30S
	2,200	16×20	0.015	0.038	3,250	EKZH250E□□222ML20S
	2,700	12.5×35	0.012	0.031	3,570	EKZH250E□□272MK35S
	3,300	16×25	0.013	0.035	3,630	EKZH250E□□332ML25S
35	47	5×11	0.24	0.80	330	EKZH350E□□470ME11D
	100	6.3×11	0.11	0.35	500	EKZH350E□□101MF11D
	220	8×11.5	0.062	0.19	900	EKZH350E□□221MHB5D
	270	8×15	0.048	0.15	1,210	EKZH350E□□271MH15D
	330	10×12.5	0.045	0.14	1,240	EKZH350E□□331MJC5S
	390	8×20	0.033	0.11	1,410	EKZH350E□□391MH20D
	470	10×16	0.032	0.10	1,650	EKZH350E□□471MJ16S
	560	10×20	0.020	0.060	1,960	EKZH350E□□561MJ20S
	680	10×25	0.018	0.054	2,250	EKZH350E□□681MJ25S
	1,000	12.5×20	0.017	0.043	2,480	EKZH350E□□102MK20S
	1,200	12.5×25	0.015	0.038	2,900	EKZH350E□□122MK25S
	1,500	12.5×30	0.013	0.033	3,450	EKZH350E□□152MK30S
	1,500	16×20	0.015	0.038	3,250	EKZH350E□□152ML20S
	1,800	12.5×35	0.012	0.031	3,570	EKZH350E□□182MK35S
	2,200	16×25	0.013	0.035	3,630	EKZH350E□□222ML25S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency (Hz)	120	1k	10k	100k
0.47 to 150	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 8,200	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZE Series

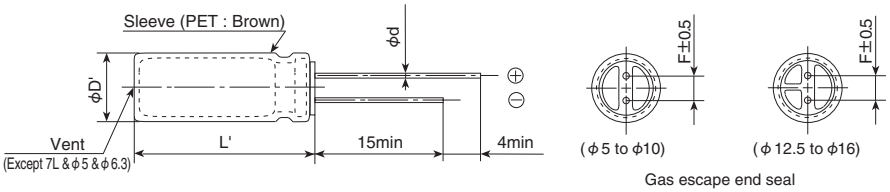
- Ultra Low impedance for Personal Computers Storage Equipment
- Endurance with ripple current: 1,000 to 5,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V tanδ (Max.): 0.22, 0.19, 0.16, 0.14, 0.12, 0.10, 0.09, 0.09, 0.08 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z (-25℃) / Z (+20℃): 2max. Z (-40℃) / Z (+20℃): 3max. (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. Time: 7L : 1,000hours φ5 & φ6.3 : 2,000hours φ8 : 3,000hours φ10 : 4,000hours φ12.5 to φ18 : 5,000hours Capacitance change: ≦±25% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±25% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

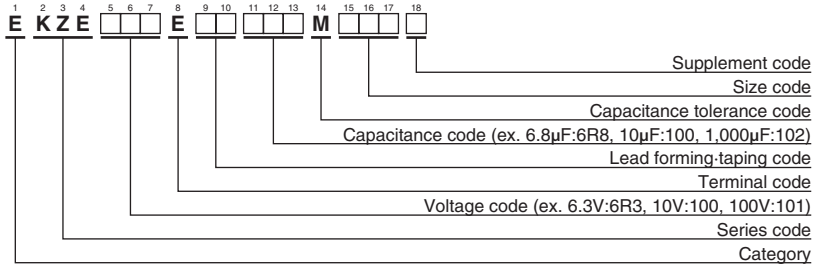
◆DIMENSIONS [mm]

- Terminal Code : E



φD		5	6.3	8	10, 12.5	16, 18
φd	7L	0.45	0.45	0.45	—	—
	11L~	0.5	0.5	0.6	0.6	0.8
F		2.0	2.5	3.5	5.0	7.5
φD'		φD+0.5max.				
L'		L+1.5max.(7L : L+1.0max.)				

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	68	5×7	0.43	1.3	210	EKZE6R3E□□680ME07D
	150	5×11	0.30	1.0	250	EKZE6R3E□□151ME11D
	150	6.3×7	0.23	0.69	300	EKZE6R3E□□151MF07D
	220	8×7	0.15	0.45	380	EKZE6R3E□□221MH07D
	330	6.3×11	0.13	0.41	405	EKZE6R3E□□331MF11D
	560	8×11.5	0.072	0.22	760	EKZE6R3E□□561MHB5D
	820	8×15	0.056	0.17	995	EKZE6R3E□□821MH15D
	1,000	10×12.5	0.053	0.16	1,030	EKZE6R3E□□102MJC5S
	1,200	8×20	0.041	0.13	1,250	EKZE6R3E□□122MH20D
	1,200	10×16	0.038	0.12	1,430	EKZE6R3E□□122MJ16S
	1,500	10×20	0.023	0.069	1,820	EKZE6R3E□□152MJ20S
	2,200	10×25	0.022	0.066	2,150	EKZE6R3E□□222MJ25S
	3,300	12.5×20	0.021	0.053	2,360	EKZE6R3E□□332MK20S
	3,900	12.5×25	0.018	0.045	2,770	EKZE6R3E□□392MK25S
	4,700	12.5×30	0.016	0.041	3,290	EKZE6R3E□□472MK30S
	5,600	12.5×35	0.015	0.039	3,400	EKZE6R3E□□562MK35S
	5,600	16×20	0.018	0.045	3,140	EKZE6R3E□□562ML20S
	6,800	16×25	0.016	0.043	3,460	EKZE6R3E□□682ML25S
10	56	5×7	0.44	1.4	210	EKZE100E□□560ME07D
	100	5×11	0.30	1.0	250	EKZE100E□□101ME11D
	120	6.3×7	0.23	0.69	300	EKZE100E□□121MF07D
	180	8×7	0.15	0.45	380	EKZE100E□□181MH07D
	220	6.3×11	0.13	0.41	405	EKZE100E□□221MF11D
	470	8×11.5	0.072	0.22	760	EKZE100E□□471MHB5D
	680	8×15	0.056	0.17	995	EKZE100E□□681MH15D
	680	10×12.5	0.053	0.16	1,030	EKZE100E□□681MJC5S
	1,000	8×20	0.041	0.13	1,250	EKZE100E□□102MH20D
	1,000	10×16	0.038	0.12	1,430	EKZE100E□□102MJ16S
	1,200	10×20	0.023	0.069	1,820	EKZE100E□□122MJ20S
	1,500	10×25	0.022	0.066	2,150	EKZE100E□□152MJ25S
	2,200	12.5×20	0.021	0.053	2,360	EKZE100E□□222MK20S
	3,300	12.5×25	0.018	0.045	2,770	EKZE100E□□332MK25S
	3,900	12.5×30	0.016	0.041	3,290	EKZE100E□□392MK30S
	3,900	16×20	0.018	0.045	3,140	EKZE100E□□392ML20S
	4,700	12.5×35	0.015	0.039	3,400	EKZE100E□□472MK35S
	5,600	16×25	0.016	0.043	3,460	EKZE100E□□562ML25S
16	33	5×7	0.45	1.4	210	EKZE160E□□330ME07D
	56	5×11	0.30	1.0	250	EKZE160E□□560ME11D
	68	6.3×7	0.24	0.72	300	EKZE160E□□680MF07D
	120	6.3×11	0.13	0.41	405	EKZE160E□□121MF11D
	120	8×7	0.15	0.45	380	EKZE160E□□121MH07D
	330	8×11.5	0.072	0.22	760	EKZE160E□□331MHB5D
	470	8×15	0.056	0.17	995	EKZE160E□□471MH15D
	470	10×12.5	0.053	0.16	1,030	EKZE160E□□471MJC5S
	680	8×20	0.041	0.13	1,250	EKZE160E□□681MH20D
	680	10×16	0.038	0.12	1,430	EKZE160E□□681MJ16S
	1,000	10×20	0.023	0.069	1,820	EKZE160E□□102MJ20S
	1,200	10×25	0.022	0.066	2,150	EKZE160E□□122MJ25S
	1,500	12.5×20	0.021	0.053	2,360	EKZE160E□□152MK20S
	2,200	12.5×25	0.018	0.045	2,770	EKZE160E□□222MK25S
	2,700	12.5×30	0.016	0.041	3,290	EKZE160E□□272MK30S
	2,700	16×20	0.018	0.045	3,140	EKZE160E□□272ML20S
	3,300	12.5×35	0.015	0.039	3,400	EKZE160E□□332MK35S
	3,900	16×25	0.016	0.043	3,460	EKZE160E□□392ML25S
25	27	5×7	0.46	1.4	210	EKZE250E□□270ME07D
	47	5×11	0.30	1.0	250	EKZE250E□□470ME11D
	56	6.3×7	0.24	0.72	300	EKZE250E□□560MF07D
	100	6.3×11	0.13	0.41	405	EKZE250E□□101MF11D
	100	8×7	0.15	0.45	380	EKZE250E□□101MH07D
	220	8×11.5	0.072	0.22	760	EKZE250E□□221MHB5D
	330	8×15	0.056	0.17	995	EKZE250E□□331MH15D
	330	10×12.5	0.053	0.16	1,030	EKZE250E□□331MJC5S
	470	8×20	0.041	0.13	1,250	EKZE250E□□471MH20D
	470	10×16	0.038	0.12	1,430	EKZE250E□□471MJ16S
	680	10×20	0.023	0.069	1,820	EKZE250E□□681MJ20S
25	820	10×25	0.022	0.066	2,150	EKZE250E□□821MJ25S
	1,000	12.5×20	0.021	0.053	2,360	EKZE250E□□102MK20S
	1,500	12.5×25	0.018	0.045	2,770	EKZE250E□□152MK25S
	1,800	12.5×30	0.016	0.041	3,290	EKZE250E□□182MK30S
	1,800	16×20	0.018	0.045	3,140	EKZE250E□□182ML20S
	2,200	12.5×35	0.015	0.039	3,400	EKZE250E□□222MK35S
	2,700	16×25	0.016	0.043	3,460	EKZE250E□□272ML25S
35	18	5×7	0.47	1.5	210	EKZE350E□□180ME07D
	33	5×11	0.30	1.0	250	EKZE350E□□330ME11D
	39	6.3×7	0.25	0.75	300	EKZE350E□□390MF07D
	56	6.3×11	0.13	0.41	405	EKZE350E□□560MF11D
	56	8×7	0.16	0.48	380	EKZE350E□□560MH07D
	150	8×11.5	0.072	0.22	760	EKZE350E□□151MHB5D
	220	8×15	0.056	0.17	995	EKZE350E□□221MH15D
	220	10×12.5	0.053	0.16	1,030	EKZE350E□□221MJC5S
	270	8×20	0.041	0.13	1,250	EKZE350E□□271MH20D
	330	10×16	0.038	0.12	1,430	EKZE350E□□331MJ16S
	470	10×20	0.023	0.069	1,820	EKZE350E□□471MJ20S
	560	10×25	0.022	0.066	2,150	EKZE350E□□561MJ25S
	680	12.5×20	0.021	0.053	2,360	EKZE350E□□681MK20S
	1,000	12.5×25	0.018	0.045	2,770	EKZE350E□□102MK25S
	1,200	12.5×30	0.016	0.041	3,290	EKZE350E□□122MK30S
	1,200	16×20	0.018	0.045	3,140	EKZE350E□□122ML20S
	1,500	12.5×35	0.015	0.039	3,400	EKZE350E□□152MK35S
	1,800	16×25	0.016	0.043	3,460	EKZE350E□□182ML25S
50	10	5×7	0.50	1.5	210	EKZE500E□□100ME07D
	22	5×11	0.34	1.18	238	EKZE500E□□220ME11D
	22	6.3×7	0.26	0.78	300	EKZE500E□□220MF07D
	33	8×7	0.17	0.51	380	EKZE500E□□330MH07D
	56	6.3×11	0.14	0.50	385	EKZE500E□□560MF11D
	100	8×11.5	0.074	0.22	724	EKZE500E□□101MHB5D
	120	8×15	0.061	0.18	950	EKZE500E□□121MH15D
	150	10×12.5	0.061	0.18	979	EKZE500E□□151MJC5S
	180	8×20	0.046	0.14	1,190	EKZE500E□□181MH20D
	220	10×16	0.042	0.12	1,370	EKZE500E□□221MJ16S
	270	10×20	0.030	0.090	1,580	EKZE500E□□271MJ20S
	330	10×25	0.028	0.085	1,870	EKZE500E□□331MJ25S
	470	12.5×20	0.027	0.068	2,050	EKZE500E□□471MK20S
	560	12.5×25	0.023	0.059	2,410	EKZE500E□□561MK25S
	680	12.5×30	0.021	0.052	2,860	EKZE500E□□681MK30S
	820	12.5×35	0.019	0.051	2,960	EKZE500E□□821MK35S
	820	16×20	0.023	0.059	2,730	EKZE500E□□821ML20S
	1,000	16×25	0.021	0.056	3,010	EKZE500E□□102ML25S
63	15	5×11	0.88	3.5	165	EKZE630E□□150ME11D
	33	6.3×11	0.35	1.4	265	EKZE630E□□330MF11D
	56	8×11.5	0.22	0.88	500	EKZE630E□□560MHB5D
	82	8×15	0.16	0.64	665	EKZE630E□□820MH15D
	82	10×12.5	0.11	0.44	690	EKZE630E□□820MJC5S
	120	8×20	0.12	0.48	820	EKZE630E□□121MH20D
	120	10×16	0.076	0.31	950	EKZE630E□□121MJ16S
	180	10×20	0.056	0.23	1,150	EKZE630E□□181MJ20S
	180	12.5×16	0.072	0.29	1,150	EKZE630E□□181MK16S
	220	10×25	0.046	0.19	1,350	EKZE630E□□221MJ25S
	270	12.5×20	0.041	0.13	1,500	EKZE630E□□271MK20S
	390	12.5×25	0.031	0.093	1,900	EKZE630E□□391MK25S
	470	12.5×30	0.028	0.084	2,300	EKZE630E□□471MK30S
	470	16×20	0.032	0.096	2,000	EKZE630E□□471ML20S
	560	12.5×35	0.024	0.072	2,500	EKZE630E□□561MK35S
	680	12.5×40	0.021	0.063	2,800	EKZE630E□□681MK40S
	680	16×25	0.025	0.075	2,600	EKZE630E□□681ML25S
	680	18×20	0.030	0.090	2,500	EKZE630E□□681MM20S
	820	16×31.5	0.021	0.063	2,850	EKZE630E□□821MLN3S
	820	18×25	0.024	0.072	2,800	EKZE630E□□821MM25S
	1,000	16×35.5	0.019	0.057	2,900	EKZE630E□□102MLP1S
	1,200	16×40	0.018	0.054	3,400	EKZE630E□□122ML40S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
63	1,200	18×31.5	0.020	0.060	3,300	EKZE630E□□122MMN3S
	1,500	18×35.5	0.018	0.054	3,400	EKZE630E□□152MMP1S
	1,800	18×40	0.017	0.051	3,500	EKZE630E□□182MM40S
80	68	10×12.5	0.17	0.66	480	EKZE800E□□680MJC5S
	100	10×16	0.11	0.47	600	EKZE800E□□101MJ16S
	120	10×20	0.084	0.34	800	EKZE800E□□121MJ20S
	150	10×25	0.069	0.28	900	EKZE800E□□151MJ25S
	150	12.5×16	0.11	0.34	750	EKZE800E□□151MK16S
	220	12.5×20	0.062	0.18	1,100	EKZE800E□□221MK20S
	330	12.5×25	0.047	0.14	1,250	EKZE800E□□331MK25S
	330	16×20	0.048	0.15	1,350	EKZE800E□□331ML20S
	390	12.5×30	0.042	0.13	1,500	EKZE800E□□391MK30S
	470	12.5×35	0.036	0.11	1,650	EKZE800E□□471MK35S
	470	16×25	0.038	0.12	1,700	EKZE800E□□471ML25S
	470	18×20	0.045	0.14	1,500	EKZE800E□□471MM20S
	560	12.5×40	0.032	0.095	1,800	EKZE800E□□561MK40S
	680	16×31.5	0.032	0.095	1,850	EKZE800E□□681MLN3S
	680	18×25	0.036	0.11	1,750	EKZE800E□□681MM25S
	820	16×35.5	0.029	0.086	2,000	EKZE800E□□821MLP1S
	820	18×31.5	0.030	0.090	1,900	EKZE800E□□821MMN3S
	1,000	16×40	0.027	0.081	2,200	EKZE800E□□102ML40S
	1,000	18×35.5	0.027	0.081	2,200	EKZE800E□□102MMP1S
	1,200	18×40	0.026	0.077	2,700	EKZE800E□□122MM40S

□□ : Enter the appropriate lead forming or taping code.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
100	6.8	5×11	1.4	5.6	125	EKZE101E□□6R8ME11D
	15	6.3×11	0.57	2.3	205	EKZE101E□□150MF11D
	27	8×11.5	0.36	1.4	355	EKZE101E□□270MHB5D
	39	8×15	0.25	1.0	450	EKZE101E□□390MH15D
	47	10×12.5	0.17	0.66	480	EKZE101E□□470MJC5S
	56	8×20	0.19	0.76	565	EKZE101E□□560MH20D
	68	10×16	0.11	0.47	600	EKZE101E□□680MJ16S
	82	10×20	0.084	0.34	800	EKZE101E□□820MJ20S
	100	12.5×16	0.11	0.34	750	EKZE101E□□101MK16S
	120	10×25	0.069	0.28	900	EKZE101E□□121MJ25S
	150	12.5×20	0.062	0.18	1,100	EKZE101E□□151MK20S
	220	12.5×25	0.047	0.14	1,250	EKZE101E□□221MK25S
	220	16×20	0.048	0.15	1,350	EKZE101E□□221ML20S
	270	12.5×30	0.042	0.13	1,500	EKZE101E□□271MK30S
	330	12.5×35	0.036	0.11	1,650	EKZE101E□□331MK35S
	330	16×25	0.038	0.12	1,700	EKZE101E□□331ML25S
	330	18×20	0.045	0.14	1,500	EKZE101E□□331MM20S
	390	12.5×40	0.032	0.095	1,800	EKZE101E□□391MK40S
	470	16×31.5	0.032	0.095	1,850	EKZE101E□□471MLN3S
	470	18×25	0.036	0.11	1,750	EKZE101E□□471MM25S
	560	16×35.5	0.029	0.086	2,000	EKZE101E□□561MLP1S
	560	18×31.5	0.030	0.090	1,900	EKZE101E□□561MMN3S
	680	16×40	0.027	0.081	2,200	EKZE101E□□681ML40S
	680	18×35.5	0.027	0.081	2,200	EKZE101E□□681MMP1S
	820	18×40	0.026	0.077	2,700	EKZE101E□□821MM40S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

7L

Capacitance(μF) \ Frequency (Hz)	120	1k	10k	100k
10 to 33	0.42	0.70	0.90	1.00
39 to 220	0.50	0.73	0.92	1.00

11L to 40L

Capacitance(μF) \ Frequency (Hz)	120	1k	10k	100k
6.8 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

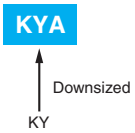
MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Upgrade!

KYA Series

- Downsized from KY series
- Newly innovative electrolyte is employed to minimize ESR
- Endurance with ripple current : 4,000 to 10,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**



◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V
tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V
Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	2	2
Z(−40℃)/Z(+20℃)	8	6	4	3	3	3	3	3

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃.

Time	6.3 to 10Vdc	φ5 & 6.3 : 4,000hours φ8 & 10 : 6,000hours φ12.5 to 18 : 8,000hours
	16 to 100Vdc	φ5 & 6.3 : 5,000hours φ8 & 10 : 7,000hours φ12.5 to 18 : 10,000hours
Capacitance change		≦±25% of the initial value
D.F. (tanδ)		≦200% of the initial specified value
Leakage current		≦The initial specified value

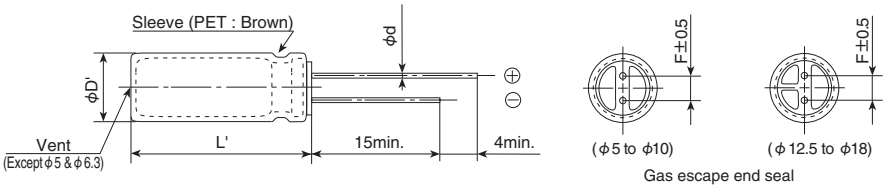
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Capacitance change	≦±25% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

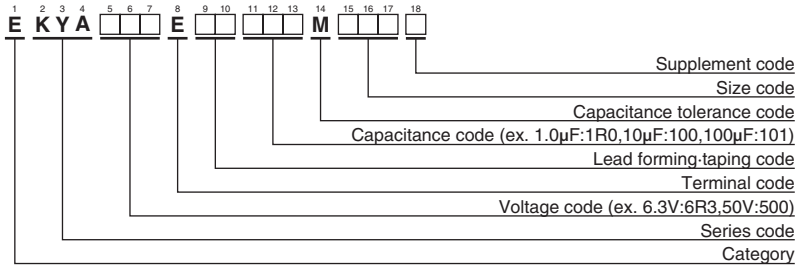
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16
φd	0.5	0.5	0.6	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5
φD'	φD+0.5max.					
L'	L+1.5max.					

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Upgrade!

KYA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (max/100kHz) 20℃	Impedance (max/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	100	5×11	0.90	3.6	150	EKYA6R3E□□101ME11D
	180	5×11	0.40	1.6	250	EKYA6R3E□□181ME11D
	220	5×11	0.40	1.6	250	EKYA6R3E□□221ME11D
	330	6.3×11	0.22	0.87	400	EKYA6R3E□□331MF11D
	470	6.3×11	0.22	0.87	400	EKYA6R3E□□471MF11D
	820	8×11.5	0.13	0.52	640	EKYA6R3E□□821MHB5D
	1,200	10×12.5	0.080	0.32	865	EKYA6R3E□□122MJC5S
	1,200	8×15	0.087	0.35	840	EKYA6R3E□□122MH15D
	1,500	8×20	0.069	0.27	1,050	EKYA6R3E□□152MH20D
	1,800	10×16	0.060	0.24	1,300	EKYA6R3E□□182MJ16S
	2,700	10×20	0.046	0.18	1,400	EKYA6R3E□□272MJ20S
	3,300	10×25	0.042	0.17	1,650	EKYA6R3E□□332MJ25S
	3,900	12.5×20	0.035	0.12	1,900	EKYA6R3E□□392MK20S
	4,700	12.5×25	0.027	0.089	2,230	EKYA6R3E□□472MK25S
	5,600	12.5×25	0.027	0.089	2,230	EKYA6R3E□□562MK25S
	10,000	16×25	0.021	0.060	2,930	EKYA6R3E□□103ML25S
	12,000	16×31.5	0.017	0.050	3,450	EKYA6R3E□□123MLN3S
	15,000	16×35.5	0.015	0.044	3,610	EKYA6R3E□□153MLP1S
10	100	5×11	0.90	3.6	150	EKYA100E□□101ME11D
	120	5×11	0.40	1.6	250	EKYA100E□□121ME11D
	330	6.3×11	0.22	0.87	400	EKYA100E□□331MF11D
	560	8×11.5	0.13	0.52	640	EKYA100E□□561MHB5D
	820	8×15	0.087	0.35	840	EKYA100E□□821MH15D
	820	10×12.5	0.080	0.32	865	EKYA100E□□821MJC5S
	1,000	10×12.5	0.080	0.32	865	EKYA100E□□102MJC5S
	1,200	8×20	0.069	0.27	1,050	EKYA100E□□122MH20D
	1,200	10×16	0.060	0.24	1,300	EKYA100E□□122MJ16S
	1,800	10×20	0.046	0.18	1,400	EKYA100E□□182MJ20S
	2,200	10×25	0.042	0.17	1,650	EKYA100E□□222MJ25S
	3,300	12.5×20	0.035	0.12	1,900	EKYA100E□□332MK20S
	3,900	12.5×25	0.027	0.089	2,230	EKYA100E□□392MK25S
	6,800	16×25	0.021	0.060	2,930	EKYA100E□□682ML25S
	10,000	16×31.5	0.017	0.050	3,450	EKYA100E□□103MLN3S
	12,000	16×35.5	0.015	0.044	3,610	EKYA100E□□123MLP1S
16	47	5×11	0.40	1.6	250	EKYA160E□□470ME11D
	100	5×11	0.40	1.6	250	EKYA160E□□101ME11D
	220	6.3×11	0.22	0.87	400	EKYA160E□□221MF11D
	270	6.3×11	0.22	0.87	400	EKYA160E□□271MF11D
	470	8×11.5	0.13	0.52	640	EKYA160E□□471MHB5D
	680	8×15	0.087	0.35	840	EKYA160E□□681MH15D
	680	10×12.5	0.080	0.32	865	EKYA160E□□681MJC5S
	820	8×20	0.069	0.27	1,050	EKYA160E□□821MH20D
	1,000	10×16	0.060	0.24	1,300	EKYA160E□□102MJ16S
	1,500	10×20	0.046	0.18	1,400	EKYA160E□□152MJ20S
	1,800	10×25	0.042	0.17	1,650	EKYA160E□□182MJ25S
	2,200	12.5×20	0.035	0.12	1,900	EKYA160E□□222MK20S
	3,300	12.5×25	0.027	0.089	2,230	EKYA160E□□332MK25S
	4,700	16×25	0.021	0.060	2,930	EKYA160E□□472ML25S
	5,600	16×25	0.021	0.060	2,930	EKYA160E□□562ML25S
	6,800	16×31.5	0.017	0.050	3,450	EKYA160E□□682MLN3S
	8,200	16×31.5	0.017	0.050	3,450	EKYA160E□□822MLN3S
	10,000	16×35.5	0.015	0.044	3,610	EKYA160E□□103MLP1S
25	33	5×11	0.40	1.6	250	EKYA250E□□330ME11D
	47	5×11	0.40	1.6	250	EKYA250E□□470ME11D
	68	5×11	0.40	1.6	250	EKYA250E□□680ME11D
	150	6.3×11	0.22	0.87	400	EKYA250E□□151MF11D
	330	8×11.5	0.13	0.52	640	EKYA250E□□331MHB5D
	390	8×15	0.087	0.35	840	EKYA250E□□391MH15D
	470	10×12.5	0.080	0.32	865	EKYA250E□□471MJC5S
	560	8×20	0.069	0.27	1,050	EKYA250E□□561MH20D
	680	10×16	0.060	0.24	1,300	EKYA250E□□681MJ16S
	1,000	10×20	0.046	0.18	1,400	EKYA250E□□102MJ20S
	1,200	10×25	0.042	0.17	1,650	EKYA250E□□122MJ25S
	1,500	12.5×20	0.035	0.12	1,900	EKYA250E□□152MK20S
	2,200	12.5×25	0.027	0.089	2,230	EKYA250E□□222MK25S
	3,300	16×25	0.021	0.060	2,930	EKYA250E□□332ML25S
	3,900	16×25	0.021	0.060	2,930	EKYA250E□□392ML25S
	4,700	16×31.5	0.017	0.050	3,450	EKYA250E□□472MLN3S
	5,600	16×35.5	0.015	0.044	3,610	EKYA250E□□562MLP1S
35	33	5×11	0.40	1.6	250	EKYA350E□□330ME11D
	47	5×11	0.40	1.6	250	EKYA350E□□470ME11D
	100	6.3×11	0.22	0.87	400	EKYA350E□□101MF11D
	220	8×11.5	0.13	0.52	640	EKYA350E□□221MHB5D
	270	8×15	0.087	0.35	840	EKYA350E□□271MH15D
	330	10×12.5	0.080	0.32	865	EKYA350E□□331MJC5S
	390	8×20	0.069	0.27	1,050	EKYA350E□□391MH20D
	470	10×16	0.060	0.24	1,300	EKYA350E□□471MJ16S
	680	10×20	0.046	0.18	1,400	EKYA350E□□681MJ20S
	820	10×25	0.042	0.17	1,650	EKYA350E□□821MJ25S
	1,000	12.5×20	0.035	0.12	1,900	EKYA350E□□102MK20S
	1,500	12.5×25	0.027	0.089	2,230	EKYA350E□□152MK25S
	2,200	16×25	0.021	0.060	2,930	EKYA350E□□222ML25S
	2,700	16×25	0.021	0.060	2,930	EKYA350E□□272ML25S
	3,300	16×31.5	0.017	0.050	3,450	EKYA350E□□332MLN3S
	3,900	16×35.5	0.015	0.044	3,610	EKYA350E□□392MLP1S
50	1.0	5×11	4.0	16	30	EKYA500E□□1R0ME11D
	2.2	5×11	2.5	10	43	EKYA500E□□2R2ME11D
	3.3	5×11	2.2	8.8	53	EKYA500E□□3R3ME11D
	4.7	5×11	1.9	7.6	88	EKYA500E□□4R7ME11D
	10	5×11	1.5	6.0	100	EKYA500E□□100ME11D
	22	5×11	0.70	2.8	180	EKYA500E□□220ME11D
	27	5×11	0.70	2.8	250	EKYA500E□□270ME11D
	47	6.3×11	0.30	1.2	295	EKYA500E□□470MF11D
	56	6.3×11	0.30	1.2	295	EKYA500E□□560MF11D
	100	8×11.5	0.17	0.68	555	EKYA500E□□101MHB5D
	150	8×15	0.12	0.48	730	EKYA500E□□151MH15D
	180	10×12.5	0.12	0.48	760	EKYA500E□□181MJC5S
	180	8×20	0.091	0.36	910	EKYA500E□□181MH20D
	220	10×16	0.084	0.34	1,050	EKYA500E□□221MJ16S
	330	10×20	0.060	0.24	1,220	EKYA500E□□331MJ20S
	470	10×25	0.055	0.22	1,440	EKYA500E□□471MJ25S
	470	12.5×20	0.045	0.15	1,660	EKYA500E□□471MK20S
	560	12.5×20	0.045	0.15	1,660	EKYA500E□□561MK20S
	820	12.5×25	0.034	0.11	1,950	EKYA500E□□821MK25S
	1,000	16×25	0.025	0.075	2,555	EKYA500E□□102ML25S
	1,200	16×25	0.025	0.075	2,555	EKYA500E□□122ML25S
	1,800	16×31.5	0.022	0.066	3,010	EKYA500E□□182MLN3S
	2,200	16×35.5	0.019	0.057	3,150	EKYA500E□□222MLP1S
63	10	5×11	0.88	3.5	173	EKYA630E□□100ME11D
	15	5×11	0.88	3.5	173	EKYA630E□□150ME11D
	33	6.3×11	0.35	1.4	278	EKYA630E□□330MF11D
	56	8×11.5	0.22	0.88	500	EKYA630E□□560MHB5D
	82	8×15	0.16	0.64	665	EKYA630E□□820MH15D
	100	10×12.5	0.11	0.44	725	EKYA630E□□101MJC5S
	120	8×20	0.12	0.48	820	EKYA630E□□121MH20D
	120	10×16	0.076	0.31	950	EKYA630E□□121MJ16S
	220	10×20	0.056	0.23	1,200	EKYA630E□□221MJ20S
	330	10×25	0.046	0.19	1,350	EKYA630E□□331MJ25S
	330	12.5×20	0.041	0.13	1,570	EKYA630E□□331MK20S
	390	12.5×20	0.041	0.13	1,570	EKYA630E□□391MK20S
	470	12.5×25	0.031	0.093	1,990	EKYA630E□□471MK25S
	560	12.5×25	0.031	0.093	1,990	EKYA630E□□561MK25S
	1,000	16×25	0.025	0.075	2,730	EKYA630E□□102ML25S
	1,200	16×31.5	0.021	0.063	2,850	EKYA630E□□122MLN3S
	1,500	16×35.5	0.019	0.057	2,900	EKYA630E□□152MLP1S
100	1.0	5×11	4.5	15	20	EKYA101E□□1R0ME11D
	2.2	5×11	3.0	13	30	EKYA101E□□2R2ME11D
	3.3	5×11	2.7	11	40	EKYA101E□□3R3ME11D
	4.7	5×11	2.5	10	65	EKYA101E□□4R7ME11D
	6.8	5×11	1.4	5.6	125	EKYA101E□□6R8ME11D

□□ : Enter the appropriate lead forming or taping code.

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MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Upgrade!

KYA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz)		Rated ripple current (mArms/105℃, 100kHz)	Part No.
			20℃	-10℃		
100	10	6.3×11	0.57	2.3	205	EKYA101E□□100MF11D
	15	6.3×11	0.57	2.3	205	EKYA101E□□150MF11D
	27	8×11.5	0.36	1.4	355	EKYA101E□□270MHB5D
	39	8×15	0.25	1.0	450	EKYA101E□□390MH15D
	47	10×12.5	0.17	0.66	480	EKYA101E□□470MJC5S
	56	8×20	0.19	0.76	565	EKYA101E□□560MH20D
	68	10×16	0.11	0.47	600	EKYA101E□□680MJ16S
	100	10×20	0.084	0.34	800	EKYA101E□□101MJ20S
	150	10×25	0.069	0.28	900	EKYA101E□□151MJ25S
	180	12.5×20	0.062	0.18	1,100	EKYA101E□□181MK20S
	220	12.5×25	0.047	0.14	1,250	EKYA101E□□221MK25S
	330	16×25	0.038	0.12	1,700	EKYA101E□□331ML25S
	470	16×31.5	0.032	0.095	1,850	EKYA101E□□471MLN3S
	560	16×35.5	0.029	0.086	2,000	EKYA101E□□561MLP1S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
1.0 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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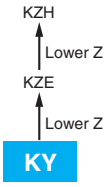
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KY Series

- Newly innovative electrolyte is employed to minimize ESR
- Endurance with ripple current : 4,000 to 10,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

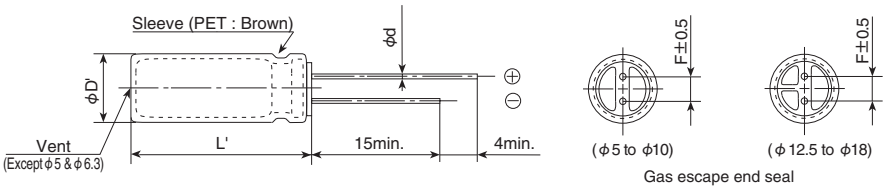


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V tanδ (Max.): 0.22, 0.19, 0.16, 0.14, 0.12, 0.10, 0.09, 0.09, 0.08 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V Z(−25℃)/Z(+20℃): 4, 3, 2, 2, 2, 2, 2, 2, 2 Z(−40℃)/Z(+20℃): 8, 6, 4, 3, 3, 3, 3, 3, 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. Time: 6.3 to 10Vdc: φ5 & 6.3 : 4,000hours φ8 & 10 : 6,000hours φ12.5 to 18 : 8,000hours Time: 16 to 100Vdc: φ5 & 6.3 : 5,000hours φ8 & 10 : 7,000hours φ12.5 to 18 : 10,000hours Capacitance change: ≦±25% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±25% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

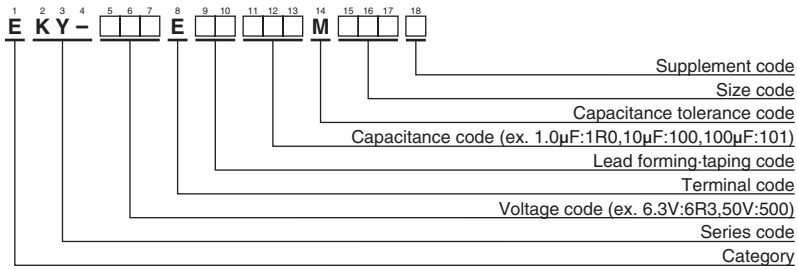
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	150	5×11	0.58	2.3	210	EKY-6R3E□□151ME11D
	330	6.3×11	0.22	0.87	340	EKY-6R3E□□331MF11D
	680	8×11.5	0.13	0.52	640	EKY-6R3E□□681MHB5D
	820	10×12.5	0.080	0.32	865	EKY-6R3E□□821MJC5S
	1,000	8×15	0.087	0.35	840	EKY-6R3E□□102MH15D
	1,200	8×20	0.069	0.27	1,050	EKY-6R3E□□122MH20D
	1,200	10×16	0.060	0.24	1,210	EKY-6R3E□□122MJ16S
	1,500	10×20	0.046	0.18	1,400	EKY-6R3E□□152MJ20S
	1,800	12.5×15	0.049	0.16	1,450	EKY-6R3E□□182MK15S
	2,200	10×25	0.042	0.17	1,650	EKY-6R3E□□222MJ25S
	2,700	10×30	0.031	0.12	1,910	EKY-6R3E□□272MJ30S
	2,700	16×15	0.042	0.12	1,940	EKY-6R3E□□272ML15S
	3,300	12.5×20	0.035	0.12	1,900	EKY-6R3E□□332MK20S
	3,900	12.5×25	0.027	0.089	2,230	EKY-6R3E□□392MK25S
	3,900	18×15	0.043	0.11	2,210	EKY-6R3E□□392MM15S
	4,700	12.5×30	0.024	0.078	2,650	EKY-6R3E□□472MK30S
	5,600	12.5×35	0.020	0.065	2,880	EKY-6R3E□□562MK35S
	5,600	16×20	0.027	0.078	2,530	EKY-6R3E□□562ML20S
	6,800	12.5×40	0.017	0.056	3,350	EKY-6R3E□□682MK40S
	6,800	16×25	0.021	0.060	2,930	EKY-6R3E□□682ML25S
	6,800	18×20	0.026	0.067	2,860	EKY-6R3E□□682MM20S
	8,200	16×31.5	0.017	0.050	3,450	EKY-6R3E□□822MLN3S
	10,000	16×35.5	0.015	0.044	3,610	EKY-6R3E□□103MLP1S
	10,000	18×25	0.019	0.049	3,140	EKY-6R3E□□103MM25S
	12,000	16×40	0.013	0.038	4,080	EKY-6R3E□□123ML40S
	12,000	18×31.5	0.015	0.040	4,170	EKY-6R3E□□123MMN3S
	15,000	18×35.5	0.014	0.038	4,220	EKY-6R3E□□153MMP1S
	18,000	18×40	0.012	0.032	4,280	EKY-6R3E□□183MM40S
10	100	5×11	0.58	2.3	210	EKY-100E□□101ME11D
	220	6.3×11	0.22	0.87	340	EKY-100E□□221MF11D
	470	8×11.5	0.13	0.52	640	EKY-100E□□471MHB5D
	680	8×15	0.087	0.35	840	EKY-100E□□681MH15D
	680	10×12.5	0.080	0.32	865	EKY-100E□□681MJC5S
	1,000	8×20	0.069	0.27	1,050	EKY-100E□□102MH20D
	1,000	10×16	0.060	0.24	1,210	EKY-100E□□102MJ16S
	1,200	10×20	0.046	0.18	1,400	EKY-100E□□122MJ20S
	1,500	10×25	0.042	0.17	1,650	EKY-100E□□152MJ25S
	1,500	12.5×15	0.049	0.16	1,450	EKY-100E□□152MK15S
	2,200	10×30	0.031	0.12	1,910	EKY-100E□□222MJ30S
	2,200	12.5×20	0.035	0.12	1,900	EKY-100E□□222MK20S
	2,200	16×15	0.042	0.12	1,940	EKY-100E□□222ML15S
	2,700	18×15	0.043	0.11	2,210	EKY-100E□□272MM15S
	3,300	12.5×25	0.027	0.089	2,230	EKY-100E□□332MK25S
	3,900	12.5×30	0.024	0.078	2,650	EKY-100E□□392MK30S
	3,900	16×20	0.027	0.078	2,530	EKY-100E□□392ML20S
	4,700	12.5×35	0.020	0.065	2,880	EKY-100E□□472MK35S
	5,600	12.5×40	0.017	0.056	3,350	EKY-100E□□562MK40S
	5,600	16×25	0.021	0.060	2,930	EKY-100E□□562ML25S
	5,600	18×20	0.026	0.067	2,860	EKY-100E□□562MM20S
	6,800	16×31.5	0.017	0.050	3,450	EKY-100E□□682MLN3S
	6,800	18×25	0.019	0.049	3,140	EKY-100E□□682MM25S
	8,200	16×35.5	0.015	0.044	3,610	EKY-100E□□822MLP1S
	8,200	18×31.5	0.015	0.040	4,170	EKY-100E□□822MMN3S
	10,000	16×40	0.013	0.038	4,080	EKY-100E□□103ML40S
	10,000	18×35.5	0.014	0.038	4,220	EKY-100E□□103MMP1S
	12,000	18×40	0.012	0.032	4,280	EKY-100E□□123MM40S
16	56	5×11	0.58	2.3	210	EKY-160E□□560ME11D
	120	6.3×11	0.22	0.87	340	EKY-160E□□121MF11D
	330	8×11.5	0.13	0.52	640	EKY-160E□□331MHB5D
	470	8×15	0.087	0.35	840	EKY-160E□□471MH15D
	470	10×12.5	0.080	0.32	865	EKY-160E□□471MJC5S
	680	8×20	0.069	0.27	1,050	EKY-160E□□681MH20D
	680	10×16	0.060	0.24	1,210	EKY-160E□□681MJ16S
	1,000	10×20	0.046	0.18	1,400	EKY-160E□□102MJ20S
	1,000	12.5×15	0.049	0.16	1,450	EKY-160E□□102MK15S
	1,200	10×25	0.042	0.17	1,650	EKY-160E□□122MJ25S
	1,500	10×30	0.031	0.12	1,910	EKY-160E□□152MJ30S
16	1,500	12.5×20	0.035	0.12	1,900	EKY-160E□□152MK20S
	1,500	16×15	0.042	0.12	1,940	EKY-160E□□152ML15S
	2,200	12.5×25	0.027	0.089	2,230	EKY-160E□□222MK25S
	2,200	18×15	0.043	0.11	2,210	EKY-160E□□222MM15S
	2,700	12.5×30	0.024	0.078	2,650	EKY-160E□□272MK30S
	2,700	16×20	0.027	0.078	2,530	EKY-160E□□272ML20S
	3,300	12.5×35	0.020	0.065	2,880	EKY-160E□□332MK35S
	3,900	12.5×40	0.017	0.056	3,350	EKY-160E□□392MK40S
	3,900	16×25	0.021	0.060	2,930	EKY-160E□□392ML25S
	3,900	18×20	0.026	0.067	2,860	EKY-160E□□392MM20S
	4,700	16×31.5	0.017	0.050	3,450	EKY-160E□□472MLN3S
	4,700	18×25	0.019	0.049	3,140	EKY-160E□□472MM25S
	5,600	16×35.5	0.015	0.044	3,610	EKY-160E□□562MLP1S
	5,600	18×31.5	0.015	0.040	4,170	EKY-160E□□562MMN3S
	6,800	16×40	0.013	0.038	4,080	EKY-160E□□682ML40S
	8,200	18×35.5	0.014	0.038	4,220	EKY-160E□□822MMP1S
	10,000	18×40	0.012	0.032	4,280	EKY-160E□□103MM40S
25	47	5×11	0.58	2.3	210	EKY-250E□□470ME11D
	100	6.3×11	0.22	0.87	340	EKY-250E□□101MF11D
	220	8×11.5	0.13	0.52	640	EKY-250E□□221MHB5D
	330	8×15	0.087	0.35	840	EKY-250E□□331MH15D
	330	10×12.5	0.080	0.32	865	EKY-250E□□331MJC5S
	470	8×20	0.069	0.27	1,050	EKY-250E□□471MH20D
	470	10×16	0.060	0.24	1,210	EKY-250E□□471MJ16S
	680	10×20	0.046	0.18	1,400	EKY-250E□□681MJ20S
	680	12.5×15	0.049	0.16	1,450	EKY-250E□□681MK15S
	820	10×25	0.042	0.17	1,650	EKY-250E□□821MJ25S
	1,000	10×30	0.031	0.12	1,910	EKY-250E□□102MJ30S
	1,000	12.5×20	0.035	0.12	1,900	EKY-250E□□102MK20S
	1,000	16×15	0.042	0.12	1,940	EKY-250E□□102ML15S
	1,200	18×15	0.043	0.11	2,210	EKY-250E□□122MM15S
	1,500	12.5×25	0.027	0.089	2,230	EKY-250E□□152MK25S
	1,800	12.5×30	0.024	0.078	2,650	EKY-250E□□182MK30S
	1,800	16×20	0.027	0.078	2,530	EKY-250E□□182ML20S
	2,200	12.5×35	0.020	0.065	2,880	EKY-250E□□222MK35S
	2,200	18×20	0.026	0.067	2,860	EKY-250E□□222MM20S
	2,700	12.5×40	0.017	0.056	3,350	EKY-250E□□272MK40S
	2,700	16×25	0.021	0.060	2,930	EKY-250E□□272ML25S
	3,300	16×31.5	0.017	0.050	3,450	EKY-250E□□332MLN3S
	3,300	18×25	0.019	0.049	3,140	EKY-250E□□332MM25S
	3,900	16×35.5	0.015	0.044	3,610	EKY-250E□□392MLP1S
	3,900	18×31.5	0.015	0.040	4,170	EKY-250E□□392MMN3S
	4,700	16×40	0.013	0.038	4,080	EKY-250E□□472ML40S
	4,700	18×35.5	0.014	0.038	4,220	EKY-250E□□472MMP1S
	5,600	18×40	0.012	0.032	4,280	EKY-250E□□562MM40S
35	33	5×11	0.58	2.3	210	EKY-350E□□330ME11D
	56	6.3×11	0.22	0.87	340	EKY-350E□□560MF11D
	150	8×11.5	0.13	0.52	640	EKY-350E□□151MHB5D
	220	8×15	0.087	0.35	840	EKY-350E□□221MH15D
	220	10×12.5	0.080	0.32	865	EKY-350E□□221MJC5S
	270	8×20	0.069	0.27	1,050	EKY-350E□□271MH20D
	330	10×16	0.060	0.24	1,210	EKY-350E□□331MJ16S
	470	10×20	0.046	0.18	1,400	EKY-350E□□471MJ20S
	470	12.5×15	0.049	0.16	1,450	EKY-350E□□471MK15S
	560	10×25	0.042	0.17	1,650	EKY-350E□□561MJ25S
	680	10×30	0.031	0.12	1,910	EKY-350E□□681MJ30S
	680	12.5×20	0.035	0.12	1,900	EKY-350E□□681MK20S
	680	16×15	0.042	0.12	1,940	EKY-350E□□681ML15S
	1,000	12.5×25	0.027	0.089	2,230	EKY-350E□□102MK25S
	1,000	18×15	0.043	0.11	2,210	EKY-350E□□102MM15S
	1,200	12.5×30	0.024	0.078	2,650	EKY-350E□□122MK30S
	1,200	16×20	0.027	0.078	2,530	EKY-350E□□122ML20S
	1,500	12.5×35	0.020	0.065	2,880	EKY-350E□□152MK35S
	1,800	12.5×40	0.017	0.056	3,350	EKY-350E□□182MK40S
	1,800	16×25	0.021	0.060	2,930	EKY-350E□□182ML25S
	1,800	18×20	0.026	0.067	2,860	EKY-350E□□182MM20S
	2,200	16×31.5	0.017	0.050	3,450	EKY-350E□□222MLN3S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃ 100kHz)	Part No.
35	2,200	18×25	0.019	0.049	3,140	EKY-350E□□222MM25S
	2,700	16×35.5	0.015	0.044	3,610	EKY-350E□□272MLP1S
	2,700	18×31.5	0.015	0.040	4,170	EKY-350E□□272MMN3S
	3,300	16×40	0.013	0.038	4,080	EKY-350E□□332ML40S
	3,300	18×35.5	0.014	0.038	4,220	EKY-350E□□332MMP1S
	3,900	18×40	0.012	0.032	4,280	EKY-350E□□392MM40S
50	1.0	5×11	4.0	16.0	30	EKY-500E□□1R0ME11D
	2.2	5×11	2.5	10.0	43	EKY-500E□□2R2ME11D
	3.3	5×11	2.2	8.8	53	EKY-500E□□3R3ME11D
	4.7	5×11	1.9	7.6	88	EKY-500E□□4R7ME11D
	10	5×11	1.5	6.0	100	EKY-500E□□100ME11D
	22	5×11	0.70	2.8	180	EKY-500E□□220ME11D
	56	6.3×11	0.30	1.2	295	EKY-500E□□560MF11D
	100	8×11.5	0.17	0.68	555	EKY-500E□□101MHB5D
	120	8×15	0.12	0.48	730	EKY-500E□□121MH15D
	150	10×12.5	0.12	0.48	760	EKY-500E□□151MJC5S
	180	8×20	0.091	0.36	910	EKY-500E□□181MH20D
	220	10×16	0.084	0.34	1,050	EKY-500E□□221MJ16S
	270	10×20	0.060	0.24	1,220	EKY-500E□□271MJ20S
	270	12.5×15	0.061	0.20	1,260	EKY-500E□□271MK15S
	330	10×25	0.055	0.22	1,440	EKY-500E□□331MJ25S
	470	10×30	0.043	0.17	1,690	EKY-500E□□471MJ30S
	470	12.5×20	0.045	0.15	1,660	EKY-500E□□471MK20S
	470	16×15	0.055	0.17	1,690	EKY-500E□□471ML15S
	560	12.5×25	0.034	0.11	1,950	EKY-500E□□561MK25S
	560	18×15	0.054	0.15	1,930	EKY-500E□□561MM15S
	680	12.5×30	0.030	0.10	2,310	EKY-500E□□681MK30S
	820	12.5×35	0.025	0.083	2,510	EKY-500E□□821MK35S
	820	16×20	0.034	0.10	2,210	EKY-500E□□821ML20S
	1,000	12.5×40	0.021	0.069	2,920	EKY-500E□□102MK40S
	1,000	16×25	0.025	0.075	2,555	EKY-500E□□102ML25S
	1,000	18×20	0.036	0.097	2,490	EKY-500E□□102MM20S
	1,200	16×31.5	0.022	0.066	3,010	EKY-500E□□122MLN3S
	1,200	18×25	0.026	0.070	2,740	EKY-500E□□122MM25S
	1,500	16×35.5	0.019	0.057	3,150	EKY-500E□□152MLP1S
	1,800	16×40	0.016	0.048	3,710	EKY-500E□□182ML40S
	1,800	18×31.5	0.021	0.057	3,635	EKY-500E□□182MMN3S
	2,200	18×35.5	0.017	0.046	3,680	EKY-500E□□222MMP1S
	2,700	18×40	0.014	0.038	3,800	EKY-500E□□272MM40S
63	15	5×11	0.88	3.5	165	EKY-630E□□150ME11D
	33	6.3×11	0.35	1.4	265	EKY-630E□□330MF11D
	56	8×11.5	0.22	0.88	500	EKY-630E□□560MHB5D
	82	8×15	0.16	0.64	665	EKY-630E□□820MH15D
	82	10×12.5	0.11	0.44	690	EKY-630E□□820MJC5S
	120	8×20	0.12	0.48	820	EKY-630E□□121MH20D
	120	10×16	0.076	0.31	950	EKY-630E□□121MJ16S
	180	10×20	0.056	0.23	1,150	EKY-630E□□181MJ20S
	180	12.5×16	0.072	0.29	1,150	EKY-630E□□181MK16S
	220	10×25	0.046	0.19	1,350	EKY-630E□□221MJ25S
	270	12.5×20	0.041	0.13	1,500	EKY-630E□□271MK20S
	390	12.5×25	0.031	0.093	1,900	EKY-630E□□391MK25S
	470	12.5×30	0.028	0.084	2,300	EKY-630E□□471MK30S
	470	16×20	0.032	0.096	2,000	EKY-630E□□471ML20S
	560	12.5×35	0.024	0.072	2,500	EKY-630E□□561MK35S
	680	12.5×40	0.021	0.063	2,800	EKY-630E□□681MK40S
63	680	16×25	0.025	0.075	2,600	EKY-630E□□681ML25S
	680	18×20	0.030	0.090	2,500	EKY-630E□□681MM20S
	820	16×31.5	0.021	0.063	2,850	EKY-630E□□821MLN3S
	820	18×25	0.024	0.072	2,800	EKY-630E□□821MM25S
	1,000	16×35.5	0.019	0.057	2,900	EKY-630E□□102MLP1S
	1,200	16×40	0.018	0.054	3,400	EKY-630E□□122ML40S
	1,200	18×31.5	0.020	0.060	3,300	EKY-630E□□122MMN3S
	1,500	18×35.5	0.018	0.054	3,400	EKY-630E□□152MMP1S
	1,800	18×40	0.017	0.051	3,500	EKY-630E□□182MM40S
80	68	10×12.5	0.17	0.66	480	EKY-800E□□680MJC5S
	100	10×16	0.11	0.47	600	EKY-800E□□101MJ16S
	120	10×20	0.084	0.34	800	EKY-800E□□121MJ20S
	150	10×25	0.069	0.28	900	EKY-800E□□151MJ25S
	150	12.5×16	0.11	0.34	750	EKY-800E□□151MK16S
	220	12.5×20	0.062	0.18	1,100	EKY-800E□□221MK20S
	330	12.5×25	0.047	0.14	1,250	EKY-800E□□331MK25S
	330	16×20	0.048	0.15	1,350	EKY-800E□□331ML20S
	390	12.5×30	0.042	0.13	1,500	EKY-800E□□391MK30S
	470	12.5×35	0.036	0.11	1,650	EKY-800E□□471MK35S
	470	16×25	0.038	0.12	1,700	EKY-800E□□471ML25S
	470	18×20	0.045	0.14	1,500	EKY-800E□□471MM20S
	560	12.5×40	0.032	0.095	1,800	EKY-800E□□561MK40S
	680	16×31.5	0.032	0.095	1,850	EKY-800E□□681MLN3S
	680	18×25	0.036	0.11	1,750	EKY-800E□□681MM25S
	820	16×35.5	0.029	0.086	2,000	EKY-800E□□821MLP1S
	820	18×31.5	0.030	0.090	1,900	EKY-800E□□821MMN3S
	1,000	16×40	0.027	0.081	2,200	EKY-800E□□102ML40S
	1,000	18×35.5	0.027	0.081	2,200	EKY-800E□□102MMP1S
	1,200	18×40	0.026	0.077	2,700	EKY-800E□□122MM40S
100	6.8	5×11	1.4	5.6	125	EKY-101E□□6R8ME11D
	15	6.3×11	0.57	2.3	205	EKY-101E□□150MF11D
	27	8×11.5	0.36	1.4	355	EKY-101E□□270MHB5D
	39	8×15	0.25	1.0	450	EKY-101E□□390MH15D
	47	10×12.5	0.17	0.66	480	EKY-101E□□470MJC5S
	56	8×20	0.19	0.76	565	EKY-101E□□560MH20D
	68	10×16	0.11	0.47	600	EKY-101E□□680MJ16S
	82	10×20	0.084	0.34	800	EKY-101E□□820MJ20S
	100	12.5×16	0.11	0.34	750	EKY-101E□□101MK16S
	120	10×25	0.069	0.28	900	EKY-101E□□121MJ25S
	150	12.5×20	0.062	0.18	1,100	EKY-101E□□151MK20S
	220	12.5×25	0.047	0.14	1,250	EKY-101E□□221MK25S
	220	16×20	0.048	0.15	1,350	EKY-101E□□221ML20S
	270	12.5×30	0.042	0.13	1,500	EKY-101E□□271MK30S
	330	12.5×35	0.036	0.11	1,650	EKY-101E□□331MK35S
	330	16×25	0.038	0.12	1,700	EKY-101E□□331ML25S
	330	18×20	0.045	0.14	1,500	EKY-101E□□331MM20S
	390	12.5×40	0.032	0.095	1,800	EKY-101E□□391MK40S
	470	16×31.5	0.032	0.095	1,850	EKY-101E□□471MLN3S
	470	18×25	0.036	0.11	1,750	EKY-101E□□471MM25S
	560	16×35.5	0.029	0.086	2,000	EKY-101E□□561MLP1S
	560	18×31.5	0.030	0.090	1,900	EKY-101E□□561MMN3S
	680	16×40	0.027	0.081	2,200	EKY-101E□□681ML40S
	680	18×35.5	0.027	0.081	2,200	EKY-101E□□681MMP1S
	820	18×40	0.026	0.077	2,700	EKY-101E□□821MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
1.0 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

New!

LZA Series

- Adoption of innovative electrolyte and new technologies
- Very low impedance at high frequency
- Endurance with ripple current: 4,000 to 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

LZA
Lower Z
Downsized
LXZ

◆SPECIFICATIONS

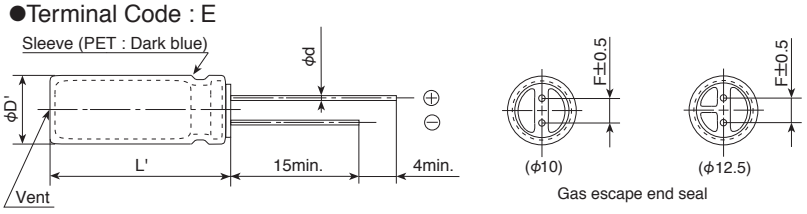
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	6.3 to 35Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V tanδ (Max.): 0.22, 0.19, 0.16, 0.14, 0.12 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V Z(−55℃)/Z(+20℃): 4, 3, 3, 3, 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃.

Time	φ10 : 4,000hours φ12.5 : 5,000hours		
Rated voltage	6.3 to 10Vdc(φ10)	6.3 to 10Vdc(φ12.5)	16 to 35Vdc
Capacitance change	≦±30% of the initial value	≦±20% of the initial value	≦±20% of the initial value
D.F.(tanδ)	≦300% of the initial specified value	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value	≦The initial specified value

Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
Rated voltage	6.3 to 10Vdc(φ10)	6.3 to 10Vdc(φ12.5)	16 to 35Vdc
Capacitance change	≦±30% of the initial value	≦±20% of the initial value	≦±20% of the initial value
D.F.(tanδ)	≦300% of the initial specified value	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value	≦The initial specified value

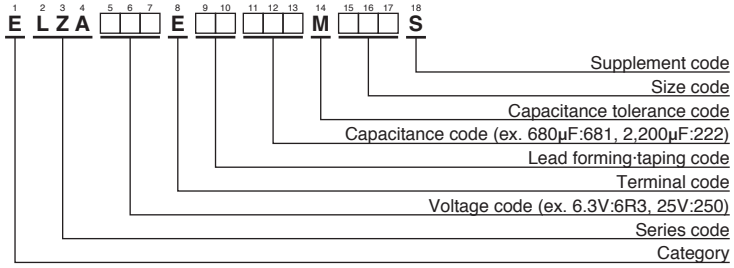
◆DIMENSIONS [mm]

- Terminal Code : E



φD	10	12.5
φd	0.6	0.6
F	5.0	5.0
φD'	φD+0.5max.	
L'	L+1.5max.	

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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Low impedance, Downsized, 105℃

New!

LZA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	1,500	10×12.5	0.063	960	ELZA6R3E□□152MJC5S
	1,800	10×16	0.049	1,240	ELZA6R3E□□182MJ16S
	2,700	10×20	0.035	1,550	ELZA6R3E□□272MJ20S
	3,300	10×25	0.033	1,740	ELZA6R3E□□332MJ25S
	4,700	12.5×20	0.029	1,890	ELZA6R3E□□472MK20S
	6,800	12.5×25	0.022	2,350	ELZA6R3E□□682MK25S
10	1,000	10×12.5	0.063	960	ELZA100E□□102MJC5S
	1,500	10×16	0.049	1,240	ELZA100E□□152MJ16S
	2,200	10×20	0.035	1,550	ELZA100E□□222MJ20S
	2,700	10×25	0.033	1,740	ELZA100E□□272MJ25S
	3,300	12.5×20	0.029	1,890	ELZA100E□□332MK20S
	4,700	12.5×25	0.022	2,350	ELZA100E□□472MK25S
16	820	10×12.5	0.063	960	ELZA160E□□821MJC5S
	1,000	10×16	0.049	1,240	ELZA160E□□102MJ16S
	1,500	10×20	0.035	1,550	ELZA160E□□152MJ20S
	1,800	10×25	0.033	1,740	ELZA160E□□182MJ25S
	2,200	12.5×20	0.029	1,890	ELZA160E□□222MK20S
	3,300	12.5×25	0.022	2,350	ELZA160E□□332MK25S
25	470	10×12.5	0.063	960	ELZA250E□□471MJC5S
	680	10×16	0.049	1,240	ELZA250E□□681MJ16S
	1,000	10×20	0.035	1,550	ELZA250E□□102MJ20S
	1,200	10×25	0.033	1,740	ELZA250E□□122MJ25S
	1,500	12.5×20	0.029	1,890	ELZA250E□□152MK20S
	2,200	12.5×25	0.022	2,350	ELZA250E□□222MK25S
35	330	10×12.5	0.063	960	ELZA350E□□331MJC5S
	470	10×16	0.049	1,240	ELZA350E□□471MJ16S
	680	10×20	0.035	1,550	ELZA350E□□681MJ20S
	820	10×25	0.033	1,740	ELZA350E□□821MJ25S
	1,000	12.5×20	0.029	1,890	ELZA350E□□102MK20S
	1,500	12.5×25	0.022	2,350	ELZA350E□□152MK25S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
330 to 470	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,300	0.75	0.90	0.95	1.00
4,700 to 6,800	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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LXZ Series

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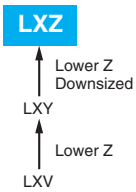
- ●Very low impedance at high frequency
- ●Endurance with ripple current: 2,000 to 8,000 hours at 105℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **●RoHS Compliant**

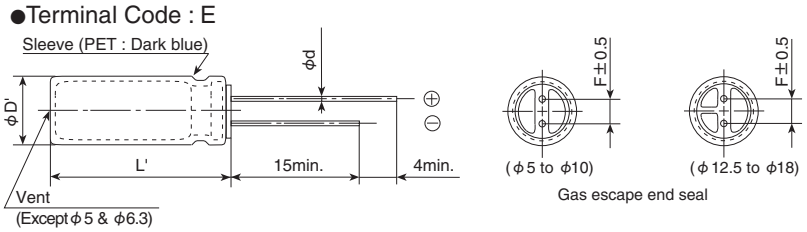


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	6.3 to 63Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V, 63V tanδ(Max.): 0.22, 0.19, 0.16, 0.14, 0.12, 0.10, 0.08 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. Time: φ5 & 6.3 : 2,000hours φ8 : 3,000hours φ10 : 5,000hours φ12.5 : 7,000hours φ16 & 18 : 8,000hours Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

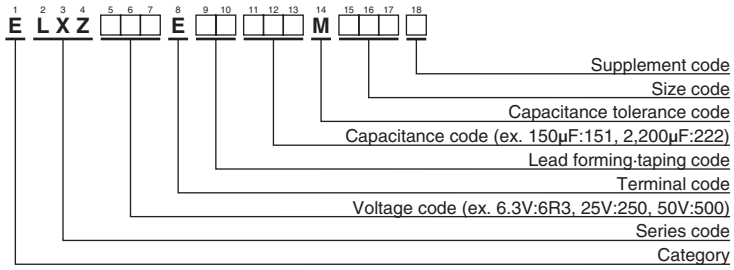
◆DIMENSIONS [mm]

●Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



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Low impedance, Downsized, 105℃

LXZ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	150	5×11.5	0.50	1.0	175	ELXZ6R3E□□151MEB5D
	330	6.3×11.5	0.25	0.50	290	ELXZ6R3E□□331MFB5D
	470	6.3×15	0.18	0.36	400	ELXZ6R3E□□471MF15D
	680	8×12	0.12	0.24	555	ELXZ6R3E□□681MH12D
	820	10×12.5	0.090	0.18	760	ELXZ6R3E□□821MJC5S
	1,000	8×15	0.090	0.18	730	ELXZ6R3E□□102MH15D
	1,200	8×20	0.080	0.16	810	ELXZ6R3E□□122MH20D
	1,200	10×16	0.068	0.136	1,050	ELXZ6R3E□□122MJ16S
	1,500	10×20	0.052	0.104	1,220	ELXZ6R3E□□152MJ20S
	2,200	10×25	0.045	0.090	1,440	ELXZ6R3E□□222MJ25S
	2,700	10×30	0.037	0.074	1,690	ELXZ6R3E□□272MJ30S
	3,300	12.5×20	0.038	0.076	1,660	ELXZ6R3E□□332MK20S
	3,900	12.5×25	0.030	0.060	1,950	ELXZ6R3E□□392MK25S
	4,700	12.5×30	0.025	0.050	2,310	ELXZ6R3E□□472MK30S
	5,600	12.5×35	0.022	0.044	2,510	ELXZ6R3E□□562MK35S
	5,600	16×20	0.029	0.058	2,210	ELXZ6R3E□□562ML20S
	6,800	12.5×40	0.017	0.034	2,870	ELXZ6R3E□□682MK40S
	6,800	16×25	0.022	0.044	2,560	ELXZ6R3E□□682ML25S
	6,800	18×20	0.028	0.056	2,490	ELXZ6R3E□□682MM20S
	8,200	16×30	0.019	0.038	3,010	ELXZ6R3E□□822ML30S
	10,000	16×35	0.017	0.034	3,150	ELXZ6R3E□□103ML35S
	10,000	18×25	0.020	0.040	2,740	ELXZ6R3E□□103MM25S
	12,000	16×40	0.015	0.030	3,710	ELXZ6R3E□□123ML40S
	12,000	18×30	0.018	0.036	3,330	ELXZ6R3E□□123MM30S
	15,000	18×35	0.016	0.032	3,680	ELXZ6R3E□□153MM35S
	18,000	18×40	0.015	0.030	3,800	ELXZ6R3E□□183MM40S
10	100	5×11.5	0.50	1.0	175	ELXZ100E□□101MEB5D
	220	6.3×11.5	0.25	0.50	290	ELXZ100E□□221MFB5D
	330	6.3×15	0.18	0.36	400	ELXZ100E□□331MF15D
	470	8×12	0.12	0.24	555	ELXZ100E□□471MH12D
	680	8×15	0.090	0.18	730	ELXZ100E□□681MH15D
	680	10×12.5	0.090	0.18	760	ELXZ100E□□681MJC5S
	1,000	8×20	0.080	0.16	810	ELXZ100E□□102MH20D
	1,000	10×16	0.068	0.136	1,050	ELXZ100E□□102MJ16S
	1,200	10×20	0.052	0.104	1,220	ELXZ100E□□122MJ20S
	1,500	10×25	0.045	0.090	1,440	ELXZ100E□□152MJ25S
	1,800	10×30	0.037	0.074	1,690	ELXZ100E□□182MJ30S
	2,200	12.5×20	0.038	0.076	1,660	ELXZ100E□□222MK20S
	3,300	12.5×25	0.030	0.060	1,950	ELXZ100E□□332MK25S
	3,900	12.5×30	0.025	0.050	2,310	ELXZ100E□□392MK30S
	3,900	16×20	0.029	0.058	2,210	ELXZ100E□□392ML20S
	4,700	12.5×35	0.022	0.044	2,510	ELXZ100E□□472MK35S
	5,600	12.5×40	0.017	0.034	2,870	ELXZ100E□□562MK40S
	5,600	16×25	0.022	0.044	2,560	ELXZ100E□□562ML25S
	5,600	18×20	0.028	0.056	2,490	ELXZ100E□□562MM20S
	6,800	16×30	0.019	0.038	3,010	ELXZ100E□□682ML30S
	6,800	18×25	0.020	0.040	2,740	ELXZ100E□□682MM25S
	8,200	16×35	0.017	0.034	3,150	ELXZ100E□□822ML35S
	8,200	18×30	0.018	0.036	3,330	ELXZ100E□□822MM30S
	10,000	16×40	0.015	0.030	3,710	ELXZ100E□□103ML40S
	10,000	18×35	0.016	0.032	3,680	ELXZ100E□□103MM35S
	12,000	18×40	0.015	0.030	3,800	ELXZ100E□□123MM40S
16	47	5×11.5	0.50	1.0	175	ELXZ160E□□470MEB5D
	100	6.3×11.5	0.25	0.50	290	ELXZ160E□□101MFB5D
	220	6.3×15	0.18	0.36	400	ELXZ160E□□221MF15D
	330	8×12	0.12	0.24	555	ELXZ160E□□331MH12D
	470	8×15	0.090	0.18	730	ELXZ160E□□471MH15D
	470	10×12.5	0.090	0.18	760	ELXZ160E□□471MJC5S
	560	8×20	0.080	0.16	810	ELXZ160E□□561MH20D
	680	10×16	0.068	0.136	1,050	ELXZ160E□□681MJ16S
	1,000	10×20	0.052	0.104	1,220	ELXZ160E□□102MJ20S
	1,200	10×25	0.045	0.090	1,440	ELXZ160E□□122MJ25S
	1,500	10×30	0.037	0.074	1,690	ELXZ160E□□152MJ30S
	1,500	12.5×20	0.038	0.076	1,660	ELXZ160E□□152MK20S
	2,200	12.5×25	0.030	0.060	1,950	ELXZ160E□□222MK25S
	2,700	12.5×30	0.025	0.050	2,310	ELXZ160E□□272MK30S
	2,700	16×20	0.029	0.058	2,210	ELXZ160E□□272ML20S
16	3,300	12.5×35	0.022	0.044	2,510	ELXZ160E□□332MK35S
	3,900	12.5×40	0.017	0.034	2,870	ELXZ160E□□392MK40S
	3,900	16×25	0.022	0.044	2,560	ELXZ160E□□392ML25S
	3,900	18×20	0.028	0.056	2,490	ELXZ160E□□392MM20S
	4,700	16×30	0.019	0.038	3,010	ELXZ160E□□472ML30S
	4,700	18×25	0.020	0.040	2,740	ELXZ160E□□472MM25S
	5,600	16×35	0.017	0.034	3,150	ELXZ160E□□562ML35S
	5,600	18×30	0.018	0.036	3,330	ELXZ160E□□562MM30S
	6,800	16×40	0.015	0.030	3,710	ELXZ160E□□682ML40S
	8,200	18×35	0.016	0.032	3,680	ELXZ160E□□822MM35S
	10,000	18×40	0.015	0.030	3,800	ELXZ160E□□103MM40S
25	47	5×11.5	0.50	1.0	175	ELXZ250E□□470MEB5D
	100	6.3×11.5	0.25	0.50	290	ELXZ250E□□101MFB5D
	150	6.3×15	0.18	0.36	400	ELXZ250E□□151MF15D
	220	8×12	0.12	0.24	555	ELXZ250E□□221MH12D
	330	8×15	0.090	0.18	730	ELXZ250E□□331MH15D
	330	10×12.5	0.090	0.18	760	ELXZ250E□□331MJC5S
	390	8×20	0.080	0.16	810	ELXZ250E□□391MH20D
	470	10×16	0.068	0.136	1,050	ELXZ250E□□471MJ16S
	680	10×20	0.052	0.104	1,220	ELXZ250E□□681MJ20S
	820	10×25	0.045	0.090	1,440	ELXZ250E□□821MJ25S
	1,000	10×30	0.037	0.074	1,690	ELXZ250E□□102MJ30S
	1,000	12.5×20	0.038	0.076	1,660	ELXZ250E□□102MK20S
	1,500	12.5×25	0.030	0.060	1,950	ELXZ250E□□152MK25S
	1,800	12.5×30	0.025	0.050	2,310	ELXZ250E□□182MK30S
	1,800	16×20	0.029	0.058	2,210	ELXZ250E□□182ML20S
	2,200	12.5×35	0.022	0.044	2,510	ELXZ250E□□222MK35S
	2,200	18×20	0.028	0.056	2,490	ELXZ250E□□222MM20S
	2,700	12.5×40	0.017	0.034	2,870	ELXZ250E□□272MK40S
	2,700	16×25	0.022	0.044	2,560	ELXZ250E□□272ML25S
	3,300	16×30	0.019	0.038	3,010	ELXZ250E□□332ML30S
	3,300	18×25	0.020	0.040	2,740	ELXZ250E□□332MM25S
	3,900	16×35	0.017	0.034	3,150	ELXZ250E□□392ML35S
	3,900	18×30	0.018	0.036	3,330	ELXZ250E□□392MM30S
	4,700	16×40	0.015	0.030	3,710	ELXZ250E□□472ML40S
	4,700	18×35	0.016	0.032	3,680	ELXZ250E□□472MM35S
	5,600	18×40	0.015	0.030	3,800	ELXZ250E□□562MM40S
35	33	5×11.5	0.50	1.0	175	ELXZ350E□□330MEB5D
	56	6.3×11.5	0.25	0.50	290	ELXZ350E□□560MFB5D
	100	6.3×15	0.18	0.36	400	ELXZ350E□□101MF15D
	150	8×12	0.12	0.24	555	ELXZ350E□□151MH12D
	220	8×15	0.090	0.18	730	ELXZ350E□□221MH15D
	220	10×12.5	0.090	0.18	760	ELXZ350E□□221MJC5S
	270	8×20	0.080	0.16	810	ELXZ350E□□271MH20D
	330	10×16	0.068	0.136	1,050	ELXZ350E□□331MJ16S
	470	10×20	0.052	0.104	1,220	ELXZ350E□□471MJ20S
	560	10×25	0.045	0.090	1,440	ELXZ350E□□561MJ25S
	680	10×30	0.037	0.074	1,690	ELXZ350E□□681MJ30S
	680	12.5×20	0.038	0.076	1,660	ELXZ350E□□681MK20S
	1,000	12.5×25	0.030	0.060	1,950	ELXZ350E□□102MK25S
	1,200	12.5×30	0.025	0.050	2,310	ELXZ350E□□122MK30S
	1,200	16×20	0.029	0.058	2,210	ELXZ350E□□122ML20S
	1,500	12.5×35	0.022	0.044	2,510	ELXZ350E□□152MK35S
	1,800	12.5×40	0.017	0.034	2,870	ELXZ350E□□182MK40S
	1,800	16×25	0.022	0.044	2,560	ELXZ350E□□182ML25S
	1,800	18×20	0.028	0.056	2,490	ELXZ350E□□182MM20S
	2,200	16×30	0.019	0.038	3,010	ELXZ350E□□222ML30S
	2,200	18×25	0.020	0.040	2,740	ELXZ350E□□222MM25S
	2,700	16×35	0.017	0.034	3,150	ELXZ350E□□272ML35S
	2,700	18×30	0.018	0.036	3,330	ELXZ350E□□272MM30S
	3,300	16×40	0.015	0.030	3,710	ELXZ350E□□332ML40S
	3,300	18×35	0.016	0.032	3,680	ELXZ350E□□332MM35S
	3,900	18×40	0.015	0.030	3,800	ELXZ350E□□392MM40S
50	22	5×11.5	0.90	1.8	155	ELXZ500E□□220MEB5D
	47	6.3×11.5	0.45	0.90	260	ELXZ500E□□470MFB5D
	68	6.3×15	0.31	0.62	360	ELXZ500E□□680MF15D
	100	8×12	0.22	0.44	485	ELXZ500E□□101MH12D

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

LXZ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
50	120	8×15	0.16	0.32	635	ELXZ500E□□121MH15D
	120	10×12.5	0.16	0.32	620	ELXZ500E□□121MJC5S
	180	8×20	0.12	0.24	730	ELXZ500E□□181MH20D
	180	10×16	0.13	0.26	850	ELXZ500E□□181MJ16S
	220	10×20	0.088	0.18	1,050	ELXZ500E□□221MJ20S
	330	10×25	0.073	0.15	1,250	ELXZ500E□□331MJ25S
	390	10×30	0.054	0.11	1,500	ELXZ500E□□391MJ30S
	390	12.5×20	0.059	0.12	1,480	ELXZ500E□□391MK20S
	560	12.5×25	0.044	0.088	1,840	ELXZ500E□□561MK25S
	680	12.5×30	0.039	0.078	2,220	ELXZ500E□□681MK30S
	680	16×20	0.048	0.096	1,840	ELXZ500E□□681ML20S
	820	12.5×35	0.033	0.066	2,290	ELXZ500E□□821MK35S
	820	18×20	0.042	0.084	1,980	ELXZ500E□□821MM20S
	1,000	12.5×40	0.029	0.058	2,500	ELXZ500E□□102MK40S
	1,000	16×25	0.034	0.068	2,240	ELXZ500E□□102ML25S
	1,200	16×30	0.028	0.056	2,700	ELXZ500E□□122ML30S
	1,200	18×25	0.029	0.058	2,610	ELXZ500E□□122MM25S
	1,500	16×35	0.025	0.050	2,800	ELXZ500E□□152ML35S
	1,800	16×40	0.021	0.042	3,200	ELXZ500E□□182ML40S
	1,800	18×30	0.025	0.050	3,000	ELXZ500E□□182MM30S
	2,200	18×35	0.023	0.046	3,100	ELXZ500E□□222MM35S
	2,700	18×40	0.020	0.040	3,400	ELXZ500E□□272MM40S
63	12	5×11.5	1.9	4.0	145	ELXZ630E□□120MEB5D
	22	6.3×11.5	1.0	2.0	240	ELXZ630E□□220MFB5D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
63	39	6.3×15	0.61	1.4	330	ELXZ630E□□390MF15D
	68	8×12	0.34	0.75	405	ELXZ630E□□680MH12D
	100	8×15	0.27	0.65	535	ELXZ630E□□101MH15D
	100	10×12.5	0.255	0.51	540	ELXZ630E□□101MJC5S
	120	10×16	0.19	0.38	600	ELXZ630E□□121MJ16S
	150	8×20	0.21	0.52	690	ELXZ630E□□151MH20D
	180	10×20	0.145	0.29	890	ELXZ630E□□181MJ20S
	220	10×25	0.13	0.26	1,050	ELXZ630E□□221MJ25S
	330	10×30	0.090	0.18	1,300	ELXZ630E□□331MJ30S
	330	12.5×20	0.085	0.17	1,290	ELXZ630E□□331MK20S
	390	12.5×25	0.070	0.14	1,720	ELXZ630E□□391MK25S
	470	12.5×30	0.055	0.11	2,090	ELXZ630E□□471MK30S
	470	16×20	0.059	0.12	1,770	ELXZ630E□□471ML20S
	680	12.5×35	0.047	0.094	2,270	ELXZ630E□□681MK35S
	680	16×25	0.050	0.10	2,160	ELXZ630E□□681ML25S
	680	18×20	0.055	0.11	2,290	ELXZ630E□□681MM20S
	820	12.5×40	0.042	0.084	2,560	ELXZ630E□□821MK40S
	820	16×30	0.043	0.086	2,670	ELXZ630E□□821ML30S
	820	18×25	0.043	0.086	2,590	ELXZ630E□□821MM25S
	1,000	16×35	0.036	0.072	2,770	ELXZ630E□□102ML35S
	1,200	16×40	0.030	0.060	2,850	ELXZ630E□□122ML40S
	1,200	18×30	0.032	0.064	2,950	ELXZ630E□□122MM30S
	1,500	18×35	0.030	0.060	3,100	ELXZ630E□□152MM35S
	1,800	18×40	0.025	0.050	3,210	ELXZ630E□□182MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
12 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 18,000	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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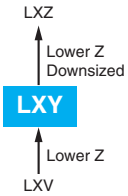
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

High reliability, Low impedance, 105℃

LXY Series

- Adoption of innovative electrolyte and new technologies
- Endurance with ripple current : 2,000 to 8,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

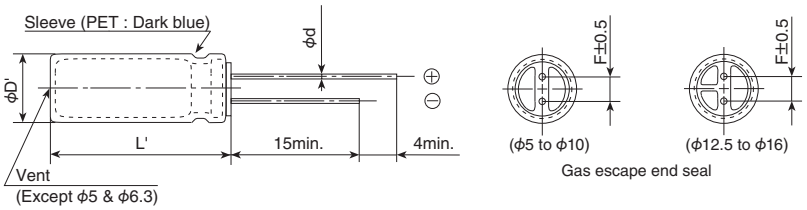


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	10 to 63Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 10V, 16V, 25V, 35V, 50V, 63V tanδ (Max.): 0.19, 0.16, 0.14, 0.12, 0.10, 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−55℃)/Z(+20℃): 10Vdc to 50Vdc : 3max.; 63Vdc : 6max. (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. Time: φ5 & 6.3 : 2,000hours φ8 : 3,000hours φ10 : 5,000hours φ12.5 : 7,000hours φ16 & 18 : 8,000hours Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16
φd	0.5	0.5	0.6	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5
φD'	φD+0.5max.					
L'	L+1.5max.					

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E L X Y □□□ E □□ □□□ M □□□ □

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 120μF:121, 2,200μF:222)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 10V:100, 25V:250, 63V:630)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
10 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 8,200	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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High reliability, Low impedance, 105℃

LXY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
10	82	5×11.5	0.75	1.5	163	ELXY100E□□820MEB5D
	180	6.3×11.5	0.35	0.70	273	ELXY100E□□181MFB5D
	220	6.3×15	0.25	0.50	390	ELXY100E□□221MF15D
	330	8×12	0.17	0.34	445	ELXY100E□□331MH12D
	390	10×12.5	0.12	0.24	625	ELXY100E□□391MJC5S
	470	8×15	0.13	0.26	555	ELXY100E□□471MH15D
	680	8×20	0.095	0.19	740	ELXY100E□□681MH20D
	680	10×16	0.084	0.17	825	ELXY100E□□681MJ16S
	1,000	10×20	0.062	0.13	1,040	ELXY100E□□102MJ20S
	1,200	10×25	0.052	0.11	1,260	ELXY100E□□122MJ25S
	1,500	10×30	0.044	0.088	1,440	ELXY100E□□152MJ30S
	1,800	12.5×20	0.046	0.092	1,340	ELXY100E□□182MK20S
	2,200	12.5×25	0.034	0.068	1,690	ELXY100E□□222MK25S
	2,700	12.5×30	0.030	0.060	1,950	ELXY100E□□272MK30S
	3,300	12.5×35	0.024	0.048	2,220	ELXY100E□□332MK35S
	3,300	16×20	0.038	0.076	1,630	ELXY100E□□332ML20S
	3,900	12.5×40	0.022	0.044	2,390	ELXY100E□□392MK40S
	3,900	16×25	0.028	0.056	2,070	ELXY100E□□392ML25S
	5,600	16×30	0.025	0.050	2,350	ELXY100E□□562ML30S
	6,800	16×35	0.022	0.044	2,550	ELXY100E□□682ML35S
	8,200	16×40	0.018	0.036	2,900	ELXY100E□□822ML40S
16	56	5×11.5	0.75	1.5	163	ELXY160E□□560MEB5D
	120	6.3×11.5	0.35	0.70	273	ELXY160E□□121MFB5D
	180	6.3×15	0.25	0.50	390	ELXY160E□□181MF15D
	270	8×12	0.17	0.34	445	ELXY160E□□271MH12D
	270	10×12.5	0.12	0.24	625	ELXY160E□□271MJC5S
	330	8×15	0.13	0.26	555	ELXY160E□□331MH15D
	470	8×20	0.095	0.19	740	ELXY160E□□471MH20D
	470	10×16	0.084	0.17	825	ELXY160E□□471MJ16S
	680	10×20	0.062	0.13	1,040	ELXY160E□□681MJ20S
	820	10×25	0.052	0.11	1,260	ELXY160E□□821MJ25S
	1,200	10×30	0.044	0.088	1,440	ELXY160E□□122MJ30S
	1,200	12.5×20	0.046	0.092	1,340	ELXY160E□□122MK20S
	1,500	12.5×25	0.034	0.068	1,690	ELXY160E□□152MK25S
	2,200	12.5×30	0.030	0.060	1,950	ELXY160E□□222MK30S
	2,200	16×20	0.038	0.076	1,630	ELXY160E□□222ML20S
	2,700	12.5×35	0.024	0.048	2,220	ELXY160E□□272MK35S
	2,700	16×25	0.028	0.056	2,070	ELXY160E□□272ML25S
	3,300	12.5×40	0.022	0.044	2,390	ELXY160E□□332MK40S
	3,900	16×30	0.025	0.050	2,350	ELXY160E□□392ML30S
	4,700	16×35	0.022	0.044	2,550	ELXY160E□□472ML35S
	5,600	16×40	0.018	0.036	2,900	ELXY160E□□562ML40S
25	39	5×11.5	0.75	1.5	163	ELXY250E□□390MEB5D
	82	6.3×11.5	0.35	0.70	273	ELXY250E□□820MFB5D
	120	6.3×15	0.25	0.50	390	ELXY250E□□121MF15D
	150	8×12	0.17	0.34	445	ELXY250E□□151MH12D
	180	10×12.5	0.12	0.24	625	ELXY250E□□181MJC5S
	220	8×15	0.13	0.26	555	ELXY250E□□221MH15D
	330	8×20	0.095	0.19	740	ELXY250E□□331MH20D
	330	10×16	0.084	0.17	825	ELXY250E□□331MJ16S
	470	10×20	0.062	0.13	1,040	ELXY250E□□471MJ20S
	560	10×25	0.052	0.11	1,260	ELXY250E□□561MJ25S
	820	10×30	0.044	0.088	1,440	ELXY250E□□821MJ30S
	820	12.5×20	0.046	0.092	1,340	ELXY250E□□821MK20S
	1,000	12.5×25	0.034	0.068	1,690	ELXY250E□□102MK25S
	1,500	12.5×30	0.030	0.060	1,950	ELXY250E□□152MK30S
	1,500	16×20	0.038	0.076	1,630	ELXY250E□□152ML20S
	1,800	12.5×35	0.024	0.048	2,220	ELXY250E□□182MK35S
	1,800	16×25	0.028	0.056	2,070	ELXY250E□□182ML25S
	2,200	12.5×40	0.022	0.044	2,390	ELXY250E□□222MK40S
	2,700	16×30	0.025	0.050	2,350	ELXY250E□□272ML30S
	3,300	16×35	0.022	0.044	2,550	ELXY250E□□332ML35S
	3,900	16×40	0.018	0.036	2,900	ELXY250E□□392ML40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
35	27	5×11.5	0.75	1.5	163	ELXY350E□□270MEB5D
	56	6.3×11.5	0.35	0.70	273	ELXY350E□□560MFB5D
	82	6.3×15	0.25	0.50	390	ELXY350E□□820MF15D
	120	8×12	0.17	0.34	445	ELXY350E□□121MH12D
	120	10×12.5	0.12	0.24	625	ELXY350E□□121MJC5S
	180	8×15	0.13	0.26	555	ELXY350E□□181MH15D
	220	8×20	0.095	0.19	740	ELXY350E□□221MH20D
	220	10×16	0.084	0.17	825	ELXY350E□□221MJ16S
	330	10×20	0.062	0.13	1,040	ELXY350E□□331MJ20S
	390	10×25	0.052	0.11	1,260	ELXY350E□□391MJ25S
	560	10×30	0.044	0.088	1,440	ELXY350E□□561MJ30S
	560	12.5×20	0.046	0.092	1,340	ELXY350E□□561MK20S
	680	12.5×25	0.034	0.068	1,690	ELXY350E□□681MK25S
	1,000	12.5×30	0.030	0.060	1,950	ELXY350E□□102MK30S
	1,000	16×20	0.038	0.076	1,630	ELXY350E□□102ML20S
	1,200	12.5×35	0.024	0.048	2,220	ELXY350E□□122MK35S
	1,200	16×25	0.028	0.056	2,070	ELXY350E□□122ML25S
	1,500	12.5×40	0.022	0.044	2,390	ELXY350E□□152MK40S
	1,800	16×30	0.025	0.050	2,350	ELXY350E□□182ML30S
	2,200	16×35	0.022	0.044	2,550	ELXY350E□□222ML35S
	2,700	16×40	0.018	0.036	2,900	ELXY350E□□272ML40S
50	18	5×11.5	1.2	2.4	129	ELXY500E□□180MEB5D
	39	6.3×11.5	0.54	1.1	219	ELXY500E□□390MFB5D
	56	6.3×15	0.34	0.68	310	ELXY500E□□560MF15D
	68	8×12	0.30	0.60	340	ELXY500E□□680MH12D
	82	8×15	0.20	0.40	470	ELXY500E□□820MH15D
	82	10×12.5	0.20	0.40	480	ELXY500E□□820MJC5S
	120	8×20	0.14	0.28	610	ELXY500E□□121MH20D
	120	10×16	0.13	0.26	755	ELXY500E□□121MJ16S
	180	10×20	0.088	0.18	945	ELXY500E□□181MJ20S
	220	10×25	0.073	0.15	1,150	ELXY500E□□221MJ25S
	330	10×30	0.054	0.11	1,260	ELXY500E□□331MJ30S
	330	12.5×20	0.059	0.12	1,190	ELXY500E□□331MK20S
	470	12.5×25	0.044	0.088	1,490	ELXY500E□□471MK25S
	560	12.5×30	0.039	0.078	1,720	ELXY500E□□561MK30S
	680	12.5×35	0.033	0.066	1,890	ELXY500E□□681MK35S
	680	16×20	0.050	0.10	1,420	ELXY500E□□681ML20S
	820	12.5×40	0.029	0.058	2,030	ELXY500E□□821MK40S
	820	16×25	0.034	0.068	1,880	ELXY500E□□821ML25S
	1,000	16×30	0.030	0.060	2,150	ELXY500E□□102ML30S
	1,200	16×35	0.027	0.054	2,320	ELXY500E□□122ML35S
	1,500	16×40	0.024	0.048	2,540	ELXY500E□□152ML40S
63	10	5×11.5	1.9	4.8	103	ELXY630E□□100MEB5D
	18	6.3×11.5	1.0	2.5	161	ELXY630E□□180MFB5D
	33	6.3×15	0.61	1.6	233	ELXY630E□□330MF15D
	47	8×12	0.47	1.2	274	ELXY630E□□470MH12D
	56	10×12.5	0.27	0.68	418	ELXY630E□□560MJC5S
	68	8×15	0.34	0.85	360	ELXY630E□□680MH15D
	68	10×16	0.21	0.53	525	ELXY630E□□680MJ16S
	82	8×20	0.21	0.53	500	ELXY630E□□820MH20D
	120	10×20	0.16	0.40	650	ELXY630E□□121MJ20S
	150	10×25	0.13	0.33	783	ELXY630E□□151MJ25S
	180	10×30	0.10	0.25	960	ELXY630E□□181MJ30S
	220	12.5×20	0.11	0.28	870	ELXY630E□□221MK20S
	270	12.5×25	0.074	0.19	1,150	ELXY630E□□271MK25S
	330	16×20	0.085	0.22	1,100	ELXY630E□□331ML20S
	390	12.5×30	0.068	0.17	1,280	ELXY630E□□391MK30S
	470	12.5×35	0.063	0.16	1,390	ELXY630E□□471MK35S
	470	16×25	0.055	0.14	1,480	ELXY630E□□471ML25S
	560	12.5×40	0.051	0.13	1,530	ELXY630E□□561MK40S
	680	16×30	0.046	0.12	1,720	ELXY630E□□681ML30S
	820	16×35	0.040	0.10	1,910	ELXY630E□□821ML35S
	1,000	16×40	0.036	0.09	2,070	ELXY630E□□102ML40S

□□ : Enter the appropriate lead forming or taping code.

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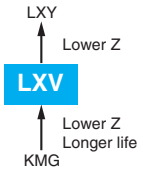
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

LXV Series

- Low impedance
- Endurance with ripple current : 2,000 to 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

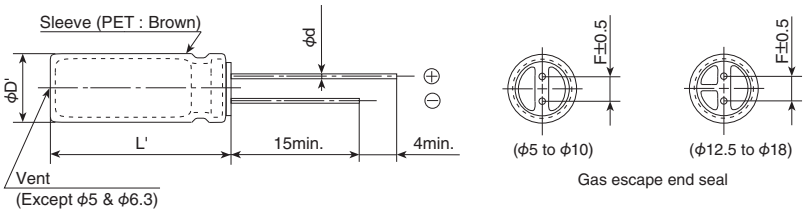


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V tanδ (Max.): 0.22, 0.19, 0.16, 0.14, 0.12, 0.10, 0.10, 0.09, 0.08 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change ΔC (−55℃ /+20℃): 0.7min. Max. impedance ratio (−55℃ /+20℃): 3max.(6.3Vdc : 4max.) (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105℃. Time: φ5 to 6.3 : 2,000hours φ8 & 10 : 3,000hours φ12.5 to φ18 : 5,000hours Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

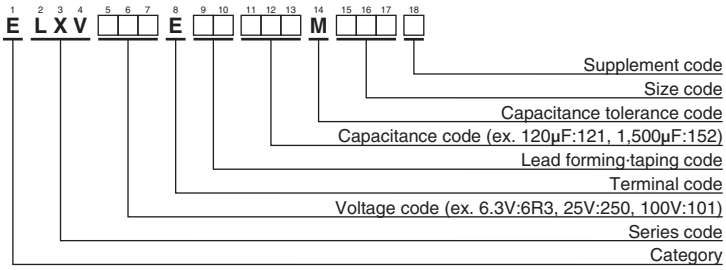
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

LXV Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	120	5×11.5	0.72	1.8	165	ELXV6R3E□□121MEB5D
	220	6.3×11.5	0.38	0.95	255	ELXV6R3E□□221MFB5D
	330	6.3×15	0.27	0.68	330	ELXV6R3E□□331MF15D
	390	8×12	0.20	0.50	415	ELXV6R3E□□391MH12D
	470	10×12.5	0.12	0.30	635	ELXV6R3E□□471MJC5S
	560	8×15	0.16	0.40	495	ELXV6R3E□□561MH15D
	680	10×16	0.084	0.21	825	ELXV6R3E□□681MJ16S
	820	8×20	0.11	0.28	640	ELXV6R3E□□821MH20D
	1,200	10×20	0.062	0.16	1,060	ELXV6R3E□□122MJ20S
	1,500	10×25	0.052	0.13	1,260	ELXV6R3E□□152MJ25S
	2,200	10×30	0.044	0.11	1,450	ELXV6R3E□□222MJ30S
	2,200	12.5×20	0.046	0.12	1,360	ELXV6R3E□□222MK20S
	2,700	12.5×25	0.034	0.085	1,700	ELXV6R3E□□272MK25S
	3,900	12.5×30	0.030	0.075	1,980	ELXV6R3E□□392MK30S
	3,900	16×20	0.038	0.095	1,770	ELXV6R3E□□392ML20S
	4,700	12.5×35	0.027	0.068	2,230	ELXV6R3E□□472MK35S
	5,600	12.5×40	0.024	0.060	2,460	ELXV6R3E□□562MK40S
	5,600	16×25	0.028	0.070	2,190	ELXV6R3E□□562ML25S
	5,600	18×20	0.036	0.090	1,940	ELXV6R3E□□562MM20S
	6,800	16×30	0.025	0.063	2,510	ELXV6R3E□□682ML30S
	6,800	18×25	0.027	0.068	2,350	ELXV6R3E□□682MM25S
	8,200	16×35	0.022	0.055	2,770	ELXV6R3E□□822ML35S
	10,000	16×40	0.018	0.045	3,110	ELXV6R3E□□103ML40S
	10,000	18×30	0.024	0.060	2,720	ELXV6R3E□□103MM30S
	12,000	18×35	0.021	0.053	3,050	ELXV6R3E□□123MM35S
	15,000	18×40	0.017	0.043	3,300	ELXV6R3E□□153MM40S
10	82	5×11.5	0.72	1.8	165	ELXV100E□□820MEB5D
	180	6.3×11.5	0.38	0.95	255	ELXV100E□□181MFB5D
	270	6.3×15	0.27	0.68	330	ELXV100E□□271MF15D
	330	8×12	0.20	0.50	415	ELXV100E□□331MH12D
	390	10×12.5	0.12	0.30	635	ELXV100E□□391MJC5S
	470	8×15	0.16	0.40	495	ELXV100E□□471MH15D
	680	8×20	0.11	0.28	640	ELXV100E□□681MH20D
	680	10×16	0.084	0.21	825	ELXV100E□□681MJ16S
	1,000	10×20	0.062	0.16	1,060	ELXV100E□□102MJ20S
	1,200	10×25	0.052	0.13	1,260	ELXV100E□□122MJ25S
	1,500	10×30	0.044	0.11	1,450	ELXV100E□□152MJ30S
	1,800	12.5×20	0.046	0.12	1,360	ELXV100E□□182MK20S
	2,200	12.5×25	0.034	0.085	1,700	ELXV100E□□222MK25S
	2,700	12.5×30	0.030	0.075	1,980	ELXV100E□□272MK30S
	3,300	12.5×35	0.027	0.068	2,230	ELXV100E□□332MK35S
	3,300	16×20	0.038	0.095	1,770	ELXV100E□□332ML20S
	3,900	12.5×40	0.024	0.060	2,460	ELXV100E□□392MK40S
	3,900	16×25	0.028	0.070	2,190	ELXV100E□□392ML25S
	3,900	18×20	0.036	0.090	1,940	ELXV100E□□392MM20S
	4,700	18×25	0.027	0.068	2,350	ELXV100E□□472MM25S
	5,600	16×30	0.025	0.063	2,510	ELXV100E□□562ML30S
	6,800	16×35	0.022	0.055	2,770	ELXV100E□□682ML35S
	6,800	18×30	0.024	0.060	2,720	ELXV100E□□682MM30S
	8,200	16×40	0.018	0.045	3,110	ELXV100E□□822ML40S
	8,200	18×35	0.021	0.053	3,050	ELXV100E□□822MM35S
	10,000	18×40	0.017	0.043	3,300	ELXV100E□□103MM40S
16	56	5×11.5	0.72	1.8	165	ELXV160E□□560MEB5D
	120	6.3×11.5	0.38	0.95	255	ELXV160E□□121MFB5D
	180	6.3×15	0.27	0.68	330	ELXV160E□□181MF15D
	270	8×12	0.20	0.50	415	ELXV160E□□271MH12D
	270	10×12.5	0.12	0.30	635	ELXV160E□□271MJC5S
	330	8×15	0.16	0.40	495	ELXV160E□□331MH15D
	470	8×20	0.11	0.28	640	ELXV160E□□471MH20D
	470	10×16	0.084	0.21	825	ELXV160E□□471MJ16S
	680	10×20	0.062	0.16	1,060	ELXV160E□□681MJ20S
	820	10×25	0.052	0.13	1,260	ELXV160E□□821MJ25S
	1,200	10×30	0.044	0.11	1,450	ELXV160E□□122MJ30S
	1,200	12.5×20	0.046	0.12	1,360	ELXV160E□□122MK20S
	1,500	12.5×25	0.034	0.085	1,700	ELXV160E□□152MK25S
	2,200	12.5×30	0.030	0.075	1,980	ELXV160E□□222MK30S
	2,200	16×20	0.038	0.095	1,770	ELXV160E□□222ML20S
16	2,700	12.5×35	0.027	0.068	2,230	ELXV160E□□272MK35S
	2,700	16×25	0.028	0.070	2,190	ELXV160E□□272ML25S
	3,300	12.5×40	0.024	0.060	2,460	ELXV160E□□332MK40S
	3,300	18×20	0.036	0.090	1,940	ELXV160E□□332MM20S
	3,900	16×30	0.025	0.063	2,510	ELXV160E□□392ML30S
	3,900	18×25	0.027	0.068	2,350	ELXV160E□□392MM25S
	4,700	16×35	0.022	0.055	2,770	ELXV160E□□472ML35S
	4,700	18×30	0.024	0.060	2,720	ELXV160E□□472MM30S
	5,600	16×40	0.018	0.045	3,110	ELXV160E□□562ML40S
	6,800	18×35	0.021	0.053	3,050	ELXV160E□□682MM35S
	8,200	18×40	0.017	0.043	3,300	ELXV160E□□822MM40S
25	39	5×11.5	0.72	1.8	165	ELXV250E□□390MEB5D
	82	6.3×11.5	0.38	0.95	255	ELXV250E□□820MFB5D
	120	6.3×15	0.27	0.68	330	ELXV250E□□121MF15D
	150	8×12	0.20	0.50	415	ELXV250E□□151MH12D
	180	10×12.5	0.12	0.30	635	ELXV250E□□181MJC5S
	220	8×15	0.16	0.40	495	ELXV250E□□221MH15D
	330	8×20	0.11	0.28	640	ELXV250E□□331MH20D
	330	10×16	0.084	0.21	825	ELXV250E□□331MJ16S
	470	10×20	0.062	0.16	1,060	ELXV250E□□471MJ20S
	560	10×25	0.052	0.13	1,260	ELXV250E□□561MJ25S
	820	10×30	0.044	0.11	1,450	ELXV250E□□821MJ30S
	820	12.5×20	0.046	0.12	1,360	ELXV250E□□821MK20S
	1,000	12.5×25	0.034	0.085	1,700	ELXV250E□□102MK25S
	1,500	12.5×30	0.030	0.075	1,980	ELXV250E□□152MK30S
	1,500	16×20	0.038	0.095	1,770	ELXV250E□□152ML20S
	1,800	12.5×35	0.027	0.068	2,230	ELXV250E□□182MK35S
	1,800	16×25	0.028	0.070	2,190	ELXV250E□□182ML25S
	2,200	12.5×40	0.024	0.060	2,460	ELXV250E□□222MK40S
	2,200	18×20	0.036	0.090	1,940	ELXV250E□□222MM20S
	2,700	16×30	0.025	0.063	2,510	ELXV250E□□272ML30S
	2,700	18×25	0.027	0.068	2,350	ELXV250E□□272MM25S
	3,300	16×35	0.022	0.055	2,770	ELXV250E□□332ML35S
	3,300	18×30	0.024	0.060	2,720	ELXV250E□□332MM30S
	3,900	16×40	0.018	0.045	3,110	ELXV250E□□392ML40S
	3,900	18×35	0.021	0.053	3,050	ELXV250E□□392MM35S
	4,700	18×40	0.017	0.043	3,300	ELXV250E□□472MM40S
35	27	5×11.5	0.72	1.8	165	ELXV350E□□270MEB5D
	56	6.3×11.5	0.38	0.95	255	ELXV350E□□560MFB5D
	82	6.3×15	0.27	0.68	330	ELXV350E□□820MF15D
	120	8×12	0.20	0.50	415	ELXV350E□□121MH12D
	120	10×12.5	0.12	0.30	635	ELXV350E□□121MJC5S
	180	8×15	0.16	0.40	495	ELXV350E□□181MH15D
	220	8×20	0.11	0.28	640	ELXV350E□□221MH20D
	220	10×16	0.084	0.21	825	ELXV350E□□221MJ16S
	330	10×20	0.062	0.16	1,060	ELXV350E□□331MJ20S
	390	10×25	0.052	0.13	1,260	ELXV350E□□391MJ25S
	560	10×30	0.044	0.11	1,450	ELXV350E□□561MJ30S
	560	12.5×20	0.046	0.12	1,360	ELXV350E□□561MK20S
	680	12.5×25	0.034	0.085	1,700	ELXV350E□□681MK25S
	1,000	12.5×30	0.030	0.075	1,980	ELXV350E□□102MK30S
	1,000	16×20	0.038	0.095	1,770	ELXV350E□□102ML20S
	1,200	12.5×35	0.027	0.068	2,230	ELXV350E□□122MK35S
	1,200	16×25	0.028	0.070	2,190	ELXV350E□□122ML25S
	1,500	12.5×40	0.024	0.060	2,460	ELXV350E□□152MK40S
	1,500	18×20	0.036	0.090	1,940	ELXV350E□□152MM20S
	1,800	16×30	0.025	0.063	2,510	ELXV350E□□182ML30S
	1,800	18×25	0.027	0.068	2,350	ELXV350E□□182MM25S
	2,200	16×35	0.022	0.055	2,770	ELXV350E□□222ML35S
	2,200	18×30	0.024	0.060	2,720	ELXV350E□□222MM30S
	2,700	16×40	0.018	0.045	3,110	ELXV350E□□272ML40S
	2,700	18×35	0.021	0.053	3,050	ELXV350E□□272MM35S
	3,300	18×40	0.017	0.043	3,300	ELXV350E□□332MM40S
50	18	5×11.5	1.1	3.3	165	ELXV500E□□180MEB5D
	39	6.3×11.5	0.56	1.6	255	ELXV500E□□390MFB5D
	56	6.3×15	0.41	1.2	310	ELXV500E□□560MF15D
	68	8×12	0.29	0.84	415	ELXV500E□□680MH12D

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

LXV Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
50	82	8×15	0.24	0.72	505	ELXV500E□□820MH15D
	82	10×12.5	0.16	0.40	530	ELXV500E□□820MJC5S
	120	8×20	0.18	0.52	610	ELXV500E□□121MH20D
	120	10×16	0.12	0.30	755	ELXV500E□□121MJ16S
	180	10×20	0.088	0.22	945	ELXV500E□□181MJ20S
	220	10×25	0.068	0.17	1,150	ELXV500E□□221MJ25S
	330	10×30	0.059	0.15	1,260	ELXV500E□□331MJ30S
	330	12.5×20	0.059	0.15	1,190	ELXV500E□□331MK20S
	470	12.5×25	0.045	0.11	1,500	ELXV500E□□471MK25S
	560	12.5×30	0.039	0.098	1,720	ELXV500E□□561MK30S
	680	12.5×35	0.033	0.083	1,900	ELXV500E□□681MK35S
	680	16×20	0.043	0.11	1,500	ELXV500E□□681ML20S
	820	12.5×40	0.029	0.073	2,120	ELXV500E□□821MK40S
	820	16×25	0.033	0.083	1,880	ELXV500E□□821ML25S
	820	18×20	0.039	0.098	1,660	ELXV500E□□821MM20S
	1,000	16×30	0.029	0.073	2,150	ELXV500E□□102ML30S
	1,000	18×25	0.030	0.075	2,020	ELXV500E□□102MM25S
	1,200	16×35	0.025	0.063	2,320	ELXV500E□□122ML35S
	1,500	16×40	0.021	0.053	2,650	ELXV500E□□152ML40S
	1,500	18×30	0.026	0.065	2,340	ELXV500E□□152MM30S
	1,800	18×35	0.023	0.058	2,620	ELXV500E□□182MM35S
	2,200	18×40	0.020	0.050	2,790	ELXV500E□□222MM40S
63	12	5×11.5	1.9	4.8	100	ELXV630E□□120MEB5D
	27	6.3×11.5	1.1	2.8	160	ELXV630E□□270MFB5D
	39	6.3×15	0.62	1.6	230	ELXV630E□□390MF15D
	47	8×12	0.49	1.3	275	ELXV630E□□470MH12D
	56	10×12.5	0.27	0.68	420	ELXV630E□□560MJC5S
	68	8×15	0.34	0.85	360	ELXV630E□□680MH15D
	68	10×16	0.21	0.53	523	ELXV630E□□680MJ16S
	82	8×20	0.21	0.53	500	ELXV630E□□820MH20D
	120	10×20	0.16	0.40	650	ELXV630E□□121MJ20S
	150	10×25	0.13	0.33	780	ELXV630E□□151MJ25S
	180	10×30	0.10	0.25	960	ELXV630E□□181MJ30S
	220	12.5×20	0.11	0.28	870	ELXV630E□□221MK20S
	270	12.5×25	0.074	0.19	1,150	ELXV630E□□271MK25S
	390	12.5×30	0.068	0.17	1,280	ELXV630E□□391MK30S
	390	16×20	0.085	0.22	1,100	ELXV630E□□391ML20S
	470	12.5×35	0.063	0.16	1,390	ELXV630E□□471MK35S
	470	16×25	0.055	0.14	1,480	ELXV630E□□471ML25S
	560	12.5×40	0.051	0.13	1,530	ELXV630E□□561MK40S
	560	18×20	0.085	0.22	1,170	ELXV630E□□561MM20S
	680	16×30	0.046	0.12	1,720	ELXV630E□□681ML30S
	680	18×25	0.055	0.14	1,520	ELXV630E□□681MM25S
	820	16×35	0.040	0.10	1,910	ELXV630E□□821ML35S
	820	18×30	0.046	0.12	1,770	ELXV630E□□821MM30S
	1,000	16×40	0.036	0.09	2,070	ELXV630E□□102ML40S
	1,000	18×35	0.040	0.10	1,970	ELXV630E□□102MM35S
	1,200	18×40	0.036	0.09	2,130	ELXV630E□□122MM40S
80	8.2	5×11.5	1.9	5.1	100	ELXV800E□□8R2MEB5D
	18	6.3×11.5	1.1	3.0	150	ELXV800E□□180MFB5D
80	27	6.3×15	0.62	1.7	220	ELXV800E□□270MF15D
	33	8×12	0.53	1.5	275	ELXV800E□□330MH12D
	39	10×12.5	0.47	1.3	380	ELXV800E□□390MJC5S
	47	8×15	0.35	0.97	360	ELXV800E□□470MH15D
	56	8×20	0.27	0.74	490	ELXV800E□□560MH20D
	56	10×16	0.33	0.90	500	ELXV800E□□560MJ16S
	82	10×20	0.26	0.70	620	ELXV800E□□820MJ20S
	100	10×25	0.19	0.52	795	ELXV800E□□101MJ25S
	150	10×30	0.15	0.41	955	ELXV800E□□151MJ30S
	150	12.5×20	0.15	0.41	890	ELXV800E□□151MK20S
	180	12.5×25	0.11	0.30	1,040	ELXV800E□□181MK25S
	270	12.5×30	0.094	0.26	1,270	ELXV800E□□271MK30S
	270	16×20	0.11	0.30	1,240	ELXV800E□□271ML20S
	330	12.5×35	0.087	0.24	1,450	ELXV800E□□331MK35S
	330	16×25	0.081	0.22	1,440	ELXV800E□□331ML25S
	390	12.5×40	0.060	0.17	1,610	ELXV800E□□391MK40S
	390	18×20	0.085	0.23	1,450	ELXV800E□□391MM20S
	470	16×30	0.058	0.16	1,790	ELXV800E□□471ML30S
	470	18×25	0.070	0.19	1,650	ELXV800E□□471MM25S
	560	16×35	0.052	0.14	2,000	ELXV800E□□561ML35S
	680	16×40	0.041	0.11	2,200	ELXV800E□□681ML40S
	680	18×30	0.058	0.16	1,850	ELXV800E□□681MM30S
	820	18×35	0.052	0.14	1,990	ELXV800E□□821MM35S
	1,000	18×40	0.041	0.11	2,370	ELXV800E□□102MM40S
100	5.6	5×11.5	1.9	5.1	100	ELXV101E□□5R6MEB5D
	12	6.3×11.5	1.1	3.0	150	ELXV101E□□120MFB5D
	18	6.3×15	0.62	1.7	220	ELXV101E□□180MF15D
	22	8×12	0.53	1.5	275	ELXV101E□□220MH12D
	27	10×12.5	0.47	1.3	380	ELXV101E□□270MJC5S
	33	8×15	0.35	0.97	360	ELXV101E□□330MH15D
	33	10×16	0.33	0.90	500	ELXV101E□□330MJ16S
	39	8×20	0.27	0.74	490	ELXV101E□□390MH20D
	56	10×20	0.26	0.70	620	ELXV101E□□560MJ20S
	68	10×25	0.19	0.52	795	ELXV101E□□680MJ25S
	100	10×30	0.15	0.41	955	ELXV101E□□101MJ30S
	100	12.5×20	0.15	0.41	890	ELXV101E□□101MK20S
	120	12.5×25	0.11	0.30	1,040	ELXV101E□□121MK25S
	180	12.5×30	0.094	0.26	1,270	ELXV101E□□181MK30S
	180	16×20	0.11	0.30	1,240	ELXV101E□□181ML20S
	220	12.5×35	0.087	0.24	1,450	ELXV101E□□221MK35S
	220	16×25	0.081	0.22	1,440	ELXV101E□□221ML25S
	270	12.5×40	0.060	0.17	1,610	ELXV101E□□271MK40S
	270	18×20	0.085	0.23	1,450	ELXV101E□□271MM20S
	330	16×30	0.058	0.16	1,790	ELXV101E□□331ML30S
	330	18×25	0.070	0.19	1,650	ELXV101E□□331MM25S
	390	16×35	0.052	0.14	2,000	ELXV101E□□391ML35S
	390	18×30	0.058	0.16	1,850	ELXV101E□□391MM30S
	470	16×40	0.041	0.11	2,200	ELXV101E□□471ML40S
	560	18×35	0.052	0.14	1,990	ELXV101E□□561MM35S
	680	18×40	0.041	0.11	2,370	ELXV101E□□681MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Rated voltage (Vdc)	Case size φD (mm)	Frequency (Hz) 120	1k	10k	100k	Rated voltage (Vdc)	Case size φD (mm)	Frequency (Hz) 120	1k	10k	100k
6.3 & 10	5 to 8	0.65	0.83	0.95	1.00	35 & 50	5 to 8	0.40	0.66	0.85	1.00
	10 & 12.5	0.70	0.85	0.96	1.00		10 & 12.5	0.50	0.73	0.89	1.00
	16 & 18	0.85	0.92	0.97	1.00		16 & 18	0.60	0.81	0.94	1.00
16 & 25	5 to 8	0.55	0.76	0.91	1.00	63 to 100	5 to 8	0.20	0.55	0.80	1.00
	10 & 12.5	0.65	0.83	0.93	1.00		10 & 12.5	0.35	0.65	0.85	1.00
	16 & 18	0.70	0.87	0.96	1.00		16 & 18	0.50	0.75	0.90	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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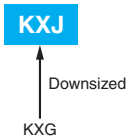
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc,long life, 105℃

KXJ Series

- Downsized and Longer life from current KXG series
- Endurance with ripple current : 10,000 to 12,000 hours at 105℃
- Rated voltage range : 160 to 450V, Capacitance range : 6.8 to 680μF
- For electronic ballast circuits and other long life applications
- Non solvent resistant type
- **RoHS Compliant**

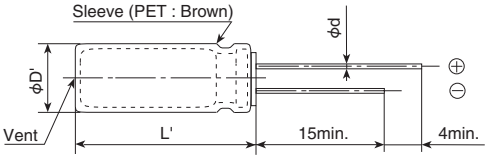


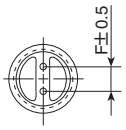
◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−40 to +105℃ (160 to 400Vdc) -25 to +105℃ (420, 450Vdc)				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current		After 1 minute	After 5 minutes		
	CV≦1000	I=0.1CV+40	I=0.03CV+15		
	CV>1000	I=0.04CV+100	I=0.02CV+25		
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	350 to 450V		
	tanδ (Max.)	0.20	0.24		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	350, 400V	420, 450V	
	Z(−25℃)/Z(+20℃)	3	5	6	
	Z(−40℃)/Z(+20℃)	6	6	–	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 12,000 hours (10,000 hours for 20L max.) at 105℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦500% of the initial specified value			

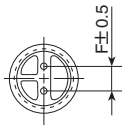
◆DIMENSIONS [mm]

- Terminal Code : E





(φ10)



(φ12.5 to φ18)

Gas escaped end seal

φD	10	12.5	14.5	16	18
φd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
φD'	φD+0.5max.				
L'	L+1.5max.				

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E K X J □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 6.8μF:6R8,10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 160V:161,400V:401)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Frequency (Hz)	120	1k	10k	100k
Less than 100μF	1.00	1.75	2.25	2.50
100μF or more	1.00	1.67	2.05	2.25

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXJ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
160	39	10×16	0.20	245	EKXJ161E□□390MJ16S
	56	10×20	0.20	315	EKXJ161E□□560MJ20S
	82	10×25	0.20	415	EKXJ161E□□820MJ25S
	82	10×30	0.20	445	EKXJ161E□□820MJ30S
	100	12.5×20	0.20	575	EKXJ161E□□101MK20S
	120	10×35	0.20	570	EKXJ161E□□121MJ35S
	120	14.5×20	0.20	675	EKXJ161E□□121MU20S
	150	10×40	0.20	665	EKXJ161E□□151MJ40S
	150	10×45	0.20	695	EKXJ161E□□151MJ45S
	150	12.5×25	0.20	765	EKXJ161E□□151MK25S
	180	10×50	0.20	785	EKXJ161E□□181MJ50S
	180	12.5×30	0.20	885	EKXJ161E□□181MK30S
	180	14.5×25	0.20	890	EKXJ161E□□181MU25S
	180	16×20	0.20	855	EKXJ161E□□181ML20S
	220	12.5×35	0.20	1,040	EKXJ161E□□221MK35S
	220	16×25	0.20	1,020	EKXJ161E□□221ML25S
	220	18×20	0.20	990	EKXJ161E□□221MM20S
	270	12.5×40	0.20	1,190	EKXJ161E□□271MK40S
	270	12.5×45	0.20	1,230	EKXJ161E□□271MK45S
	270	14.5×31.5	0.20	1,170	EKXJ161E□□271MUN3S
	270	14.5×35.5	0.20	1,210	EKXJ161E□□271MUP1S
	330	12.5×50	0.20	1,400	EKXJ161E□□331MK50S
	330	14.5×40	0.20	1,385	EKXJ161E□□331MU40S
	330	16×31.5	0.20	1,350	EKXJ161E□□331MLN3S
	330	18×25	0.20	1,290	EKXJ161E□□331MM25S
	390	14.5×45	0.20	1,545	EKXJ161E□□391MU45S
	390	16×35.5	0.20	1,500	EKXJ161E□□391MLP1S
	470	14.5×50	0.20	1,735	EKXJ161E□□471MU50S
	470	16×40	0.20	1,700	EKXJ161E□□471ML40S
	470	16×45	0.20	1,730	EKXJ161E□□471ML45S
	470	18×31.5	0.20	1,660	EKXJ161E□□471MMN3S
	470	18×35.5	0.20	1,715	EKXJ161E□□471MMP1S
	560	16×50	0.20	1,920	EKXJ161E□□561ML50S
	560	18×40	0.20	1,905	EKXJ161E□□561MM40S
	680	18×45	0.20	2,130	EKXJ161E□□681MM45S
	680	18×50	0.20	2,145	EKXJ161E□□681MM50S
200	27	10×16	0.20	200	EKXJ201E□□270MJ16S
	47	10×20	0.20	290	EKXJ201E□□470MJ20S
	56	10×25	0.20	345	EKXJ201E□□560MJ25S
	68	10×30	0.20	405	EKXJ201E□□680MJ30S
	82	12.5×20	0.20	520	EKXJ201E□□820MK20S
	100	10×35	0.20	520	EKXJ201E□□101MJ35S
	100	12.5×25	0.20	625	EKXJ201E□□101MK25S
	100	14.5×20	0.20	615	EKXJ201E□□101MU20S
	120	10×40	0.20	595	EKXJ201E□□121MJ40S
	120	10×45	0.20	620	EKXJ201E□□121MJ45S
	120	12.5×30	0.20	725	EKXJ201E□□121MK30S
	120	16×20	0.20	695	EKXJ201E□□121ML20S
	150	10×50	0.20	720	EKXJ201E□□151MJ50S
	150	12.5×35	0.20	860	EKXJ201E□□151MK35S
	150	14.5×25	0.20	810	EKXJ201E□□151MU25S
	180	14.5×31.5	0.20	955	EKXJ201E□□181MUN3S
	180	16×25	0.20	925	EKXJ201E□□181ML25S
	180	18×20	0.20	895	EKXJ201E□□181MM20S
	220	12.5×40	0.20	1,075	EKXJ201E□□221MK40S
	220	12.5×45	0.20	1,110	EKXJ201E□□221MK45S
	220	14.5×35.5	0.20	1,095	EKXJ201E□□221MUP1S
	220	18×25	0.20	1,050	EKXJ201E□□221MM25S
	270	12.5×50	0.20	1,265	EKXJ201E□□271MK50S
	270	14.5×40	0.20	1,250	EKXJ201E□□271MU40S
	270	14.5×45	0.20	1,290	EKXJ201E□□271MU45S
	270	16×31.5	0.20	1,220	EKXJ201E□□271MLN3S
	270	16×35.5	0.20	1,250	EKXJ201E□□271MLP1S
	330	14.5×50	0.20	1,450	EKXJ201E□□331MU50S
	330	16×40	0.20	1,425	EKXJ201E□□331ML40S
	330	18×31.5	0.20	1,395	EKXJ201E□□331MMN3S
	390	16×45	0.20	1,575	EKXJ201E□□391ML45S
	390	18×35.5	0.20	1,565	EKXJ201E□□391MMP1S
	470	16×50	0.20	1,755	EKXJ201E□□471ML50S
	470	18×40	0.20	1,745	EKXJ201E□□471MM40S
	470	18×45	0.20	1,770	EKXJ201E□□471MM45S
	560	18×50	0.20	1,945	EKXJ201E□□561MM50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
220	27	10×16	0.20	200	EKXJ221E□□270MJ16S
	39	10×20	0.20	265	EKXJ221E□□390MJ20S
	56	10×25	0.20	345	EKXJ221E□□560MJ25S
	56	10×30	0.20	370	EKXJ221E□□560MJ30S
	68	12.5×20	0.20	475	EKXJ221E□□680MK20S
	82	10×35	0.20	470	EKXJ221E□□820MJ35S
	82	14.5×20	0.20	555	EKXJ221E□□820MU20S
	100	10×40	0.20	545	EKXJ221E□□101MJ40S
	100	10×45	0.20	565	EKXJ221E□□101MJ45S
	100	12.5×25	0.20	625	EKXJ221E□□101MK25S
	120	10×50	0.20	645	EKXJ221E□□121MJ50S
	120	12.5×30	0.20	725	EKXJ221E□□121MK30S
	120	14.5×25	0.20	725	EKXJ221E□□121MU25S
	120	16×20	0.20	695	EKXJ221E□□121ML20S
	150	12.5×35	0.20	860	EKXJ221E□□151MK35S
	150	16×25	0.20	845	EKXJ221E□□151ML25S
	150	18×20	0.20	815	EKXJ221E□□151MM20S
	180	12.5×40	0.20	975	EKXJ221E□□181MK40S
	180	12.5×45	0.20	1,005	EKXJ221E□□181MK45S
	180	14.5×31.5	0.20	955	EKXJ221E□□181MUN3S
	220	12.5×50	0.20	1,145	EKXJ221E□□221MK50S
	220	14.5×35.5	0.20	1,095	EKXJ221E□□221MUP1S
	220	14.5×40	0.20	1,130	EKXJ221E□□221MU40S
	220	16×31.5	0.20	1,100	EKXJ221E□□221MLN3S
	220	18×25	0.20	1,050	EKXJ221E□□221MM25S
	270	14.5×45	0.20	1,285	EKXJ221E□□271MU45S
	270	14.5×50	0.20	1,315	EKXJ221E□□271MU50S
	270	16×35.5	0.20	1,245	EKXJ221E□□271MLP1S
	270	18×31.5	0.20	1,260	EKXJ221E□□271MMN3S
	330	16×40	0.20	1,425	EKXJ221E□□331ML40S
	330	16×45	0.20	1,450	EKXJ221E□□331ML45S
	330	18×35.5	0.20	1,440	EKXJ221E□□331MMP1S
	390	16×50	0.20	1,600	EKXJ221E□□391ML50S
	390	18×40	0.20	1,590	EKXJ221E□□391MM40S
	390	18×45	0.20	1,620	EKXJ221E□□391MM45S
	470	18×50	0.20	1,785	EKXJ221E□□471MM50S
250	22	10×16	0.20	185	EKXJ251E□□220MJ16S
	33	10×20	0.20	240	EKXJ251E□□330MJ20S
	47	10×25	0.20	315	EKXJ251E□□470MJ25S
	47	10×30	0.20	340	EKXJ251E□□470MJ30S
	56	12.5×20	0.20	430	EKXJ251E□□560MK20S
	68	10×35	0.20	430	EKXJ251E□□680MJ35S
	68	14.5×20	0.20	505	EKXJ251E□□680MU20S
	82	10×40	0.20	495	EKXJ251E□□820MJ40S
	82	10×45	0.20	515	EKXJ251E□□820MJ45S
	82	12.5×25	0.20	565	EKXJ251E□□820MK25S
	100	10×50	0.20	585	EKXJ251E□□101MJ50S
	100	12.5×30	0.20	660	EKXJ251E□□101MK30S
	100	14.5×25	0.20	665	EKXJ251E□□101MU25S
	100	16×20	0.20	635	EKXJ251E□□101ML20S
	120	12.5×35	0.20	770	EKXJ251E□□121MK35S
	120	16×25	0.20	755	EKXJ251E□□121ML25S
	120	18×20	0.20	730	EKXJ251E□□121MM20S
	150	12.5×40	0.20	890	EKXJ251E□□151MK40S
	150	12.5×45	0.20	920	EKXJ251E□□151MK45S
	150	14.5×31.5	0.20	870	EKXJ251E□□151MUN3S
	180	12.5×50	0.20	1,035	EKXJ251E□□181MK50S
	180	14.5×35.5	0.20	990	EKXJ251E□□181MUP1S
	180	14.5×40	0.20	1,020	EKXJ251E□□181MU40S
	180	16×31.5	0.20	995	EKXJ251E□□181MLN3S
	180	18×25	0.20	950	EKXJ251E□□181MM25S
	220	14.5×45	0.20	1,160	EKXJ251E□□221MU45S
	220	14.5×50	0.20	1,185	EKXJ251E□□221MU50S
	220	16×35.5	0.20	1,125	EKXJ251E□□221MLP1S
	220	18×31.5	0.20	1,135	EKXJ251E□□221MMN3S
	270	16×40	0.20	1,285	EKXJ251E□□271ML40S
	270	16×45	0.20	1,310	EKXJ251E□□271ML45S
	270	18×35.5	0.20	1,300	EKXJ251E□□271MMP1S
	330	16×50	0.20	1,475	EKXJ251E□□331ML50S
	330	18×40	0.20	1,460	EKXJ251E□□331MM40S
	330	18×45	0.20	1,485	EKXJ251E□□331MM45S
	390	18×50	0.20	1,625	EKXJ251E□□391MM50S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXJ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
350	12	10×16	0.24	135	EKXJ351E□□120MJ16S
	22	10×20	0.24	200	EKXJ351E□□220MJ20S
	27	10×25	0.24	240	EKXJ351E□□270MJ25S
	27	10×30	0.24	255	EKXJ351E□□270MJ30S
	33	12.5×20	0.24	330	EKXJ351E□□330MK20S
	39	10×35	0.24	325	EKXJ351E□□390MJ35S
	47	10×40	0.24	375	EKXJ351E□□470MJ40S
	47	12.5×25	0.24	425	EKXJ351E□□470MK25S
	47	14.5×20	0.24	420	EKXJ351E□□470MU20S
	56	10×45	0.24	425	EKXJ351E□□560MJ45S
	56	12.5×30	0.24	495	EKXJ351E□□560MK30S
	56	16×20	0.24	475	EKXJ351E□□560ML20S
	68	10×50	0.24	485	EKXJ351E□□680MJ50S
	68	12.5×35	0.24	580	EKXJ351E□□680MK35S
	68	14.5×25	0.24	545	EKXJ351E□□680MU25S
	68	18×20	0.24	550	EKXJ351E□□680MM20S
	82	12.5×40	0.24	655	EKXJ351E□□820MK40S
	82	14.5×31.5	0.24	645	EKXJ351E□□820MUN3S
	82	16×25	0.24	625	EKXJ351E□□820ML25S
	100	12.5×45	0.24	750	EKXJ351E□□101MK45S
	100	12.5×50	0.24	770	EKXJ351E□□101MK50S
	100	14.5×35.5	0.24	740	EKXJ351E□□101MUP1S
	100	16×31.5	0.24	740	EKXJ351E□□101MLN3S
	100	18×25	0.24	710	EKXJ351E□□101MM25S
	120	14.5×40	0.24	835	EKXJ351E□□121MU40S
	120	14.5×45	0.24	860	EKXJ351E□□121MU45S
	120	16×35.5	0.24	830	EKXJ351E□□121MLP1S
	150	14.5×50	0.24	980	EKXJ351E□□151MU50S
	150	16×40	0.24	960	EKXJ351E□□151ML40S
	150	16×45	0.24	975	EKXJ351E□□151ML45S
	150	18×31.5	0.24	940	EKXJ351E□□151MMN3S
	180	16×50	0.24	1,090	EKXJ351E□□181ML50S
	180	18×35.5	0.24	1,065	EKXJ351E□□181MMP1S
	180	18×40	0.24	1,080	EKXJ351E□□181MM40S
	220	18×45	0.24	1,210	EKXJ351E□□221MM45S
	220	18×50	0.24	1,220	EKXJ351E□□221MM50S
400	10	10×16	0.24	125	EKXJ401E□□100MJ16S
	18	10×20	0.24	180	EKXJ401E□□180MJ20S
	22	10×25	0.24	215	EKXJ401E□□220MJ25S
	27	10×30	0.24	255	EKXJ401E□□270MJ30S
	27	12.5×20	0.24	300	EKXJ401E□□270MK20S
	33	10×35	0.24	300	EKXJ401E□□330MJ35S
	39	10×40	0.24	340	EKXJ401E□□390MJ40S
	39	10×45	0.24	355	EKXJ401E□□390MJ45S
	39	12.5×25	0.24	390	EKXJ401E□□390MK25S
	39	14.5×20	0.24	385	EKXJ401E□□390MU20S
	47	12.5×30	0.24	455	EKXJ401E□□470MK30S
	47	16×20	0.24	435	EKXJ401E□□470ML20S
	56	10×50	0.24	440	EKXJ401E□□560MJ50S
	56	12.5×35	0.24	525	EKXJ401E□□560MK35S
	56	14.5×25	0.24	495	EKXJ401E□□560MU25S
	56	18×20	0.24	500	EKXJ401E□□560MM20S
	68	12.5×40	0.24	600	EKXJ401E□□680MK40S
	68	14.5×31.5	0.24	585	EKXJ401E□□680MUN3S
	68	16×25	0.24	570	EKXJ401E□□680ML25S
	82	12.5×45	0.24	680	EKXJ401E□□820MK45S
	82	12.5×50	0.24	700	EKXJ401E□□820MK50S
	82	14.5×35.5	0.24	670	EKXJ401E□□820MUP1S
	82	16×31.5	0.24	670	EKXJ401E□□820MLN3S
	82	18×25	0.24	640	EKXJ401E□□820MM25S
	100	14.5×40	0.24	760	EKXJ401E□□101MU40S
	100	14.5×45	0.24	785	EKXJ401E□□101MU45S
	100	16×35.5	0.24	760	EKXJ401E□□101MLP1S
	120	14.5×50	0.24	875	EKXJ401E□□121MU50S
	120	16×40	0.24	860	EKXJ401E□□121ML40S
	120	16×45	0.24	875	EKXJ401E□□121ML45S
	120	18×31.5	0.24	840	EKXJ401E□□121MMN3S
	120	18×35.5	0.24	870	EKXJ401E□□121MMP1S
	150	16×50	0.24	995	EKXJ401E□□151ML50S
	150	18×40	0.24	985	EKXJ401E□□151MM40S
	180	18×45	0.24	1,095	EKXJ401E□□181MM45S
	220	18×50	0.24	1,220	EKXJ401E□□221MM50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
420	6.8	10×16	0.24	105	EKXJ421E□□6R8MJ16S
	12	10×20	0.24	150	EKXJ421E□□120MJ20S
	15	10×25	0.24	185	EKXJ421E□□150MJ25S
	18	10×30	0.24	215	EKXJ421E□□180MJ30S
	22	12.5×20	0.24	285	EKXJ421E□□220MK20S
	27	10×35	0.24	275	EKXJ421E□□270MJ35S
	27	10×40	0.24	290	EKXJ421E□□270MJ40S
	27	12.5×25	0.24	340	EKXJ421E□□270MK25S
	27	14.5×20	0.24	335	EKXJ421E□□270MU20S
	33	10×45	0.24	335	EKXJ421E□□330MJ45S
	33	12.5×30	0.24	400	EKXJ421E□□330MK30S
	33	16×20	0.24	385	EKXJ421E□□330ML20S
	39	10×50	0.24	375	EKXJ421E□□390MJ50S
	39	14.5×25	0.24	435	EKXJ421E□□390MU25S
	47	12.5×35	0.24	505	EKXJ421E□□470MK35S
	47	16×25	0.24	500	EKXJ421E□□470ML25S
	47	18×20	0.24	480	EKXJ421E□□470MM20S
	56	12.5×40	0.24	570	EKXJ421E□□560MK40S
	56	12.5×45	0.24	590	EKXJ421E□□560MK45S
	56	14.5×31.5	0.24	560	EKXJ421E□□560MUN3S
	68	12.5×50	0.24	670	EKXJ421E□□680MK50S
	68	14.5×35.5	0.24	640	EKXJ421E□□680MUP1S
	68	14.5×40	0.24	660	EKXJ421E□□680MU40S
	68	16×31.5	0.24	645	EKXJ421E□□680MLN3S
	68	18×25	0.24	615	EKXJ421E□□680MM25S
	82	14.5×45	0.24	750	EKXJ421E□□820MU45S
	82	16×35.5	0.24	725	EKXJ421E□□820MLP1S
	82	18×31.5	0.24	730	EKXJ421E□□820MMN3S
	100	14.5×50	0.24	845	EKXJ421E□□101MU50S
	100	16×40	0.24	825	EKXJ421E□□101ML40S
	100	16×45	0.24	840	EKXJ421E□□101ML45S
	100	18×35.5	0.24	835	EKXJ421E□□101MMP1S
	120	16×50	0.24	935	EKXJ421E□□121ML50S
	120	18×40	0.24	930	EKXJ421E□□121MM40S
	120	18×45	0.24	945	EKXJ421E□□121MM45S
	150	18×50	0.24	1,060	EKXJ421E□□151MM50S
450	6.8	10×16	0.24	105	EKXJ451E□□6R8MJ16S
	12	10×20	0.24	150	EKXJ451E□□120MJ20S
	15	10×25	0.24	185	EKXJ451E□□150MJ25S
	18	10×30	0.24	215	EKXJ451E□□180MJ30S
	18	12.5×20	0.24	255	EKXJ451E□□180MK20S
	22	10×35	0.24	250	EKXJ451E□□220MJ35S
	27	10×40	0.24	290	EKXJ451E□□270MJ40S
	27	10×45	0.24	305	EKXJ451E□□270MJ45S
	27	12.5×25	0.24	340	EKXJ451E□□270MK25S
	27	14.5×20	0.24	335	EKXJ451E□□270MU20S
	33	12.5×30	0.24	400	EKXJ451E□□330MK30S
	33	14.5×25	0.24	400	EKXJ451E□□330MU25S
	33	16×20	0.24	385	EKXJ451E□□330ML20S
	39	10×50	0.24	375	EKXJ451E□□390MJ50S
	39	12.5×35	0.24	460	EKXJ451E□□390MK35S
	39	18×20	0.24	440	EKXJ451E□□390MM20S
	47	12.5×40	0.24	525	EKXJ451E□□470MK40S
	47	14.5×31.5	0.24	515	EKXJ451E□□470MUN3S
	47	16×25	0.24	500	EKXJ451E□□470ML25S
	56	12.5×45	0.24	590	EKXJ451E□□560MK45S
	56	14.5×35.5	0.24	580	EKXJ451E□□560MUP1S
	56	16×31.5	0.24	585	EKXJ451E□□560MLN3S
	56	18×25	0.24	560	EKXJ451E□□560MM25S
	68	12.5×50	0.24	670	EKXJ451E□□680MK50S
	68	14.5×40	0.24	660	EKXJ451E□□680MU40S
	68	14.5×45	0.24	680	EKXJ451E□□680MU45S
	68	16×35.5	0.24	660	EKXJ451E□□680MLP1S
	82	14.5×50	0.24	765	EKXJ451E□□820MU50S
	82	16×40	0.24	750	EKXJ451E□□820ML40S
	82	16×45	0.24	760	EKXJ451E□□820ML45S
	82	18×31.5	0.24	730	EKXJ451E□□820MMN3S
	100	16×50	0.24	855	EKXJ451E□□101ML50S
	100	18×35.5	0.24	835	EKXJ451E□□101MMP1S
	120	18×40	0.24	930	EKXJ451E□□121MM40S
	120	18×45	0.24	945	EKXJ451E□□121MM45S
	150	18×50	0.24	1,060	EKXJ451E□□151MM50S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXG Series

- For electronic ballast circuits and other long life applications
- Endurance with ripple current : 8,000 to 10,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

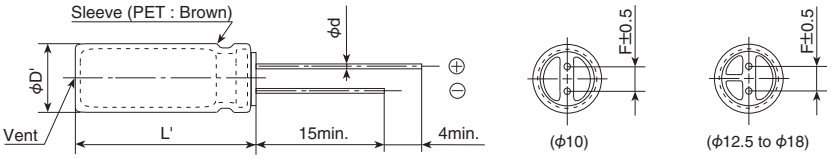
KXJ
↑ Downsized
KXG

◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−40 to +105℃ (160 to 400Vdc) −25 to+105℃ (450Vdc)				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current		After 1 minute	After 5 minutes		
	CV≦1,000	I=0.1CV+40	I=0.03CV+15		
	CV>1,000	I=0.04CV+100	I=0.02CV+25		
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	350 to 450V		
	tanδ (Max.)	0.20	0.24		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	350 & 400V	450V	
	Z(−25℃)/Z(+20℃)	3	5	6	
	Z(−40℃)/Z(+20℃)	6	6	—	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 10,000 hours (8,000 hours for φ10) at 105℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦500% of the initial specified value			

◆DIMENSIONS [mm]

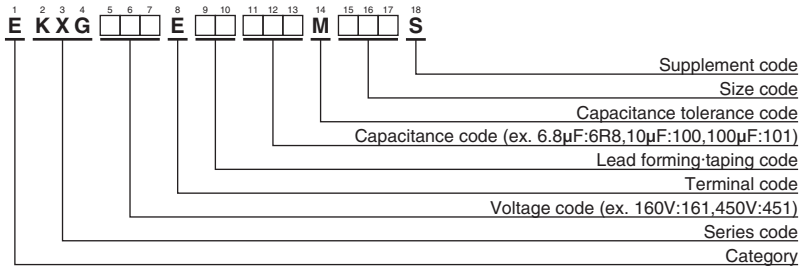
- Terminal Code : E



Gas escape end seal

φD	10	12.5	16	18
φd	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
φD'	φD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
6.8 to 82	1.00	1.75	2.25	2.50
100 to 330	1.00	1.67	2.05	2.25

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current(mArms/105℃) 120Hz	100kHz	Part No.
160	10	10×16	0.20	125	315	EKXG161E□□100MJ16S
	22	10×20	0.20	200	500	EKXG161E□□220MJ20S
	33	10×20	0.20	250	625	EKXG161E□□330MJ20S
	47	10×20	0.20	300	750	EKXG161E□□470MJ20S
	68	12.5×20	0.20	470	1,175	EKXG161E□□680MK20S
	82	12.5×20	0.20	510	1,275	EKXG161E□□820MK20S
	100	12.5×25	0.20	620	1,395	EKXG161E□□101MK25S
	100	16×20	0.20	630	1,420	EKXG161E□□101ML20S
	150	16×20	0.20	770	1,735	EKXG161E□□151ML20S
	220	16×25	0.20	1,020	2,295	EKXG161E□□221ML25S
	330	18×31.5	0.20	1,390	3,130	EKXG161E□□331MMN3S
200	10	10×16	0.20	125	315	EKXG201E□□100MJ16S
	22	10×20	0.20	200	500	EKXG201E□□220MJ20S
	33	10×20	0.20	260	650	EKXG201E□□330MJ20S
	47	12.5×20	0.20	390	975	EKXG201E□□470MK20S
	68	12.5×20	0.20	470	1,175	EKXG201E□□680MK20S
	82	16×20	0.20	550	1,375	EKXG201E□□820ML20S
	100	16×20	0.20	630	1,420	EKXG201E□□101ML20S
	150	16×25	0.20	840	1,890	EKXG201E□□151ML25S
	220	18×25	0.20	1,050	2,365	EKXG201E□□221MM25S
	330	18×35.5	0.20	1,430	3,220	EKXG201E□□331MMP1S
250	10	10×20	0.20	140	350	EKXG251E□□100MJ20S
	22	10×20	0.20	200	500	EKXG251E□□220MJ20S
	33	12.5×20	0.20	320	800	EKXG251E□□330MK20S
	47	12.5×20	0.20	390	975	EKXG251E□□470MK20S
	68	16×20	0.20	520	1,300	EKXG251E□□680ML20S
	82	16×20	0.20	550	1,375	EKXG251E□□820ML20S
	100	16×25	0.20	680	1,530	EKXG251E□□101ML25S
	150	18×25	0.20	860	1,935	EKXG251E□□151MM25S
	220	18×31.5	0.20	1,130	2,545	EKXG251E□□221MMN3S
350	6.8	10×16	0.24	110	275	EKXG351E□□6R8MJ16S
	10	10×20	0.24	140	350	EKXG351E□□100MJ20S
	22	12.5×20	0.24	260	650	EKXG351E□□220MK20S
	33	16×20	0.24	360	900	EKXG351E□□330ML20S
	47	16×20	0.24	430	1,075	EKXG351E□□470ML20S
	68	16×25	0.24	560	1,400	EKXG351E□□680ML25S
	68	18×20	0.24	550	1,375	EKXG351E□□680MM20S
	82	18×25	0.24	610	1,525	EKXG351E□□820MM25S
	100	18×25	0.24	700	1,575	EKXG351E□□101MM25S
	120	18×31.5	0.24	830	1,865	EKXG351E□□121MMN3S
	150	18×35.5	0.24	960	2,160	EKXG351E□□151MMP1S
400	6.8	10×16	0.24	110	275	EKXG401E□□6R8MJ16S
	10	10×20	0.24	140	350	EKXG401E□□100MJ20S
	15	12.5×20	0.24	220	550	EKXG401E□□150MK20S
	22	12.5×20	0.24	260	650	EKXG401E□□220MK20S
	33	16×20	0.24	360	900	EKXG401E□□330ML20S
	47	16×25	0.24	470	1,175	EKXG401E□□470ML25S
	47	18×20	0.24	450	1,125	EKXG401E□□470MM20S
	68	18×25	0.24	585	1,465	EKXG401E□□680MM25S
	82	18×25	0.24	610	1,525	EKXG401E□□820MM25S
	100	18×31.5	0.24	765	1,720	EKXG401E□□101MMN3S
	120	18×35.5	0.24	865	1,945	EKXG401E□□121MMP1S
	150	18×40	0.24	985	2,215	EKXG401E□□151MM40S
450	6.8	10×20	0.24	110	275	EKXG451E□□6R8MJ20S
	10	12.5×20	0.24	180	450	EKXG451E□□100MK20S
	15	12.5×25	0.24	240	600	EKXG451E□□150MK25S
	22	16×20	0.24	290	725	EKXG451E□□220ML20S
	33	16×25	0.24	390	975	EKXG451E□□330ML25S
	33	18×20	0.24	380	950	EKXG451E□□330MM20S
	47	18×25	0.24	480	1,200	EKXG451E□□470MM25S
	68	18×31.5	0.24	630	1,575	EKXG451E□□680MMN3S
	82	18×35.5	0.24	715	1,785	EKXG451E□□820MMP1S
	100	18×40	0.24	800	1,800	EKXG451E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

400 to 450Vdc, Downsized, 105℃

New!

KHE Series

KHE
Downsized
PAG

- Ideal for low profile power supply applications
- Downsize, high ripple design
- Rated voltage range : 400 to 450Vdc, Capacitance range : 27 to 120μF
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

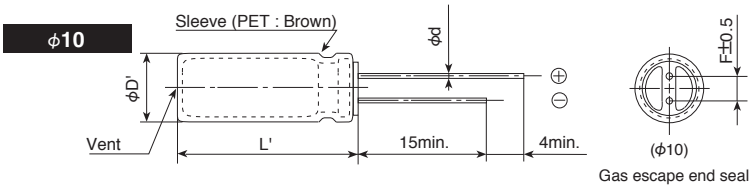
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃ (400Vdc) −25 to+105℃ (420, 450Vdc)
Rated Voltage Range	400 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	After 1 minute / After 5 minutes CV≦1,000: I=0.1CV+40 / I=0.03CV+15 CV>1,000: I=0.04CV+100 / I=0.02CV+25 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 400V, 420V, 450V tanδ (Max.): 0.15, 0.20, 0.20 (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 400V, 420V, 450V Z(−25℃)/Z(+20℃): 5, 6, 6 Z(−40℃)/Z(+20℃): 6, —, — (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦500% of the initial specified value

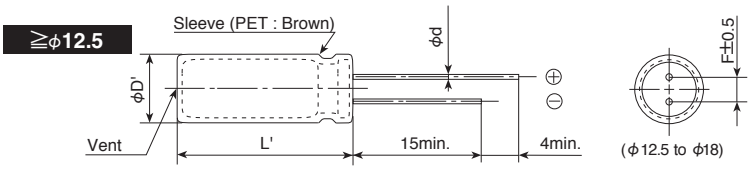
◆DIMENSIONS [mm]

- Terminal Code : E

φ10



≧φ12.5



φD	10	12.5	14.5	16	18
φd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
φD'	φD+0.5 max.				
L'	L+2.0 max.				

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E KHE □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 400V:401,450V:451)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

400 to 450Vdc, Downsized, 105℃

New!

KHE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
400	33	10×30	0.15	335	EKHE401E□□330MJ30S
	39	10×35	0.15	385	EKHE401E□□390MJ35S
	47	10×40	0.15	445	EKHE401E□□470MJ40S
	56	10×45	0.15	505	EKHE401E□□560MJ45S
	56	12.5×30	0.15	480	EKHE401E□□560MK30S
	68	12.5×35	0.15	560	EKHE401E□□680MK35S
	82	12.5×40	0.15	640	EKHE401E□□820MK40S
	82	14.5×31.5	0.15	625	EKHE401E□□820MUN3S
	100	12.5×45	0.15	730	EKHE401E□□101MK45S
	100	14.5×35	0.15	715	EKHE401E□□101MU35S
	100	16×31.5	0.15	720	EKHE401E□□101MLN3S
	120	14.5×40	0.15	810	EKHE401E□□121MU40S
	120	16×35	0.15	810	EKHE401E□□121ML35S
	120	18×31.5	0.15	815	EKHE401E□□121MMN3S
420	33	10×30	0.20	335	EKHE421E□□330MJ30S
	39	10×35	0.20	385	EKHE421E□□390MJ35S
	47	10×40	0.20	445	EKHE421E□□470MJ40S
	56	10×50	0.20	520	EKHE421E□□560MJ50S
	56	12.5×30	0.20	480	EKHE421E□□560MK30S
	68	12.5×35	0.20	560	EKHE421E□□680MK35S
	82	12.5×40	0.20	640	EKHE421E□□820MK40S
	82	14.5×31.5	0.20	625	EKHE421E□□820MUN3S
	100	12.5×50	0.20	750	EKHE421E□□101MK50S
	100	14.5×40	0.20	740	EKHE421E□□101MU40S
	100	16×31.5	0.20	720	EKHE421E□□101MLN3S
	120	14.5×45	0.20	835	EKHE421E□□121MU45S
	120	16×35	0.20	810	EKHE421E□□121ML35S
	120	18×31.5	0.20	815	EKHE421E□□121MMN3S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
450	27	10×30	0.20	305	EKHE451E□□270MJ30S
	33	10×35	0.20	355	EKHE451E□□330MJ35S
	39	10×40	0.20	405	EKHE451E□□390MJ40S
	47	10×45	0.20	460	EKHE451E□□470MJ45S
	47	12.5×30	0.20	440	EKHE451E□□470MK30S
	56	12.5×35	0.20	505	EKHE451E□□560MK35S
	68	12.5×40	0.20	580	EKHE451E□□680MK40S
	68	14.5×31.5	0.20	570	EKHE451E□□680MUN3S
	82	12.5×45	0.20	660	EKHE451E□□820MK45S
	82	14.5×35	0.20	650	EKHE451E□□820MU35S
	82	16×31.5	0.20	655	EKHE451E□□820MLN3S
	100	14.5×40	0.20	740	EKHE451E□□101MU40S
	100	16×35	0.20	740	EKHE451E□□101ML35S
	120	18×31.5	0.20	815	EKHE451E□□121MMN3S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
27 to 82	1.00	1.50	1.75	1.80
100 to 120	1.00	1.30	1.40	1.50

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

200 to 450Vdc, Downsized, 105℃

PAG Series

- ●Downsize, high ripple design (ϕ10 to 18)
- ●Rated voltage range : 200 to 450Vdc., Capacitance range : 18 to 560μF
- ●Endurance with ripple current : 2,000 hours at 105℃
- ●Ideal for low profile power supply applications
- ●Non solvent resistant type
- ●**RoHS Compliant**

PAG
Downsized
Higher ripple
KMG

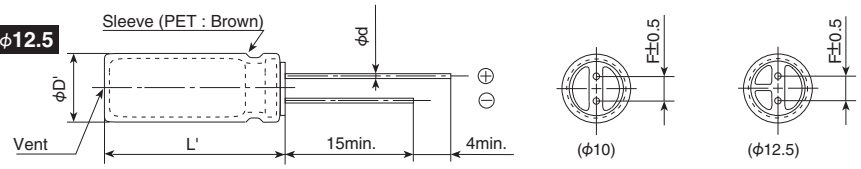
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃ (200, 400Vdc) −25 to+105℃ (420, 450Vdc)
Rated Voltage Range	200 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	After 1 minute / After 5 minutes CV≦1,000: I=0.1CV+40 / I=0.03CV+15 CV>1,000: I=0.04CV+100 / I=0.02CV+25 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 200V, 400V, 420V, 450V tanδ (Max.): 0.12, 0.15, 0.20, 0.20 (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 200V, 400V, 420V, 450V Z(−25℃)/Z(+20℃): 3, 5, 6, 6 Z(−40℃)/Z(+20℃): 6, 6, —, — (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦500% of the initial specified value

◆DIMENSIONS [mm]

●Terminal Code : E

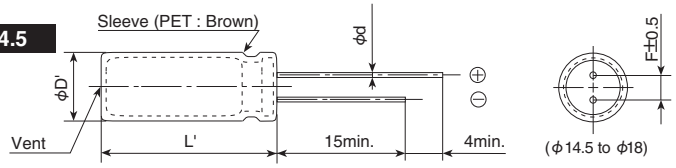
ϕ10 & ϕ12.5



Gas escape end seal

ϕD	10	12.5	14.5	16	18
ϕd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
ϕD'	ϕD+0.5 max.				
L'	L+2.0 max.				

≧ϕ14.5



◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E P A G □□□ E □□ □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 22μF:220,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 200V:201,450V:451)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

200 to 450Vdc, Downsized, 105℃

PAG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
200	82	10×30	0.12	440	EPAG201E□□820MJ30S
	100	10×35	0.12	510	EPAG201E□□101MJ35S
	120	10×40	0.12	590	EPAG201E□□121MJ40S
	150	12.5×30	0.12	650	EPAG201E□□151MK30S
	180	12.5×35	0.12	750	EPAG201E□□181MK35S
	220	12.5×40	0.12	830	EPAG201E□□221MK40S
	220	14.5×30	0.12	830	EPAG201E□□221MU30S
	270	14.5×35	0.12	960	EPAG201E□□271MU35S
	270	16×30	0.12	960	EPAG201E□□271ML30S
	330	16×35	0.12	1,100	EPAG201E□□331ML35S
	330	18×30	0.12	1,100	EPAG201E□□331MM30S
	390	16×40	0.12	1,240	EPAG201E□□391ML40S
	390	18×35	0.12	1,240	EPAG201E□□391MM35S
	470	18×40	0.12	1,390	EPAG201E□□471MM40S
	560	18×45	0.12	1,560	EPAG201E□□561MM45S
400	27	10×30	0.15	260	EPAG401E□□270MJ30S
	33	10×35	0.15	300	EPAG401E□□330MJ35S
	39	10×40	0.15	340	EPAG401E□□390MJ40S
	47	12.5×30	0.15	370	EPAG401E□□470MK30S
	56	12.5×35	0.15	420	EPAG401E□□560MK35S
	68	12.5×40	0.15	480	EPAG401E□□680MK40S
	68	14.5×30	0.15	480	EPAG401E□□680MU30S
	82	14.5×35	0.15	530	EPAG401E□□820MU35S
	100	14.5×40	0.15	580	EPAG401E□□101MU40S
	100	16×30	0.15	580	EPAG401E□□101ML30S
	120	16×35	0.15	670	EPAG401E□□121ML35S
	120	18×30	0.15	670	EPAG401E□□121MM30S
	150	16×40	0.15	770	EPAG401E□□151ML40S
	150	18×35	0.15	770	EPAG401E□□151MM35S
	180	18×40	0.15	880	EPAG401E□□181MM40S
	220	18×45	0.15	1,000	EPAG401E□□221MM45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
420	22	10×30	0.20	230	EPAG421E□□220MJ30S
	27	10×35	0.20	270	EPAG421E□□270MJ35S
	33	10×40	0.20	310	EPAG421E□□330MJ40S
	39	12.5×30	0.20	330	EPAG421E□□390MK30S
	47	12.5×35	0.20	390	EPAG421E□□470MK35S
	56	12.5×40	0.20	430	EPAG421E□□560MK40S
	56	14.5×30	0.20	430	EPAG421E□□560MU30S
	68	14.5×35	0.20	510	EPAG421E□□680MU35S
	68	16×30	0.20	510	EPAG421E□□680ML30S
	82	14.5×40	0.20	570	EPAG421E□□820MU40S
	82	16×35	0.20	570	EPAG421E□□820ML35S
	100	16×40	0.20	610	EPAG421E□□101ML40S
	100	18×30	0.20	610	EPAG421E□□101MM30S
	120	18×35	0.20	690	EPAG421E□□121MM35S
	150	18×40	0.20	790	EPAG421E□□151MM40S
450	18	10×30	0.20	210	EPAG451E□□180MJ30S
	22	10×35	0.20	240	EPAG451E□□220MJ35S
	27	10×40	0.20	280	EPAG451E□□270MJ40S
	33	12.5×30	0.20	310	EPAG451E□□330MK30S
	39	12.5×35	0.20	350	EPAG451E□□390MK35S
	47	12.5×40	0.20	390	EPAG451E□□470MK40S
	47	14.5×30	0.20	390	EPAG451E□□470MU30S
	56	14.5×35	0.20	440	EPAG451E□□560MU35S
	56	16×30	0.20	440	EPAG451E□□560ML30S
	68	14.5×40	0.20	500	EPAG451E□□680MU40S
	68	16×35	0.20	500	EPAG451E□□680ML35S
	82	16×40	0.20	550	EPAG451E□□820ML40S
	82	18×30	0.20	550	EPAG451E□□820MM30S
	100	18×35	0.20	650	EPAG451E□□101MM35S
	120	18×40	0.20	740	EPAG451E□□121MM40S
	150	18×45	0.20	810	EPAG451E□□151MM45S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
18 to 82	1.00	1.50	1.75	1.80
100 to 560	1.00	1.30	1.40	1.50

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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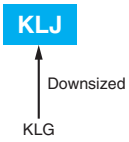
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLJ Series

- Doesn't spark with DC over voltage
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- ESR value prescribed
- **RoHS Compliant**

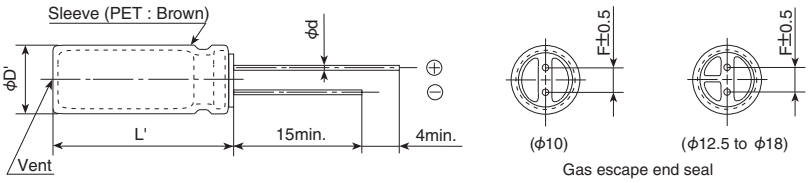


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	200 & 400Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.04CV+100 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 200V, 400V tanδ (Max.): 0.20, 0.24 (at 20℃ ,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 200V, 400V Z(−25℃)/Z(+20℃): 4, 6 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦500% of the initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E



φD	10	12.5	16	18
φd	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
φD'	φD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E K L J □□□ E □□ □□□ M □□□ S

- Supplement code (sleeve PET:S, Pb-free PVC:M)
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 100μF:101,4.7μF:4R7)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 200V:201,400V:401)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLJ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	ESR (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 120Hz)	Part No.
200	33	10×20	0.20	1.8	165	EKLJ201E□□330MJ20S
	39	10×25	0.20	1.4	200	EKLJ201E□□390MJ25S
	56	12.5×20	0.20	1.0	265	EKLJ201E□□560MK20S
	82	12.5×25	0.20	0.72	350	EKLJ201E□□820MK25S
	100	16×20	0.20	0.63	390	EKLJ201E□□101ML20S
	120	16×25	0.20	0.44	465	EKLJ201E□□121ML25S
	150	18×20	0.20	0.31	505	EKLJ201E□□151MM20S
	180	16×31.5	0.20	0.36	615	EKLJ201E□□181MLN3S
	180	18×25	0.20	0.30	585	EKLJ201E□□181MM25S
	220	16×35.5	0.20	0.30	695	EKLJ201E□□221MLP1S
	220	18×31.5	0.20	0.28	700	EKLJ201E□□221MMN3S
	270	18×35.5	0.20	0.24	805	EKLJ201E□□271MMP1S
	330	18×40	0.20	0.21	900	EKLJ201E□□331MM40S
400	4.7	10×12.5	0.24	8.4	36	EKLJ401E□□4R7MJC5S
	10	10×16	0.24	5.7	64	EKLJ401E□□100MJ16S
	15	10×20	0.24	4.0	105	EKLJ401E□□150MJ20S
	18	10×25	0.24	3.2	110	EKLJ401E□□180MJ25S
	22	12.5×20	0.24	2.7	165	EKLJ401E□□220MK20S
	27	12.5×25	0.24	1.9	200	EKLJ401E□□270MK25S
	33	16×20	0.24	1.5	225	EKLJ401E□□330ML20S
	39	18×20	0.24	1.2	255	EKLJ401E□□390MM20S
	39	18×25	0.24	0.72	270	EKLJ401E□□390MM25S
	47	16×25	0.24	1.1	290	EKLJ401E□□470ML25S
	47	18×20	0.24	1.2	280	EKLJ401E□□470MM20S
	56	16×31.5	0.24	0.84	340	EKLJ401E□□560MLN3S
	68	16×35.5	0.24	0.72	385	EKLJ401E□□680MLP1S
	68	18×25	0.24	0.88	360	EKLJ401E□□680MM25S
	82	16×40	0.24	0.65	435	EKLJ401E□□820ML40S
	82	18×31.5	0.24	0.64	425	EKLJ401E□□820MMN3S
	100	18×35.5	0.24	0.54	490	EKLJ401E□□101MMP1S
	120	18×40	0.24	0.49	540	EKLJ401E□□121MM40S

□□ : Enter the appropriate lead forming or taping code.
Sleeve PET : suffix is S, Pb-free PVC : suffix is M

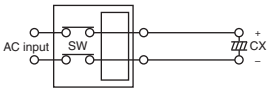
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

●Test DC voltage

Rated voltage	Current limit	Test DC voltage
200Vdc	4A	300/375Vdc
400Vdc	2A	500/600Vdc

●Test circuit



Constant DC voltage/current power supply

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k	100k
4.7 to 10μF	0.65	1.00	1.35	1.75	2.30	2.50	2.70
15 to 47μF	0.75	1.00	1.25	1.50	1.75	1.80	1.85
56 to 330μF	0.80	1.00	1.15	1.30	1.40	1.50	1.60

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLG Series

KLJ
Downsized
KLG

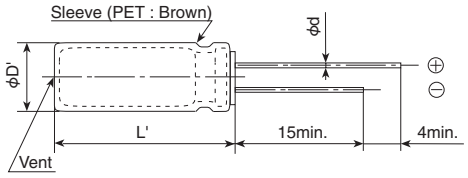
- Doesn't spark with DC over voltage
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

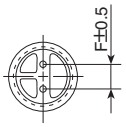
◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	200 & 400Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I=0.04CV+100 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	200V	400V	
	tanδ (Max.)	0.20	0.24	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	200V	400V	
	Z(−25℃)/Z(+20℃)	4	6	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦500% of the initial specified value		

◆DIMENSIONS [mm]

- Terminal Code : E

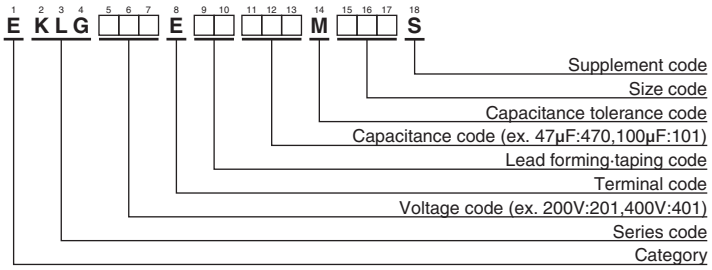




Gas escape end seal

φD	16	18
φd	0.8	
F	7.5	
φD'	φD+0.5max.	
L'	L+1.5max.	

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
200	82	16×20	0.20	230	EKLG201E□□820ML20S
	100	16×25	0.20	425	EKLG201E□□101ML25S
	100	18×20	0.20	250	EKLG201E□□101MM20S
	120	16×31.5	0.20	500	EKLG201E□□121MLN3S
	120	18×25	0.20	475	EKLG201E□□121MM25S
	130	18×20	0.20	285	EKLG201E□□131MM20S
	150	16×31.5	0.20	560	EKLG201E□□151MLN3S
	150	18×20	0.20	315	EKLG201E□□151MM20S
	150	18×25	0.20	530	EKLG201E□□151MM25S
	180	16×40	0.20	645	EKLG201E□□181ML40S
	180	18×31.5	0.20	630	EKLG201E□□181MMN3S
	220	18×35.5	0.20	725	EKLG201E□□221MMP1S
	220	18×40	0.20	735	EKLG201E□□221MM40S
	270	18×45	0.20	830	EKLG201E□□271MM45S
	330	18×45	0.20	920	EKLG201E□□331MM45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
400	22	16×20	0.24	145	EKLG401E□□220ML20S
	22	16×25	0.24	200	EKLG401E□□220ML25S
	33	16×25	0.24	220	EKLG401E□□330ML25S
	33	18×20	0.24	225	EKLG401E□□330MM20S
	39	16×31.5	0.24	245	EKLG401E□□390MLN3S
	39	18×25	0.24	250	EKLG401E□□390MM25S
	47	16×31.5	0.24	275	EKLG401E□□470MLN3S
	47	18×25	0.24	280	EKLG401E□□470MM25S
	56	16×40	0.24	350	EKLG401E□□560ML40S
	56	18×31.5	0.24	315	EKLG401E□□560MMN3S
	68	18×35.5	0.24	350	EKLG401E□□680MMP1S
	82	18×40	0.24	395	EKLG401E□□820MM40S
	100	18×40	0.24	450	EKLG401E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

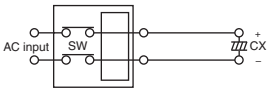
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

●Test DC voltage

Rated voltage	Current limit	Test DC voltage
200Vdc	4A	300/375Vdc
400Vdc	2A	500/600Vdc

●Test circuit



Constant DC voltage/current power supply

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k	100k
22 to 47μF	0.75	1.00	1.25	1.50	1.75	1.80	1.85
56 to 330μF	0.80	1.00	1.15	1.30	1.40	1.50	1.60

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ5 to φ8 product, 105℃

New!

LE Series

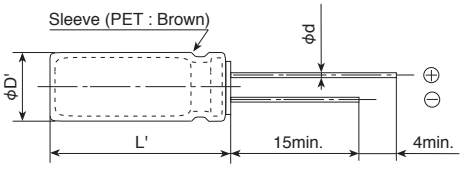
- Suitable for long life and high reliability products
- Downsize and long life
- Endurance with ripple current : 10,000 hours at 105℃
- Case size range : φ5×11L to φ8×11.5L
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

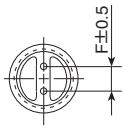
◆SPECIFICATION

Items	Characteristics								
Category Temperature Range	−25 to +105℃								
Rated Voltage Range	10 to 100Vdc								
Capacitance Tolerance	±20% (M)								(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	10V	16V	25V	35V	50V	63V	100V	
	tanδ (Max.)	0.45	0.35	0.30	0.22	0.19	0.17	0.15	(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	10V	16V	25V	35V	50V	63V	100V	
	Z(−25℃)/Z(20℃)	8	6	4	4	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 10,000 hours at 105℃.								
	Capacitance change	≦±25% of the initial value							
	D.F. (tanδ)	≦300% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±25% of the initial value							
	D.F. (tanδ)	≦300% of the initial specified value							
	Leakage current	≦The initial specified value							

◆DIMENSIONS [mm]

- Terminal Code : E

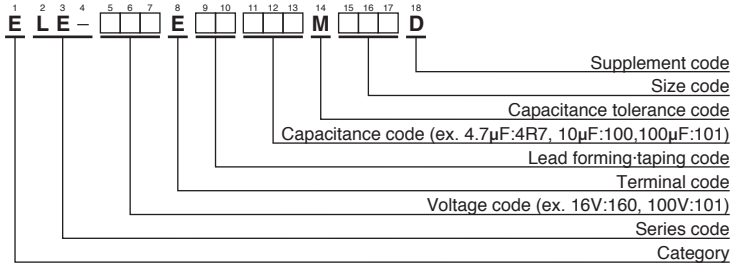




Gas escape end seal

φD	5	6.3	8
φd	0.5	0.5	0.6
F	2.0	2.5	3.5
φD'	φD+0.5max.		
L'	L+1.5max.		

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ5 to φ8 product, 105℃

New!

LE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,100kHz)	Part No.
10	100	5×11	0.45	130	ELE-100E□□101ME11D
	220	6.3×11	0.45	210	ELE-100E□□221MF11D
	330	8×11.5	0.45	330	ELE-100E□□331MHB5D
16	47	5×11	0.35	130	ELE-160E□□470ME11D
	100	6.3×11	0.35	210	ELE-160E□□101MF11D
	220	8×11.5	0.35	330	ELE-160E□□221MHB5D
25	33	5×11	0.30	130	ELE-250E□□330ME11D
	47	5×11	0.30	130	ELE-250E□□470ME11D
	100	6.3×11	0.30	210	ELE-250E□□101MF11D
35	33	5×11	0.22	130	ELE-350E□□330ME11D
	47	6.3×11	0.22	210	ELE-350E□□470MF11D
	100	8×11.5	0.22	330	ELE-350E□□101MHB5D
50	1.0	5×11	0.19	25	ELE-500E□□1R0ME11D
	2.2	5×11	0.19	35	ELE-500E□□2R2ME11D
	3.3	5×11	0.19	70	ELE-500E□□3R3ME11D
	4.7	5×11	0.19	80	ELE-500E□□4R7ME11D
	10	5×11	0.19	90	ELE-500E□□100ME11D
	22	5×11	0.19	110	ELE-500E□□220ME11D
	33	6.3×11	0.19	190	ELE-500E□□330MF11D
	47	6.3×11	0.19	190	ELE-500E□□470MF11D
	100	8×11.5	0.19	270	ELE-500E□□101MHB5D
63	10	5×11	0.17	80	ELE-630E□□100ME11D
	22	6.3×11	0.17	170	ELE-630E□□220MF11D
	33	6.3×11	0.17	170	ELE-630E□□330MF11D
	47	8×11.5	0.17	240	ELE-630E□□470MHB5D
100	1.0	5×11	0.15	40	ELE-101E□□1R0ME11D
	2.2	5×11	0.15	50	ELE-101E□□2R2ME11D
	3.3	5×11	0.15	60	ELE-101E□□3R3ME11D
	4.7	5×11	0.15	70	ELE-101E□□4R7ME11D
	10	6.3×11	0.15	150	ELE-101E□□100MF11D
	22	8×11.5	0.15	230	ELE-101E□□220MHB5D

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency(Hz)	120	1k	10k	100k
1.0 to 10	0.42	0.60	0.80	1.00
22 to 33	0.55	0.75	0.90	1.00
47 to 330	0.70	0.85	0.95	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ4 to φ8 product, 105℃

FL Series

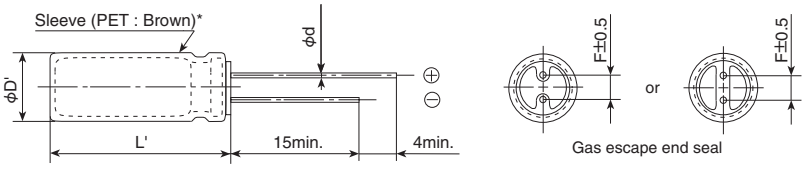
- Long life and high reliability for φ4×5L to φ8×7L mm range
- Endurance with ripple current : 3,000 hours at 105℃
- Suitable for long life and high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.03CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V, 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.50, 0.40, 0.35, 0.30, 0.25, 0.25 (at 20℃, 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E



* φ8×5L : Coating case

5mm Height

φD	4	5	6.3	8
φd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	2.5
φD'	φD+0.5max.			
L'	L+1.0max.			

7mm Height

φD	4	5	6.3	8
φd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	3.5
φD'	φD+0.5max.			
L'	L+1.0max.			

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E F L – □□□ E □□ □□□ M □□□ □

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 4.7μF:4R7,10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,50V:500)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ4 to φ8 product, 105℃

FL Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃,100kHz)	Part No.
6.3	33	4×5	0.50	5.4	37	EFL-6R3E□□330MD05D
	47	4×7	0.50	4.5	44	EFL-6R3E□□470MD07D
	56	5×5	0.50	3.1	57	EFL-6R3E□□560ME05D
	82	5×7	0.50	2.5	70	EFL-6R3E□□820ME07D
	100	6.3×5	0.50	1.7	82	EFL-6R3E□□101MF05D
	150	6.3×7	0.50	1.3	116	EFL-6R3E□□151MF07D
	220	8×5	0.50	1.5	110	EFL-6R3E□□221MH05G
	270	8×7	0.50	0.90	162	EFL-6R3E□□271MH07D
10	22	4×5	0.40	5.4	37	EFL-100E□□220MD05D
	33	4×7	0.40	4.5	44	EFL-100E□□330MD07D
	33	5×5	0.40	3.1	57	EFL-100E□□330ME05D
	47	5×7	0.40	2.5	70	EFL-100E□□470ME07D
	68	6.3×5	0.40	1.7	82	EFL-100E□□680MF05D
	100	6.3×7	0.40	1.3	116	EFL-100E□□101MF07D
	150	8×5	0.40	1.5	110	EFL-100E□□151MH05G
	220	8×7	0.40	0.90	162	EFL-100E□□221MH07D
16	15	4×5	0.35	5.4	37	EFL-160E□□150MD05D
	22	4×7	0.35	4.5	44	EFL-160E□□220MD07D
	22	5×5	0.35	3.1	57	EFL-160E□□220ME05D
	33	5×7	0.35	2.5	70	EFL-160E□□330ME07D
	47	6.3×5	0.35	1.7	82	EFL-160E□□470MF05D
	68	6.3×7	0.35	1.3	116	EFL-160E□□680MF07D
	100	8×5	0.35	1.5	110	EFL-160E□□101MH05G
	150	8×7	0.35	0.90	162	EFL-160E□□151MH07D
25	10	4×5	0.30	5.4	37	EFL-250E□□100MD05D
	15	4×7	0.30	4.5	44	EFL-250E□□150MD07D
	15	5×5	0.30	3.1	57	EFL-250E□□150ME05D
	22	5×7	0.30	2.5	70	EFL-250E□□220ME07D
	33	6.3×5	0.30	1.7	82	EFL-250E□□330MF05D
	56	6.3×7	0.30	1.3	116	EFL-250E□□560MF07D
	68	8×5	0.30	1.5	110	EFL-250E□□680MH05G
	100	8×7	0.30	0.90	162	EFL-250E□□101MH07D
35	4.7	4×5	0.25	5.4	37	EFL-350E□□4R7MD05D
	6.8	4×7	0.25	4.5	44	EFL-350E□□6R8MD07D
	10	5×5	0.25	3.1	57	EFL-350E□□100ME05D
	10	5×7	0.25	2.5	70	EFL-350E□□100ME07D
	22	6.3×5	0.25	1.7	82	EFL-350E□□220MF05D
	22	6.3×7	0.25	1.3	116	EFL-350E□□220MF07D
	33	8×5	0.25	1.5	110	EFL-350E□□330MH05G
	47	8×7	0.25	0.90	162	EFL-350E□□470MH07D
50	1.0	4×5	0.25	19	18	EFL-500E□□1R0MD05D
	2.2	4×5	0.25	14	22	EFL-500E□□2R2MD05D
	3.3	4×5	0.25	11	26	EFL-500E□□3R3MD05D
	4.7	4×7	0.25	9.0	30	EFL-500E□□4R7MD07D
	4.7	5×5	0.25	6.0	40	EFL-500E□□4R7ME05D
	6.8	5×7	0.25	4.8	50	EFL-500E□□6R8ME07D
	10	6.3×5	0.25	2.9	63	EFL-500E□□100MF05D
	15	6.3×7	0.25	2.2	90	EFL-500E□□150MF07D
	22	8×5	0.25	2.6	84	EFL-500E□□220MH05G
	22	8×7	0.25	1.6	120	EFL-500E□□220MH07D

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency(Hz)	120	1k	10k	100k
to 3.3	0.20	0.66	0.90	1.00
4.7 to 6.8	0.35	0.70	0.90	1.00
10 to 150	0.40	0.75	0.90	1.00
220 to 270	0.50	0.85	0.94	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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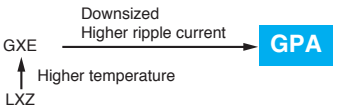
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, Downsized, 125℃

Upgrude!

GPA Series



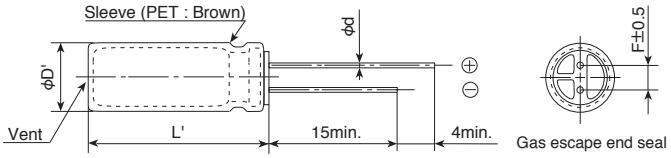
- Downsized, low impedance and high-ripple current version of GXE series
- Specified ESR after endurance test
- For high ripple current automotive applications. (Direct fuel injection and electric power steering etc.)
- Endurance with ripple current : 3,000 to 5,000 hours at 125℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +125℃
Rated Voltage Range	25 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 25V, 35V, 50V, 63V, 80V, 100V tanδ (Max.): 0.14, 0.12, 0.10, 0.10, 0.08, 0.08 When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 25V, 35V, 50V, 63V, 80V, 100V Z(−25℃)/Z(+20℃): 2, 2, 2, 2, 2, 2 Z(−40℃)/Z(+20℃): 4, 4, 4, 4, 4, 4 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours (3,000 hours for 25L and less) at 125 ℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

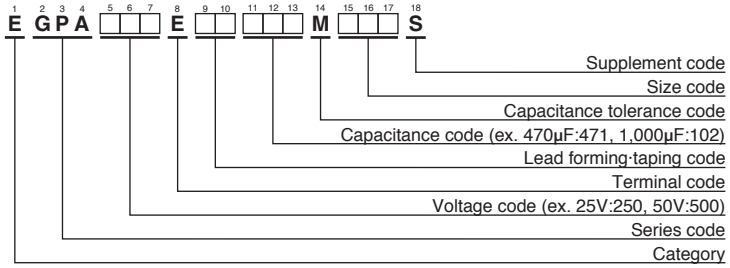
◆DIMENSIONS [mm]

- Terminal Code : E



φD	12.5	14.5	16	18
φd	0.6	0.8	0.8	0.8
F	5.0	7.5	7.5	7.5
φD'	φD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

Upgrude!

GPA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	ESR (Initial) (Ωmax/100kHz)		ESR (End of Life) (Ωmax/100kHz)		Rated ripple current (mArms/125℃,100kHz)	Part No.
			20℃	-40℃	20℃	-40℃		
25	1,200	12.5×20	0.044	0.22	0.18	2.2	1,820	EGPA250E□□122MK20S
	1,500	14.5×20	0.037	0.19	0.11	1.3	2,100	EGPA250E□□152MU20S
	1,800	12.5×25	0.033	0.17	0.13	1.6	2,280	EGPA250E□□182MK25S
	1,800	16×20	0.034	0.17	0.10	1.3	2,280	EGPA250E□□182ML20S
	2,200	12.5×30	0.029	0.13	0.11	1.3	2,560	EGPA250E□□222MK30S
	2,200	14.5×25	0.028	0.14	0.080	0.90	2,620	EGPA250E□□222MU25S
	2,700	12.5×35	0.024	0.11	0.090	0.80	2,970	EGPA250E□□272MK35S
	2,700	14.5×30	0.023	0.10	0.070	0.70	3,060	EGPA250E□□272MU30S
	2,700	16×25	0.026	0.13	0.080	1.1	2,860	EGPA250E□□272ML25S
	2,700	18×20	0.032	0.16	0.090	0.60	2,490	EGPA250E□□272MM20S
	3,300	12.5×40	0.021	0.095	0.080	0.50	3,340	EGPA250E□□332MK40S
	3,300	14.5×35	0.021	0.095	0.060	0.70	3,380	EGPA250E□□332MU35S
	3,300	16×30	0.023	0.10	0.070	0.90	3,160	EGPA250E□□332ML30S
	3,900	16×35	0.020	0.090	0.060	0.70	3,590	EGPA250E□□392ML35S
	3,900	18×25	0.024	0.12	0.070	0.50	3,010	EGPA250E□□392MM25S
	4,700	14.5×40	0.018	0.081	0.050	0.50	3,730	EGPA250E□□472MU40S
	4,700	18×30	0.022	0.099	0.080	0.60	3,390	EGPA250E□□472MM30S
	5,600	16×40	0.017	0.077	0.040	0.60	3,970	EGPA250E□□562ML40S
	5,600	18×35	0.019	0.086	0.070	0.50	3,840	EGPA250E□□562MM35S
	6,800	18×40	0.016	0.072	0.030	0.40	4,230	EGPA250E□□682MM40S
35	680	12.5×20	0.044	0.22	0.18	2.2	1,820	EGPA350E□□681MK20S
	1,000	12.5×25	0.033	0.17	0.13	1.6	2,280	EGPA350E□□102MK25S
	1,000	14.5×20	0.037	0.19	0.11	1.3	2,100	EGPA350E□□102MU20S
	1,200	12.5×30	0.029	0.13	0.11	1.3	2,560	EGPA350E□□122MK30S
	1,200	16×20	0.034	0.17	0.10	1.3	2,280	EGPA350E□□122ML20S
	1,200	14.5×25	0.028	0.14	0.080	0.90	2,620	EGPA350E□□122MU25S
	1,500	12.5×35	0.024	0.11	0.090	0.80	2,970	EGPA350E□□152MK35S
	1,500	14.5×30	0.023	0.10	0.070	0.70	3,060	EGPA350E□□152MU30S
	1,500	18×20	0.032	0.16	0.090	0.60	2,490	EGPA350E□□152MM20S
	1,800	12.5×40	0.021	0.095	0.080	0.50	3,340	EGPA350E□□182MK40S
	1,800	16×25	0.026	0.13	0.080	1.1	2,860	EGPA350E□□182ML25S
	2,200	14.5×35	0.021	0.095	0.060	0.70	3,380	EGPA350E□□222MU35S
	2,200	16×30	0.023	0.10	0.070	0.90	3,160	EGPA350E□□222ML30S
	2,200	18×25	0.024	0.12	0.070	0.50	3,010	EGPA350E□□222MM25S
	2,700	14.5×40	0.018	0.081	0.050	0.50	3,730	EGPA350E□□272MU40S
	2,700	16×35	0.020	0.090	0.060	0.70	3,590	EGPA350E□□272ML35S
	2,700	18×30	0.022	0.099	0.080	0.60	3,390	EGPA350E□□272MM30S
	3,300	16×40	0.017	0.077	0.040	0.60	3,970	EGPA350E□□332ML40S
	3,300	18×35	0.019	0.086	0.070	0.50	3,840	EGPA350E□□332MM35S
	4,700	18×40	0.016	0.072	0.030	0.40	4,230	EGPA350E□□472MM40S
50	470	12.5×20	0.065	0.33	0.18	2.2	1,500	EGPA500E□□471MK20S
	560	14.5×20	0.055	0.28	0.11	1.3	1,740	EGPA500E□□561MU20S
	680	12.5×25	0.048	0.24	0.13	1.6	1,900	EGPA500E□□681MK25S
	680	16×20	0.043	0.22	0.10	1.3	2,040	EGPA500E□□681ML20S
	820	12.5×30	0.041	0.18	0.11	1.3	2,150	EGPA500E□□821MK30S
	820	14.5×25	0.040	0.20	0.080	0.90	2,190	EGPA500E□□821MU25S
	1,000	12.5×35	0.034	0.15	0.090	0.80	2,510	EGPA500E□□102MK35S
	1,000	14.5×30	0.036	0.16	0.070	0.70	2,470	EGPA500E□□102MU30S
	1,000	16×25	0.031	0.16	0.080	1.1	2,620	EGPA500E□□102ML25S
	1,000	18×20	0.039	0.20	0.090	0.60	2,240	EGPA500E□□102MM20S
	1,200	12.5×40	0.028	0.13	0.080	0.50	2,870	EGPA500E□□122MK40S
	1,200	14.5×35	0.029	0.13	0.060	0.70	2,840	EGPA500E□□122MU35S
	1,200	16×30	0.027	0.13	0.070	0.90	2,940	EGPA500E□□122ML30S
	1,200	18×25	0.029	0.15	0.070	0.50	2,750	EGPA500E□□122MM25S
	1,500	16×35	0.023	0.10	0.060	0.70	3,300	EGPA500E□□152ML35S
	1,800	14.5×40	0.024	0.11	0.050	0.50	3,230	EGPA500E□□182MU40S
	1,800	18×30	0.026	0.12	0.080	0.60	3,140	EGPA500E□□182MM30S
	2,200	16×40	0.020	0.090	0.040	0.60	3,720	EGPA500E□□222ML40S
	2,200	18×35	0.022	0.10	0.070	0.50	3,510	EGPA500E□□222MM35S
	2,700	18×40	0.018	0.080	0.030	0.40	3,940	EGPA500E□□272MM40S

□□ : Enter the appropriate lead forming or taping code.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

Upgrude!

GPA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	ESR (Initial) (Ωmax/100kHz)		ESR (End of Life) (Ωmax/100kHz)		Rated ripple current (mArms/125℃,100kHz)	Part No.
			20℃	-40℃	20℃	-40℃		
63	470	16×20	0.085	0.58	0.19	3.0	1,790	EGPA630E□□471ML20S
	680	16×25	0.061	0.48	0.14	2.0	2,030	EGPA630E□□681ML25S
	680	18×20	0.070	0.49	0.19	3.0	1,910	EGPA630E□□681MM20S
	820	16×30	0.053	0.41	0.090	1.3	2,330	EGPA630E□□821ML30S
	1,000	16×35	0.044	0.33	0.070	0.90	2,580	EGPA630E□□102ML35S
	1,000	18×25	0.049	0.34	0.14	2.0	2,280	EGPA630E□□102MM25S
	1,200	16×40	0.036	0.26	0.060	0.80	2,900	EGPA630E□□122ML40S
	1,200	18×30	0.041	0.26	0.090	1.3	2,580	EGPA630E□□122MM30S
	1,500	18×35	0.035	0.21	0.070	0.90	2,890	EGPA630E□□152MM35S
	1,800	18×40	0.030	0.18	0.060	0.80	3,210	EGPA630E□□182MM40S
80	330	16×20	0.085	0.58	0.19	3.0	1,790	EGPA800E□□331ML20S
	470	16×25	0.061	0.48	0.14	2.0	2,030	EGPA800E□□471ML25S
	470	18×20	0.070	0.49	0.19	3.0	1,910	EGPA800E□□471MM20S
	560	16×30	0.053	0.41	0.090	1.3	2,330	EGPA800E□□561ML30S
	560	18×25	0.049	0.34	0.14	2.0	2,280	EGPA800E□□561MM25S
	680	16×35	0.044	0.33	0.070	0.90	2,580	EGPA800E□□681ML35S
	680	18×30	0.041	0.26	0.090	1.3	2,580	EGPA800E□□681MM30S
	820	16×40	0.036	0.26	0.060	0.80	2,900	EGPA800E□□821ML40S
	820	18×35	0.035	0.21	0.070	0.90	2,890	EGPA800E□□821MM35S
	1,200	18×40	0.030	0.18	0.060	0.80	3,210	EGPA800E□□122MM40S
100	200	16×20	0.11	0.88	0.25	3.9	1,580	EGPA101E□□201ML20S
	270	18×20	0.091	0.73	0.22	3.9	1,690	EGPA101E□□271MM20S
	300	16×25	0.079	0.72	0.18	2.7	1,990	EGPA101E□□301ML25S
	360	16×30	0.068	0.62	0.13	1.9	2,250	EGPA101E□□361ML30S
	390	18×25	0.064	0.50	0.15	2.7	2,110	EGPA101E□□391MM25S
	470	16×35	0.056	0.50	0.090	1.3	2,500	EGPA101E□□471ML35S
	510	18×30	0.054	0.39	0.13	1.9	2,410	EGPA101E□□511MM30S
	560	16×40	0.046	0.39	0.080	1.1	2,700	EGPA101E□□561ML40S
	620	18×35	0.044	0.32	0.090	1.3	2,690	EGPA101E□□621MM35S
	750	18×40	0.039	0.27	0.080	1.1	2,880	EGPA101E□□751MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency(Hz)	120	1k	10k	100k
200	0.40	0.82	0.93	1.00
270 to 560	0.50	0.85	0.94	1.00
620 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 6,800	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

GXE Series

- For automobile modules and other high temperature applications
- Downsize, long life, low impedance and better low temperature characteristics
- Endurance with ripple current : 2,000 to 5,000 hours at 125℃
- Solvent resistant type except 63 to 450V (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

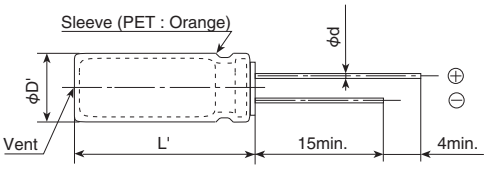
GXE → Downsized, Higher ripple current → GPA

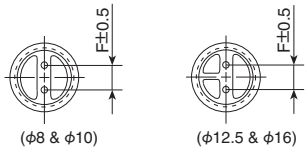
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +125℃ (10 to 250Vdc) −25 to +125℃ (350 to 450Vdc)
Rated Voltage Range	10 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	10 to 100Vdc: I=0.03CV or 4μA, whichever is greater. 160 to 450Vdc: CV≦1,000 I=0.1CV+40; CV>1,000 I=0.04CV+100 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V, 160 to 250V, 350 to 450V tanδ (Max.): 0.20, 0.16, 0.14, 0.12, 0.10, 0.10, 0.08, 0.08, 0.20, 0.24 When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 10V, 16V, 25V, 35V, 50V, 63V, 80V, 100V, 160 to 250V, 350 to 450V Z(−25℃)/Z(+20℃): 3, 2, 2, 2, 2, 2, 2, 2, 3, 6 Z(−40℃)/Z(+20℃): 6, 4, 4, 4, 4, 4, 4, 4, 6, — (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified time at 125℃. Time: φ8 : 2,000hours φ10 : 3,000hours φ12.5 & φ16 : 5,000hours / 2,000hours Capacitance change: ≦±30% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦300% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for 350 to 450Vdc) at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦300% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦500% of the initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E

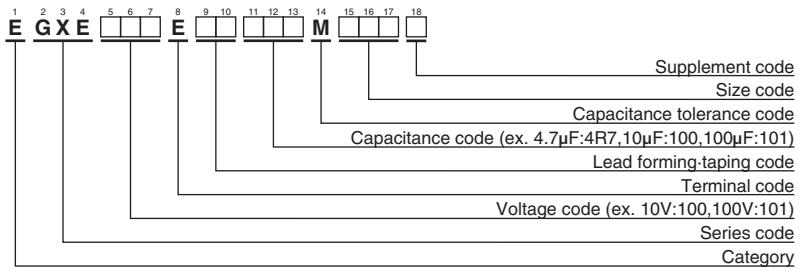




Gas escape end seal

φD	8	10	12.5	16
φd	0.6	0.6	0.6	0.8
F	3.5	5.0	5.0	7.5
φD'	φD+0.5max.			
L'	L+2.0max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

GXE Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/ 20℃, 100kHz)	Rated ripple current (mArms/ 125℃, Note1)	Part No.
10	220	8× 12	0.32	340	EGXE100E□□221MH12D
	330	10× 12.5	0.15	620	EGXE100E□□331MJC5S
	470	10× 12.5	0.15	620	EGXE100E□□471MJC5S
	1,000	10× 20	0.075	950	EGXE100E□□102MJ20S
	2,200	12.5× 25	0.040	1,350	EGXE100E□□222MK25S
	3,300	16× 25	0.031	1,620	EGXE100E□□332ML25S
	4,700	16× 31.5	0.025	1,860	EGXE100E□□472MLN3S
16	100	8× 12	0.32	340	EGXE160E□□101MH12D
	220	10× 12.5	0.15	620	EGXE160E□□221MJC5S
	330	10× 12.5	0.15	620	EGXE160E□□331MJC5S
	470	10× 16	0.094	790	EGXE160E□□471MJ16S
	1,000	12.5× 20	0.058	1,080	EGXE160E□□102MK20S
	2,200	16× 25	0.031	1,620	EGXE160E□□222ML25S
	3,300	16× 31.5	0.025	1,860	EGXE160E□□332MLN3S
25	100	8× 12	0.32	340	EGXE250E□□101MH12D
	220	10× 12.5	0.15	620	EGXE250E□□221MJC5S
	330	10× 16	0.094	790	EGXE250E□□331MJ16S
	470	10× 20	0.075	950	EGXE250E□□471MJ20S
	1,000	12.5× 25	0.040	1,350	EGXE250E□□102MK25S
	2,200	16× 31.5	0.025	1,860	EGXE250E□□222MLN3S
35	100	8× 12	0.32	340	EGXE350E□□101MH12D
	100	10× 12.5	0.15	620	EGXE350E□□101MJC5S
	220	10× 16	0.094	790	EGXE350E□□221MJ16S
	330	10× 20	0.075	950	EGXE350E□□331MJ20S
	470	12.5× 20	0.058	1,080	EGXE350E□□471MK20S
	1,000	16× 25	0.031	1,620	EGXE350E□□102ML25S
50	10	8× 12	0.75	180	EGXE500E□□100MH12D
	22	8× 12	0.50	250	EGXE500E□□220MH12D
	33	8× 12	0.50	280	EGXE500E□□330MH12D
	47	8× 12	0.50	280	EGXE500E□□470MH12D
	100	10× 12.5	0.20	520	EGXE500E□□101MJC5S
	220	10× 20	0.098	880	EGXE500E□□221MJ20S
	330	12.5× 20	0.081	990	EGXE500E□□331MK20S
	470	12.5× 25	0.059	1,150	EGXE500E□□471MK25S
	1,000	16× 31.5	0.032	1,590	EGXE500E□□102MLN3S
63	33	8× 12	1.5	150	EGXE630E□□330MH12D
	47	10× 12.5	0.59	530	EGXE630E□□470MJC5S
	100	10× 16	0.41	690	EGXE630E□□101MJ16S
	220	12.5× 20	0.16	1,050	EGXE630E□□221MK20S
	330	12.5× 25	0.12	1,290	EGXE630E□□331MK25S
	470	12.5× 30	0.097	1,460	EGXE630E□□471MK30S
	1,000	16× 31.5	0.059	1,850	EGXE630E□□102MLN3S
80	22	8× 12	1.5	150	EGXE800E□□220MH12D
	33	10× 12.5	0.8	480	EGXE800E□□330MJC5S
80	47	10×12.5	0.80	480	EGXE800E□□470MJC5S
	100	10×20	0.39	790	EGXE800E□□101MJ20S
	220	12.5×25	0.18	1,240	EGXE800E□□221MK25S
	330	12.5×30	0.16	1,390	EGXE800E□□331MK30S
	470	16×25	0.11	1,500	EGXE800E□□471ML25S
100	4.7	8×12	2.0	130	EGXE101E□□4R7MH12D
	10	8×12	1.5	150	EGXE101E□□100MH12D
	22	10×12.5	0.80	480	EGXE101E□□220MJC5S
	33	10×12.5	0.80	480	EGXE101E□□330MJC5S
	47	10×16	0.55	630	EGXE101E□□470MJ16S
	100	12.5×20	0.25	990	EGXE101E□□101MK20S
	220	16×25	0.11	1,500	EGXE101E□□221ML25S
	330	16×31.5	0.079	1,790	EGXE101E□□331MLN3S
160	22	10×20	—	115	EGXE161E□□220MJ20S
	33	10×25	—	154	EGXE161E□□330MJ25S
	47	12.5×20	—	187	EGXE161E□□470MK20S
	68	12.5×25	—	245	EGXE161E□□680MK25S
	100	16×25	—	329	EGXE161E□□101ML25S
	150	16×31.5	—	434	EGXE161E□□151MLN3S
200	10	10×20	—	78	EGXE201E□□100MJ20S
	22	10×25	—	126	EGXE201E□□220MJ25S
	33	12.5×20	—	157	EGXE201E□□330MK20S
	47	12.5×25	—	204	EGXE201E□□470MK25S
	68	16×20	—	250	EGXE201E□□680ML20S
	100	16×25	—	329	EGXE201E□□101ML25S
250	10	10×20	—	78	EGXE251E□□100MJ20S
	22	12.5×20	—	128	EGXE251E□□220MK20S
	33	12.5×25	—	171	EGXE251E□□330MK25S
	47	16×25	—	225	EGXE251E□□470ML25S
	68	16×31.5	—	292	EGXE251E□□680MLN3S
350	4.7	10×20	—	53	EGXE351E□□4R7MJ20S
	10	10×25	—	85	EGXE351E□□100MJ25S
	22	12.5×25	—	139	EGXE351E□□220MK25S
	33	16×25	—	189	EGXE351E□□330ML25S
	47	16×31.5	—	243	EGXE351E□□470MLN3S
400	4.7	10×20	—	53	EGXE401E□□4R7MJ20S
	10	10×25	—	86	EGXE401E□□100MJ25S
	22	12.5×30	—	142	EGXE401E□□220MK30S
	33	16×25	—	189	EGXE401E□□330ML25S
	47	16×31.5	—	243	EGXE401E□□470MLN3S
450	4.7	10×25	—	58	EGXE451E□□4R7MJ25S
	10	12.5×20	—	86	EGXE451E□□100MK20S
	22	16×25	—	154	EGXE451E□□220ML25S
	33	16×31.5	—	203	EGXE451E□□330MLN3S

□□ : Enter the appropriate lead forming or taping code.

(Note1) Ripple current frequency
10 to 100V = 100kHz
160 to 450V = 120Hz

◆RATED RIPPLE CURRENT MULTIPLIERS

●(10 to 100Vdc) Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
4.7 to 100	0.40	0.75	0.90	1.00
220 to 470	0.50	0.85	0.94	1.00
1,000	0.60	0.87	0.95	1.00
2,200 to 3,300	0.75	0.90	0.95	1.00
4,700	0.85	0.95	0.98	1.00

●(160 to 450Vdc) Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
4.7 to 33	0.75	1.00	1.25	1.50	1.75	1.80
47 to 150	0.80	1.00	1.15	1.30	1.40	1.50

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, 125℃

GXL Series

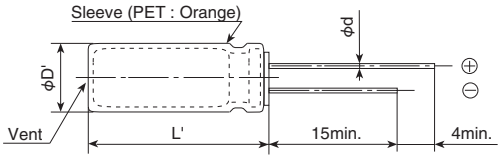
- Long-Life version of GXE series
- For automobile modules and other high temperature applications
- Endurance with ripple current : 5,000 hours at 125℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

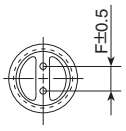
◆SPECIFICATIONS

Items	Characteristics						
Category Temperature Range	−40 to +125℃						
Rated Voltage Range	10 to 50Vdc						
Capacitance Tolerance	±20% (M)						(at 20℃, 120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)						(at 20℃, 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.20	0.16	0.14	0.12	0.10	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	6	4	4	4	4	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 125℃.						
	Capacitance change	≦±30% of the initial value					
	D.F. (tanδ)	≦300% of the initial specified value					
	Leakage current	≦The initial specified value					
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.						
	Capacitance change	≦±30% of the initial value					
	D.F. (tanδ)	≦300% of the initial specified value					
	Leakage current	≦The initial specified value					

◆DIMENSIONS [mm]

- Terminal Code : E

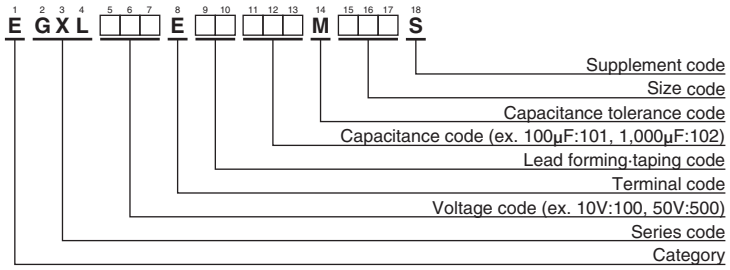




(φ10)
Gas escape end seal

φD	10
φd	0.6
F	5.0
φD'	φD+0.5max.
L'	L+1.5max.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, 125℃

GXL Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/125℃, 100kHz)	Part No.
10	330	10×12.5	0.17	800	EGXL100E□□331MJC5S
	470	10×12.5	0.17	800	EGXL100E□□471MJC5S
	1,000	10×20	0.094	1,300	EGXL100E□□102MJ20S
16	220	10×12.5	0.17	800	EGXL160E□□221MJC5S
	330	10×12.5	0.17	800	EGXL160E□□331MJC5S
	470	10×16	0.12	1,050	EGXL160E□□471MJ16S
25	220	10×12.5	0.17	800	EGXL250E□□221MJC5S
	330	10×16	0.12	1,050	EGXL250E□□331MJ16S
	470	10×20	0.094	1,300	EGXL250E□□471MJ20S
35	100	10×12.5	0.17	800	EGXL350E□□101MJC5S
	220	10×16	0.12	1,050	EGXL350E□□221MJ16S
	330	10×20	0.094	1,300	EGXL350E□□331MJ20S
50	100	10×12.5	0.30	590	EGXL500E□□101MJC5S
	220	10×20	0.19	970	EGXL500E□□221MJ20S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency(Hz)	120	1k	10k	100k
100	0.40	0.75	0.90	1.00
220 to 470	0.50	0.85	0.94	1.00
1,000	0.60	0.87	0.95	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life, 135℃

GXH Series

- For automobile modules and other high temperature applications
- Endurance with ripple current : 1,500 to 2,000 hours at 135℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

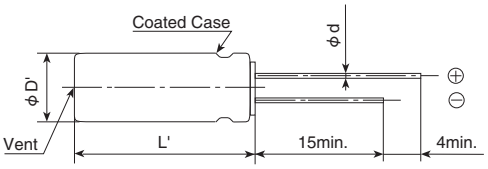
GXE —Higher temperature→ **GXH**

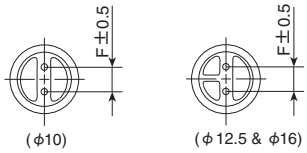
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +135℃
Rated Voltage Range	10 to 50Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 10V, 16V, 25V, 35V, 50V tanδ (Max.): 0.20, 0.16, 0.14, 0.12, 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 10V, 16V, 25V, 35V, 50V Z(−25℃)/Z(+20℃): 3, 2, 2, 2, 2 Z(−40℃)/Z(+20℃): 6, 4, 4, 4, 4 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified time at 135℃. Time: φ10 : 1,500hours φ12.5 & φ16 : 2,000hours Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 135℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E





Gas escape end seal

φD	10	12.5	16
φd	0.6	0.6	0.8
F	5.0	5.0	7.5
φD'	φD+0.5max.		
L'	L+2.0max.		

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E GXH □□□ E □□ □□□ M □□□ H

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 330μF:331, 1,000μF:102)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 10V:100,35V:350)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

◆MARKING

EX) 35V470μF

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, 135℃

GXH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD× L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/135℃, 100kHz)	Part No.
10	330	10×12.5	0.15	620	EGXH100E□□331MJC5H
	470	10×12.5	0.15	620	EGXH100E□□471MJC5H
	1,000	10×20	0.075	950	EGXH100E□□102MJ20H
	2,200	12.5×25	0.040	1,350	EGXH100E□□222MK25H
	3,300	16×25	0.031	1,620	EGXH100E□□332ML25H
	4,700	16×31.5	0.025	1,860	EGXH100E□□472MLN3H
16	220	10×12.5	0.15	620	EGXH160E□□221MJC5H
	330	10×12.5	0.15	620	EGXH160E□□331MJC5H
	470	10×16	0.094	790	EGXH160E□□471MJ16H
	1,000	12.5×20	0.058	1,080	EGXH160E□□102MK20H
	2,200	16×25	0.031	1,620	EGXH160E□□222ML25H
	3,300	16×31.5	0.025	1,860	EGXH160E□□332MLN3H
25	220	10×12.5	0.15	620	EGXH250E□□221MJC5H
	330	10×16	0.094	790	EGXH250E□□331MJ16H
	470	10×20	0.075	950	EGXH250E□□471MJ20H
	1,000	12.5×25	0.040	1,350	EGXH250E□□102MK25H
	2,200	16×31.5	0.025	1,860	EGXH250E□□222MLN3H
35	100	10×12.5	0.15	620	EGXH350E□□101MJC5H
	220	10×16	0.094	790	EGXH350E□□221MJ16H
	330	10×20	0.075	950	EGXH350E□□331MJ20H
	470	12.5×20	0.058	1,080	EGXH350E□□471MK20H
	1,000	16×25	0.031	1,620	EGXH350E□□102ML25H
50	100	10×12.5	0.20	520	EGXH500E□□101MJC5H
	220	10×20	0.098	880	EGXH500E□□221MJ20H
	330	12.5×20	0.081	990	EGXH500E□□331MK20H
	470	12.5×25	0.059	1,150	EGXH500E□□471MK25H
	1,000	16×31.5	0.032	1,590	EGXH500E□□102MLN3H

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
100	0.40	0.75	0.90	1.00
220 to 470	0.50	0.85	0.94	1.00
1,000	0.60	0.87	0.95	1.00
2,200 to 3,300	0.75	0.90	0.95	1.00
4,700	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For airbag module, 105℃°C

LBG Series

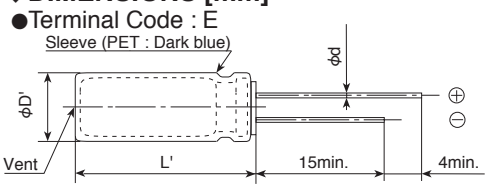
- For airbag application
- High capacitance, low impedance, and good low temperature behavior
- Endurance with ripple current : 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

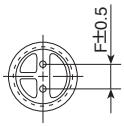
◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−55 to +105℃			
Rated Voltage Range	25 & 35Vdc			
Capacitance Range	1,000 to 11,000μF			(at 20℃, 120Hz)
Capacitance Tolerance	0 to +30% (A)			(at 20℃, 120Hz)
Leakage Current	I=0.01CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	25V	35V	
	tanδ (Max.)	0.20	0.16	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase.			(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	25V	35V	
	Z(−55℃)/Z(+20℃)	3	3	
	Impedance at -40℃ and 20℃ 100kHz in the STANDARD RATINGS			(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

- Terminal Code : E





Gas escape end seal

φD	12.5	14.5	16	18
φd	0.6	0.8	0.8	0.8
F	5.0	7.5	7.5	7.5
φD'	φD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E L B G □□□ E □□ □□□ A □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 1,000μF:102, 11,000μF:113)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 16V:160, 35V:350)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For airbag module, 105℃

LBG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz)		Rated ripple current (mArms/105℃,100kHz)	Part No.
			20℃	-40℃		
25	1,700	12.5×20	0.057	0.29	1,700	ELBG250E□□172AK20S
	2,400	12.5×25	0.045	0.23	2,000	ELBG250E□□242AK25S
	2,400	14.5×20	0.051	0.26	2,000	ELBG250E□□242AU20S
	2,800	12.5×30	0.039	0.20	2,300	ELBG250E□□282AK30S
	3,000	16×20	0.044	0.22	2,250	ELBG250E□□302AL20S
	3,400	14.5×25	0.041	0.21	2,400	ELBG250E□□342AU25S
	3,500	12.5×35	0.033	0.17	2,700	ELBG250E□□352AK35S
	4,200	16×25	0.033	0.17	2,600	ELBG250E□□422AL25S
	4,200	18×20	0.042	0.21	2,500	ELBG250E□□422AM20S
	4,500	12.5×40	0.027	0.14	3,100	ELBG250E□□452AK40S
	4,600	14.5×31.5	0.032	0.16	2,700	ELBG250E□□462AUN3S
	5,400	14.5×35.5	0.028	0.14	3,100	ELBG250E□□542AUP1S
	5,600	16×31.5	0.026	0.13	3,200	ELBG250E□□562ALN3S
	6,000	18×25	0.030	0.15	2,800	ELBG250E□□602AM25S
	6,400	14.5×40	0.025	0.13	3,400	ELBG250E□□642AU40S
	6,600	16×35.5	0.023	0.12	3,500	ELBG250E□□662ALP1S
	7,800	16×40	0.021	0.11	3,800	ELBG250E□□782AL40S
	7,900	18×31.5	0.024	0.12	3,500	ELBG250E□□792AMN3S
	9,200	18×35.5	0.022	0.11	3,700	ELBG250E□□922AMP1S
	11,000	18×40	0.020	0.10	4,000	ELBG250E□□113AM40S
35	1,000	12.5×20	0.057	0.29	1,700	ELBG350E□□102AK20S
	1,400	12.5×25	0.045	0.23	2,000	ELBG350E□□142AK25S
	1,400	14.5×20	0.051	0.26	2,000	ELBG350E□□142AU20S
	1,600	12.5×30	0.039	0.20	2,300	ELBG350E□□162AK30S
	1,800	16×20	0.044	0.22	2,250	ELBG350E□□182AL20S
	2,000	14.5×25	0.041	0.21	2,400	ELBG350E□□202AU25S
	2,100	12.5×35	0.033	0.17	2,700	ELBG350E□□212AK35S
	2,500	16×25	0.033	0.17	2,600	ELBG350E□□252AL25S
	2,500	18×20	0.042	0.21	2,500	ELBG350E□□252AM20S
	2,700	12.5×40	0.027	0.14	3,100	ELBG350E□□272AK40S
	2,800	14.5×31.5	0.032	0.16	2,700	ELBG350E□□282AUN3S
	3,200	14.5×35.5	0.028	0.14	3,100	ELBG350E□□322AUP1S
	3,400	16×31.5	0.026	0.13	3,200	ELBG350E□□342ALN3S
	3,600	18×25	0.030	0.15	2,800	ELBG350E□□362AM25S
	3,800	14.5×40	0.025	0.13	3,400	ELBG350E□□382AU40S
	4,000	16×35.5	0.023	0.12	3,500	ELBG350E□□402ALP1S
	4,700	16×40	0.021	0.11	3,800	ELBG350E□□472AL40S
	4,800	18×31.5	0.024	0.12	3,500	ELBG350E□□482AMN3S
	5,600	18×35.5	0.022	0.11	3,700	ELBG350E□□562AMP1S
	6,700	18×40	0.020	0.10	4,000	ELBG350E□□672AM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
1,000 to 2,000	0.60	0.87	0.95	1.00
2,100 to 3,800	0.75	0.90	0.95	1.00
4,000 to 11,000	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For photo flash

PH Series

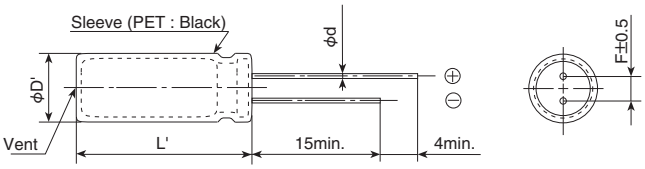
●RoHS Compliant

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−20 to +65℃
Rated Voltage Range	300, 315, 330Vdc
Capacitance Tolerance	−10 to +20% (V) (at 20℃, 120Hz)
Leakage Current	I=1×C Where, I : Max. leakage current (μA), C : Nominal capacitance (μF) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.06max. (at 20℃, 120Hz)
Charge and Discharge Characteristics	The following specifications shall be satisfied when the capacitors are restored to 20℃ after charge and discharge are repeated 5,000 times at room temperature (5 to 35℃). Discharge resistance or Xenon tube : 0.7 to 1.0Ω. Capacitance change: ≦±10% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦150% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 65℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±10% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦150% of the initial specified value

◆DIMENSIONS [mm]

●Terminal Code : E



φD	6.0 to 7.5	8.0 to 8.5	9.0 to 9.5	10.0 to 14.0	14.5 to 18.0
φd	0.5	0.6	0.6	0.6	0.8
F	2.5	3.5	4	5	7.5
φD'	φD+0.5max.				
L'	L+1.0max.				

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E P H − □□□ E □□ □□□ □□ □□ S

- Supplement code
- Size code (L code)
- Size code (φD code)
- Nominal capacitance code (ex. 50μF:500,100μF:101)
- Lead forming·taping code
- Terminal code
- Rated voltage code (ex. 315V:3B1,330V:331)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

●Size Code

φD code (14th, 15th)

φD(mm)	φD code 14th	φD code 15th
6.0	6	0
6.5	6	5
7.0	7	0
7.5	7	5
8.0	8	0
8.5	8	5
9.0	9	0
9.5	9	5
10.0	A	0
10.5	A	5
11.0	B	0
11.5	B	5
12.0	C	0
12.5	C	5
13.0	D	0
13.5	D	5
14.0	E	0
14.5	E	5
15.0	F	0
15.5	F	5
16.0	G	0
16.5	G	5
17.0	H	0
17.5	H	5
18.0	J	0

L code (16th, 17th)

L(mm)	L code 16th	L code 17th
15.0	1	5
16.0	1	6
17.0	1	7
18.0	1	8
19.0	1	9
20.0	2	0
21.0	2	1
22.0	2	2
23.0	2	3
24.0	2	4
25.0	2	5
26.0	2	6
27.0	2	7
28.0	2	8
29.0	2	9
30.0	3	0
31.0	3	1
32.0	3	2
33.0	3	3
34.0	3	4
35.0	3	5
36.0	3	6
37.0	3	7
38.0	3	8
39.0	3	9
40.0	4	0
41.0	4	1
42.0	4	2
43.0	4	3
44.0	4	4
45.0	4	5

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NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For photo flash

PH Series

◆RATINGS (REFERENCE)

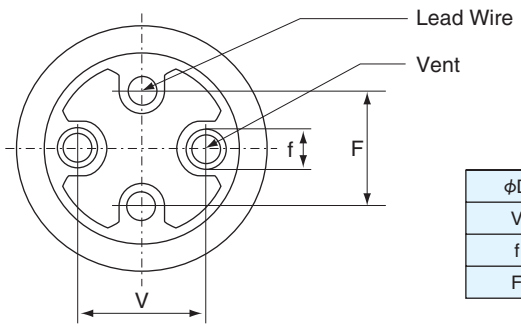
WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Part No.
315	86	10×30	0.06	EPH-3B1E□□860A030S
	122	10×40	0.06	EPH-3B1E□□121A040S
	144	12.5×30	0.06	EPH-3B1E□□1E1C530S
	209	12.5×40	0.06	EPH-3B1E□□211C540S
330	80	10×30	0.06	EPH-331E□□800A030S
	114	10×40	0.06	EPH-331E□□1B1A040S
	137	12.5×30	0.06	EPH-331E□□1D1C530S
	194	12.5×40	0.06	EPH-331E□□1K1C540S

□□ : Enter the appropriate lead forming or taping code.

●Products of vents on the sealing rubber

DIMENSIONS[mm]

<In the case of diameter 10mm>



φD	10
V	(4.6)
f	(1.8)
F	5±0.5

Products of vent on rubber type, please make clearance about 1mm minimum between rubber and board. If it is difficult to make clearance 1mm minimum between rubber and board, please arrange gas escaping hole on the board (same position and 40% minimum diameter from the vent).
The products of dual vents on rubber, requires placement one or two gas escaping hole on the board.

●Products of a vent on the case

Please make the following open space over the vent so that the vent can operate correctly.

Case diameter	Clearance
φ6 to 16mm	2mm minimum
φ16.5mm and up	3mm minimum

Above part numbers are only reference.
Please consult with us about detail specifications (rated voltage, capacitance, case size, type of rubber, etc...).

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Snap-in Aluminum Electrolytic Capacitors

(Large Capacitors)

PART NUMBERING SYSTEM

Product code guide (Snap-in type)

(Example : KMM series, 400V-220μF, ϕ30×30L)

Please refer to the following table

Contents	Code
Polar	E

Series	Code
KMM	KMM

Type	Code
Snap-in	VS
Snap-in	VN
Flat terminal for PCB	LI
For Connector	LR
Horizontal	LC
Straight	VR

Tol. (%)	Code
±20	M

Sleeve material	Terminal plating material	Code
PET	Sn	S
Pb-free PVC		M

1	2 3 4	5 6 7	8 9	10	11 12 13	14	15 16 17	18
E	KMM	401	VS	N	221	M	R30	S
Category	Series code	Voltage code	Terminal code	Dummy terminal code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
6.3	6R3
10	100
25	250
100	101
250	251
315	3B1
⋮	⋮

Terminal #	Code
0	N
1	S
2	D
3	T

Cap.(μF)	Code
39	390
47	470
100	101
470	471
1,000	102
4,700	472
10,000	103
⋮	⋮

ϕD(mm)	Code
20	N
22	P
25.4	Q
30	R
35	A
40	B

L(mm)	Code
15	15
20	20
25	25
30	30
35	35
40	40
45	45
50	50
55	55
60	60

*Refer to the appendix (Part number) for codes not listed here.

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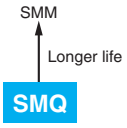
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMQ Series

●Endurance with ripple current : 2,000 hours at 85℃
●Non solvent resistant type
●RoHS Compliant

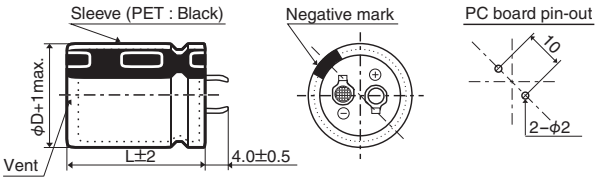


◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−25 to +85℃				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃.				
	Capacitance change	≦±20% of the initial value			
	D. F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±15% of the initial value			
	D. F. (tanδ)	≦150% of the initial specified value			
	Leakage current	≦The initial specified value			

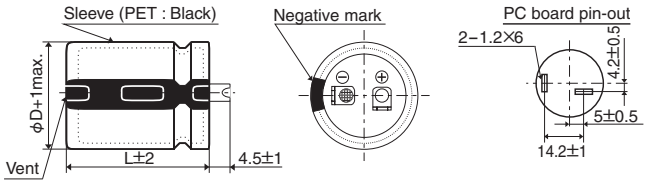
◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

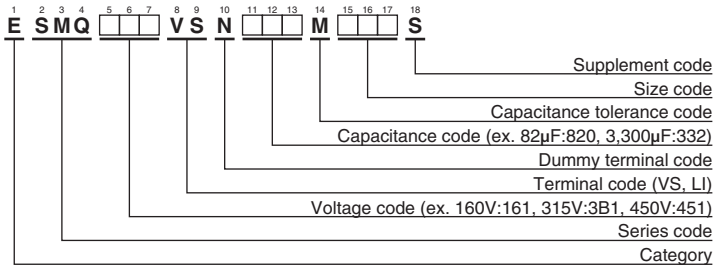


The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
160	560	22×25	0.15	2.25	ESMQ161VSN561MP25S
	680	22×30	0.15	2.50	ESMQ161VSN681MP30S
	820	22×35	0.15	2.75	ESMQ161VSN821MP35S
	1,000	22×40	0.15	3.00	ESMQ161VSN102MP40S
	1,000	25.4×30	0.15	3.00	ESMQ161VSN102MQ30S
	1,200	22×45	0.15	3.25	ESMQ161VSN122MP45S
	1,200	25.4×35	0.15	3.25	ESMQ161VSN122MQ35S
	1,200	30×25	0.15	3.25	ESMQ161VSN122MR25S
	1,500	22×50	0.15	3.73	ESMQ161VSN152MP50S
	1,500	25.4×40	0.15	3.73	ESMQ161VSN152MQ40S
	1,500	30×30	0.15	3.73	ESMQ161VSN152MR30S
	1,500	35×25	0.15	3.73	ESMQ161VSN152MA25S
	1,800	25.4×45	0.15	4.20	ESMQ161VSN182MQ45S
	1,800	30×35	0.15	4.20	ESMQ161VSN182MR35S
	1,800	35×30	0.15	4.20	ESMQ161VSN182MA30S
	2,200	30×40	0.15	4.78	ESMQ161VSN222MR40S
	2,200	35×35	0.15	4.78	ESMQ161VSN222MA35S
	2,700	35×40	0.15	5.45	ESMQ161VSN272MA40S
	3,300	35×45	0.15	5.75	ESMQ161VSN332MA45S
	3,900	35×50	0.15	6.00	ESMQ161VSN392MA50S
180	470	22×25	0.15	2.08	ESMQ181VSN471MP25S
	560	22×30	0.15	2.25	ESMQ181VSN561MP30S
	680	22×30	0.15	2.50	ESMQ181VSN681MP30S
	680	25.4×25	0.15	2.50	ESMQ181VSN681MQ25S
	820	22×35	0.15	2.75	ESMQ181VSN821MP35S
	820	25.4×30	0.15	2.75	ESMQ181VSN821MQ30S
	1,000	22×45	0.15	3.00	ESMQ181VSN102MP45S
	1,000	25.4×35	0.15	3.00	ESMQ181VSN102MQ35S
	1,000	30×25	0.15	3.00	ESMQ181VSN102MR25S
	1,200	22×50	0.15	3.31	ESMQ181VSN122MP50S
	1,200	25.4×40	0.15	3.31	ESMQ181VSN122MQ40S
	1,200	30×30	0.15	3.31	ESMQ181VSN122MR30S
	1,200	35×25	0.15	3.31	ESMQ181VSN122MA25S
	1,500	25.4×45	0.15	3.83	ESMQ181VSN152MQ45S
	1,500	30×35	0.15	3.83	ESMQ181VSN152MR35S
	1,500	35×30	0.15	3.83	ESMQ181VSN152MA30S
	1,800	25.4×50	0.15	4.32	ESMQ181VSN182MQ50S
	1,800	30×40	0.15	4.32	ESMQ181VSN182MR40S
	1,800	35×30	0.15	4.32	ESMQ181VSN182MA30S
	2,200	30×45	0.15	4.92	ESMQ181VSN222MR45S
	2,200	35×40	0.15	4.92	ESMQ181VSN222MA40S
	2,700	35×45	0.15	5.52	ESMQ181VSN272MA45S
	3,300	35×50	0.15	5.75	ESMQ181VSN332MA50S
200	390	22×25	0.15	1.68	ESMQ201VSN391MP25S
	470	22×30	0.15	1.85	ESMQ201VSN471MP30S
	560	22×30	0.15	2.43	ESMQ201VSN561MP30S
	560	25.4×25	0.15	2.43	ESMQ201VSN561MQ25S
	680	22×35	0.15	2.68	ESMQ201VSN681MP35S
	680	25.4×30	0.15	2.68	ESMQ201VSN681MQ30S
	820	22×40	0.15	2.93	ESMQ201VSN821MP40S
	820	25.4×30	0.15	2.93	ESMQ201VSN821MQ30S
	820	30×25	0.15	2.93	ESMQ201VSN821MR25S
	1,000	22×45	0.15	3.25	ESMQ201VSN102MP45S
	1,000	25.4×35	0.15	3.25	ESMQ201VSN102MQ35S
	1,000	30×30	0.15	3.25	ESMQ201VSN102MR30S
	1,000	35×25	0.15	3.25	ESMQ201VSN102MA25S
	1,200	25.4×40	0.15	3.50	ESMQ201VSN122MQ40S
	1,200	30×30	0.15	3.50	ESMQ201VSN122MR30S
	1,200	35×30	0.15	3.50	ESMQ201VSN122MA30S
	1,500	25.4×50	0.15	3.87	ESMQ201VSN152MQ50S
	1,500	30×35	0.15	3.87	ESMQ201VSN152MR35S
	1,500	35×30	0.15	3.87	ESMQ201VSN152MA30S
	1,800	30×45	0.15	4.32	ESMQ201VSN182MR45S
	1,800	35×35	0.15	4.32	ESMQ201VSN182MA35S
	2,200	30×50	0.15	4.92	ESMQ201VSN222MR50S
	2,200	35×40	0.15	4.92	ESMQ201VSN222MA40S
	2,700	35×50	0.15	5.45	ESMQ201VSN272MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
250	270	22×25	0.15	1.31	ESMQ251VSN271MP25S
	330	22×30	0.15	1.75	ESMQ251VSN331MP30S
	390	22×30	0.15	1.91	ESMQ251VSN391MP30S
	390	25.4×25	0.15	1.91	ESMQ251VSN391MQ25S
	470	22×35	0.15	2.11	ESMQ251VSN471MP35S
	470	25.4×30	0.15	2.11	ESMQ251VSN471MQ30S
	560	22×40	0.15	2.25	ESMQ251VSN561MP40S
	560	25.4×30	0.15	2.25	ESMQ251VSN561MQ30S
	560	30×25	0.15	2.25	ESMQ251VSN561MR25S
	680	22×45	0.15	2.50	ESMQ251VSN681MP45S
	680	25.4×35	0.15	2.50	ESMQ251VSN681MQ35S
	680	30×30	0.15	2.50	ESMQ251VSN681MR30S
	820	22×50	0.15	2.77	ESMQ251VSN821MP50S
	820	25.4×40	0.15	2.77	ESMQ251VSN821MQ40S
	820	30×30	0.15	2.77	ESMQ251VSN821MR30S
	820	35×25	0.15	2.77	ESMQ251VSN821MA25S
	1,000	25.4×45	0.15	3.32	ESMQ251VSN102MQ45S
	1,000	30×35	0.15	3.32	ESMQ251VSN102MR35S
	1,000	35×30	0.15	3.32	ESMQ251VSN102MA30S
	1,200	30×40	0.15	3.53	ESMQ251VSN122MR40S
	1,200	35×35	0.15	3.53	ESMQ251VSN122MA35S
	1,500	30×50	0.15	4.04	ESMQ251VSN152MR50S
	1,500	35×40	0.15	4.04	ESMQ251VSN152MA40S
	1,800	35×45	0.15	4.55	ESMQ251VSN182MA45S
315	180	22×25	0.15	1.21	ESMQ3B1VSN181MP25S
	220	22×30	0.15	1.41	ESMQ3B1VSN221MP30S
	270	22×30	0.15	1.60	ESMQ3B1VSN271MP30S
	330	22×40	0.15	1.82	ESMQ3B1VSN331MP40S
	330	25.4×30	0.15	1.82	ESMQ3B1VSN331MQ30S
	330	30×25	0.15	1.82	ESMQ3B1VSN331MR25S
	390	22×45	0.15	2.01	ESMQ3B1VSN391MP45S
	390	25.4×35	0.15	2.01	ESMQ3B1VSN391MQ35S
	390	30×30	0.15	2.01	ESMQ3B1VSN391MR30S
	470	22×50	0.15	2.27	ESMQ3B1VSN471MP50S
	470	25.4×40	0.15	2.27	ESMQ3B1VSN471MQ40S
	470	30×30	0.15	2.27	ESMQ3B1VSN471MR30S
	470	35×25	0.15	2.27	ESMQ3B1VSN471MA25S
	560	25.4×45	0.15	2.56	ESMQ3B1VSN561MQ45S
	560	30×35	0.15	2.56	ESMQ3B1VSN561MR35S
	560	35×30	0.15	2.56	ESMQ3B1VSN561MA30S
	680	30×40	0.15	2.87	ESMQ3B1VSN681MR40S
	680	35×35	0.15	2.87	ESMQ3B1VSN681MA35S
	820	30×45	0.15	3.25	ESMQ3B1VSN821MR45S
	820	35×40	0.15	3.25	ESMQ3B1VSN821MA40S
	1,000	30×50	0.15	3.63	ESMQ3B1VSN102MR50S
	1,000	35×45	0.15	3.63	ESMQ3B1VSN102MA45S
350	150	22×25	0.15	1.12	ESMQ351VSN151MP25S
	180	22×30	0.15	1.22	ESMQ351VSN181MP30S
	220	22×35	0.15	1.44	ESMQ351VSN221MP35S
	270	22×40	0.15	1.66	ESMQ351VSN271MP40S
	270	25.4×30	0.15	1.66	ESMQ351VSN271MQ30S
	330	22×45	0.15	1.88	ESMQ351VSN331MP45S
	330	25.4×35	0.15	1.88	ESMQ351VSN331MQ35S
	390	22×50	0.15	2.06	ESMQ351VSN391MP50S
	390	25.4×40	0.15	2.06	ESMQ351VSN391MQ40S
	390	30×30	0.15	2.06	ESMQ351VSN391MR30S
	390	35×25	0.15	2.06	ESMQ351VSN391MA25S
	470	25.4×45	0.15	2.40	ESMQ351VSN471MQ45S
	470	30×35	0.15	2.40	ESMQ351VSN471MR35S
	470	35×30	0.15	2.40	ESMQ351VSN471MA30S
	560	25.4×50	0.15	2.60	ESMQ351VSN561MQ50S
	560	30×40	0.15	2.60	ESMQ351VSN561MR40S
	560	35×30	0.15	2.60	ESMQ351VSN561MA30S
	680	30×45	0.15	2.96	ESMQ351VSN681MR45S
	680	35×35	0.15	2.96	ESMQ351VSN681MA35S
	820	30×50	0.15	3.25	ESMQ351VSN821MR50S
	820	35×45	0.15	3.25	ESMQ351VSN821MA45S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	1,000	35×50	0.15	3.54	ESMQ351VSN102MA50S
400	120	22×25	0.15	1.02	ESMQ401VSN121MP25S
	150	22×30	0.15	1.16	ESMQ401VSN151MP30S
	180	22×35	0.15	1.44	ESMQ401VSN181MP35S
	220	22×40	0.15	1.49	ESMQ401VSN221MP40S
	220	25.4×30	0.15	1.49	ESMQ401VSN221MQ30S
	270	22×45	0.15	1.67	ESMQ401VSN271MP45S
	270	25.4×35	0.15	1.67	ESMQ401VSN271MQ35S
	270	30×25	0.15	1.67	ESMQ401VSN271MR25S
	330	22×50	0.15	1.90	ESMQ401VSN331MP50S
	330	25.4×40	0.15	1.90	ESMQ401VSN331MQ40S
	330	30×30	0.15	1.90	ESMQ401VSN331MR30S
	330	35×25	0.15	1.90	ESMQ401VSN331MA25S
	390	25.4×45	0.15	2.13	ESMQ401VSN391MQ45S
	390	30×35	0.15	2.13	ESMQ401VSN391MR35S
	390	35×30	0.15	2.13	ESMQ401VSN391MA30S
	470	25.4×50	0.15	2.39	ESMQ401VSN471MQ50S
	470	30×40	0.15	2.39	ESMQ401VSN471MR40S
	470	35×30	0.15	2.39	ESMQ401VSN471MA30S
	560	30×45	0.15	2.69	ESMQ401VSN561MR45S
	560	35×35	0.15	2.69	ESMQ401VSN561MA35S
	680	30×50	0.15	2.96	ESMQ401VSN681MR50S
	680	35×40	0.15	2.96	ESMQ401VSN681MA40S
	820	35×45	0.15	3.25	ESMQ401VSN821MA45S
420	100	22×25	0.20	0.97	ESMQ421VSN101MP25S
	120	22×25	0.20	1.08	ESMQ421VSN121MP25S
	150	22×30	0.20	1.30	ESMQ421VSN151MP30S
	150	25.4×25	0.20	1.30	ESMQ421VSN151MQ25S
	180	22×35	0.20	1.48	ESMQ421VSN181MP35S
	180	25.4×30	0.20	1.48	ESMQ421VSN181MQ30S
	220	22×40	0.20	1.65	ESMQ421VSN221MP40S
	220	25.4×35	0.20	1.65	ESMQ421VSN221MQ35S
	220	30×25	0.20	1.65	ESMQ421VSN221MR25S
	270	22×50	0.20	1.94	ESMQ421VSN271MP50S
	270	25.4×35	0.20	1.94	ESMQ421VSN271MQ35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
420	270	30×30	0.20	1.94	ESMQ421VSN271MR30S
	330	25.4×45	0.20	2.17	ESMQ421VSN331MQ45S
	330	30×35	0.20	2.17	ESMQ421VSN331MR35S
	330	35×30	0.20	2.17	ESMQ421VSN331MA30S
	390	25.4×50	0.20	2.27	ESMQ421VSN391MQ50S
	390	30×35	0.20	2.27	ESMQ421VSN391MR35S
	390	35×30	0.20	2.27	ESMQ421VSN391MA30S
	470	30×40	0.20	2.61	ESMQ421VSN471MR40S
	470	35×35	0.20	2.61	ESMQ421VSN471MA35S
	560	30×50	0.20	2.82	ESMQ421VSN561MR50S
	560	35×40	0.20	2.82	ESMQ421VSN561MA40S
	680	35×45	0.20	3.11	ESMQ421VSN681MA45S
450	82	22×25	0.20	0.83	ESMQ451VSN820MP25S
	100	22×25	0.20	0.93	ESMQ451VSN101MP25S
	120	22×30	0.20	1.04	ESMQ451VSN121MP30S
	150	22×35	0.20	1.19	ESMQ451VSN151MP35S
	150	25.4×25	0.20	1.19	ESMQ451VSN151MQ25S
	180	22×40	0.20	1.35	ESMQ451VSN181MP40S
	180	25.4×30	0.20	1.35	ESMQ451VSN181MQ30S
	220	22×45	0.20	1.55	ESMQ451VSN221MP45S
	220	25.4×40	0.20	1.55	ESMQ451VSN221MQ40S
	220	30×30	0.20	1.55	ESMQ451VSN221MR30S
	220	35×25	0.20	1.55	ESMQ451VSN221MA25S
	270	22×50	0.20	1.78	ESMQ451VSN271MP50S
	270	25.4×40	0.20	1.78	ESMQ451VSN271MQ40S
	270	30×30	0.20	1.78	ESMQ451VSN271MR30S
	330	25.4×50	0.20	2.01	ESMQ451VSN331MQ50S
	330	30×40	0.20	2.01	ESMQ451VSN331MR40S
	330	35×30	0.20	2.01	ESMQ451VSN331MA30S
	390	30×40	0.20	2.24	ESMQ451VSN391MR40S
	390	35×35	0.20	2.24	ESMQ451VSN391MA35S
	470	30×45	0.20	2.53	ESMQ451VSN471MR45S
	470	35×40	0.20	2.53	ESMQ451VSN471MA40S
	560	30×50	0.20	2.82	ESMQ451VSN561MR50S
	560	35×45	0.20	2.82	ESMQ451VSN561MA45S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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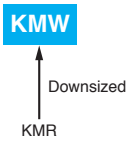
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

New!

KMW Series



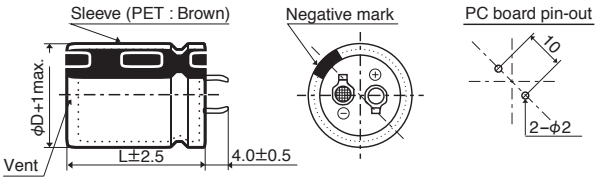
- Downsized from KMR series
- Endurance with ripple current : 2,000 hours at 105℃
- Rated voltage range : 400 to 450Vdc, Capacitance range : 120 to 1,000μF
- Non solvent resistant type
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	400 to 450V		
	Z(−25℃)/Z(+20℃)	8		(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

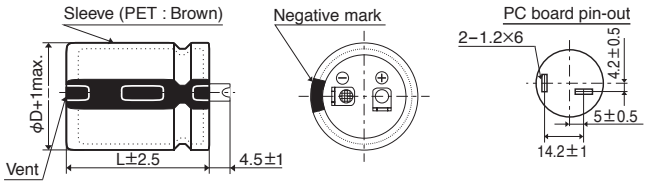
◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

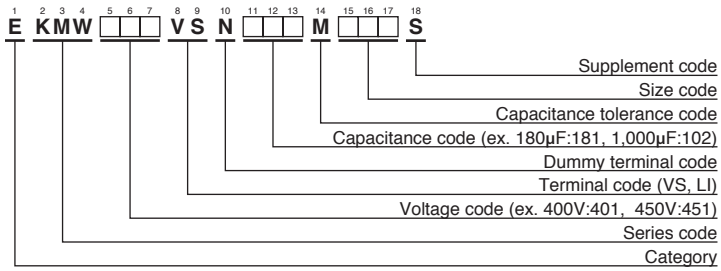


The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

New!

KMW Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
400	150	22×25	0.15	0.91	EKMW401VSN151MP25S
	180	22×30	0.15	1.04	EKMW401VSN181MP30S
	220	22×35	0.15	1.18	EKMW401VSN221MP35S
	220	25.4×25	0.15	1.15	EKMW401VSN221MQ25S
	270	25.4×30	0.15	1.31	EKMW401VSN271MQ30S
	330	22×45	0.15	1.50	EKMW401VSN331MP45S
	330	25.4×35	0.15	1.51	EKMW401VSN331MQ35S
	330	30×25	0.15	1.46	EKMW401VSN331MR25S
	390	22×50	0.15	1.67	EKMW401VSN391MP50S
	390	25.4×40	0.15	1.67	EKMW401VSN391MQ40S
	390	30×30	0.15	1.61	EKMW401VSN391MR30S
	390	35×25	0.15	1.40	EKMW401VSN391MA25S
	470	25.4×45	0.15	1.87	EKMW401VSN471MQ45S
	470	30×35	0.15	1.81	EKMW401VSN471MR35S
	560	30×40	0.15	2.03	EKMW401VSN561MR40S
	560	35×30	0.15	1.70	EKMW401VSN561MA30S
	680	30×45	0.15	2.29	EKMW401VSN681MR45S
	680	30×50	0.15	2.33	EKMW401VSN681MR50S
	680	35×35	0.15	1.90	EKMW401VSN681MA35S
	820	35×40	0.15	2.16	EKMW401VSN821MA40S
	1,000	35×50	0.15	2.50	EKMW401VSN102MA50S
420	120	22×25	0.20	0.78	EKMW421VSN121MP25S
	150	22×30	0.20	0.91	EKMW421VSN151MP30S
	180	25.4×25	0.20	1.02	EKMW421VSN181MQ25S
	220	25.4×30	0.20	1.16	EKMW421VSN221MQ30S
	270	22×45	0.20	1.30	EKMW421VSN271MP45S
	270	25.4×35	0.20	1.34	EKMW421VSN271MQ35S
	270	30×25	0.20	1.28	EKMW421VSN271MR25S
	330	22×50	0.20	1.47	EKMW421VSN331MP50S
	330	25.4×40	0.20	1.51	EKMW421VSN331MQ40S
	330	30×30	0.20	1.43	EKMW421VSN331MR30S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
420	330	35×25	0.20	1.38	EKMW421VSN331MA25S
	390	25.4×45	0.20	1.67	EKMW421VSN391MQ45S
	390	25.4×50	0.20	1.70	EKMW421VSN391MQ50S
	390	30×35	0.20	1.59	EKMW421VSN391MR35S
	470	30×40	0.20	1.79	EKMW421VSN471MR40S
	470	35×30	0.20	1.67	EKMW421VSN471MA30S
	560	30×45	0.20	2.01	EKMW421VSN561MR45S
	560	35×35	0.20	1.85	EKMW421VSN561MA35S
	680	35×40	0.20	2.11	EKMW421VSN681MA40S
450	120	22×25	0.20	0.78	EKMW451VSN121MP25S
	150	22×30	0.20	0.91	EKMW451VSN151MP30S
	150	25.4×25	0.20	0.93	EKMW451VSN151MQ25S
	180	22×35	0.20	1.02	EKMW451VSN181MP35S
	180	25.4×30	0.20	1.05	EKMW451VSN181MQ30S
	220	22×40	0.20	1.15	EKMW451VSN221MP40S
	220	25.4×35	0.20	1.21	EKMW451VSN221MQ35S
	220	30×25	0.20	1.15	EKMW451VSN221MR25S
	270	22×50	0.20	1.36	EKMW451VSN271MP50S
	270	25.4×40	0.20	1.36	EKMW451VSN271MQ40S
	270	30×30	0.20	1.29	EKMW451VSN271MR30S
	330	25.4×45	0.20	1.54	EKMW451VSN331MQ45S
	330	30×35	0.20	1.46	EKMW451VSN331MR35S
	390	25.4×50	0.20	1.70	EKMW451VSN391MQ50S
	390	30×40	0.20	1.63	EKMW451VSN391MR40S
	390	35×30	0.20	1.52	EKMW451VSN391MA30S
	470	30×45	0.20	1.85	EKMW451VSN471MR45S
	470	35×35	0.20	1.77	EKMW451VSN471MA35S
	560	30×50	0.20	2.04	EKMW451VSN561MR50S
	560	35×40	0.20	2.02	EKMW451VSN561MA40S
	680	35×45	0.20	2.16	EKMW451VSN681MA45S
	820	35×50	0.20	2.42	EKMW451VSN821MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
400 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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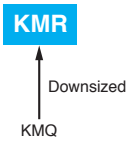
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMR Series

- Downsized 5mm in height from current snap-ins KMQ series
- Max. 50% up ripple current than same case size of KMQ series
- Endurance with ripple current : 2,000 hours at 105℃
- Rated voltage range : 160 to 450Vdc, Capacitance range : 100 to 3,300μF
- For inverter control, switching power supplies
- Non solvent resistant type
- **RoHS Compliant**

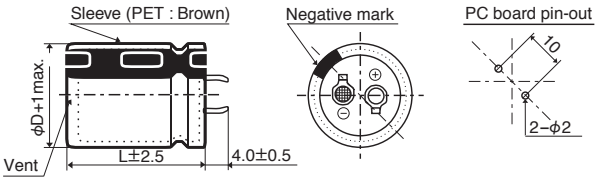


◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−25 to +105℃				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±15% of the initial value			
	D.F. (tanδ)	≦150% of the initial specified value			
	Leakage current	≦The initial specified value			

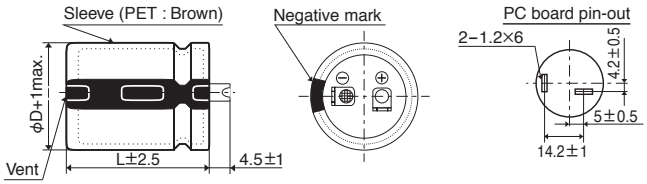
◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

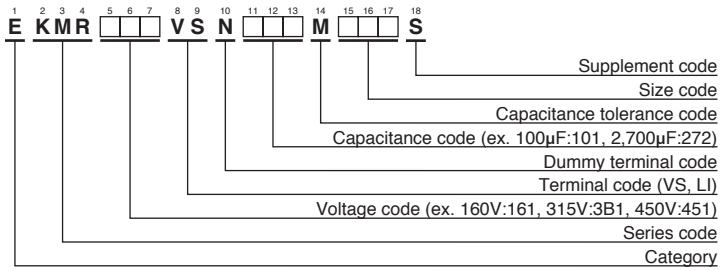


The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMR Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
160	560	22×25	1.58	EKMR161VSN561MP25S
	680	22×30	1.83	EKMR161VSN681MP30S
	820	22×35	2.06	EKMR161VSN821MP35S
	820	25.4×25	1.89	EKMR161VSN821MQ25S
	1,000	22×40	2.33	EKMR161VSN102MP40S
	1,000	25.4×30	2.15	EKMR161VSN102MQ30S
	1,000	30×25	1.90	EKMR161VSN102MR25S
	1,200	22×45	2.61	EKMR161VSN122MP45S
	1,200	22×50	2.69	EKMR161VSN122MP50S
	1,200	25.4×35	2.45	EKMR161VSN122MQ35S
	1,500	25.4×40	2.82	EKMR161VSN152MQ40S
	1,500	25.4×45	2.88	EKMR161VSN152MQ45S
	1,500	30×30	2.39	EKMR161VSN152MR30S
	1,500	35×25	2.17	EKMR161VSN152MA25S
	1,800	25.4×50	3.22	EKMR161VSN182MQ50S
	1,800	30×35	2.73	EKMR161VSN182MR35S
	1,800	30×40	2.82	EKMR161VSN182MR40S
	1,800	35×30	2.47	EKMR161VSN182MA30S
	2,200	30×45	3.23	EKMR161VSN222MR45S
	2,200	35×35	2.79	EKMR161VSN222MA35S
	2,700	30×50	3.66	EKMR161VSN272MR50S
	2,700	35×40	3.23	EKMR161VSN272MA40S
	3,300	35×45	3.68	EKMR161VSN332MA45S
180	470	22×25	1.45	EKMR181VSN471MP25S
	560	22×30	1.66	EKMR181VSN561MP30S
	680	22×35	1.87	EKMR181VSN681MP35S
	680	25.4×25	1.72	EKMR181VSN681MQ25S
	820	22×40	2.11	EKMR181VSN821MP40S
	820	25.4×30	1.94	EKMR181VSN821MQ30S
	1,000	22×45	2.38	EKMR181VSN102MP45S
	1,000	25.4×35	2.24	EKMR181VSN102MQ35S
	1,000	30×25	1.90	EKMR181VSN102MR25S
	1,200	22×50	2.69	EKMR181VSN122MP50S
	1,200	25.4×40	2.52	EKMR181VSN122MQ40S
	1,200	30×30	2.14	EKMR181VSN122MR30S
	1,200	35×25	1.94	EKMR181VSN122MA25S
	1,500	25.4×45	2.88	EKMR181VSN152MQ45S
	1,500	25.4×50	2.94	EKMR181VSN152MQ50S
	1,500	30×35	2.49	EKMR181VSN152MR35S
	1,800	30×40	2.82	EKMR181VSN182MR40S
	1,800	35×30	2.47	EKMR181VSN182MA30S
	2,200	30×45	3.23	EKMR181VSN222MR45S
	2,200	30×50	3.31	EKMR181VSN222MR50S
	2,200	35×35	2.79	EKMR181VSN222MA35S
	2,200	35×40	2.92	EKMR181VSN222MA40S
	2,700	35×45	3.33	EKMR181VSN272MA45S
200	560	22×30	1.66	EKMR201VSN561MP30S
	560	25.4×25	1.56	EKMR201VSN561MQ25S
	680	22×35	1.87	EKMR201VSN681MP35S
	680	25.4×30	1.77	EKMR201VSN681MQ30S
	820	22×40	2.11	EKMR201VSN821MP40S
	820	25.4×35	2.03	EKMR201VSN821MQ35S
	820	30×25	1.72	EKMR201VSN821MR25S
	1,000	22×50	2.45	EKMR201VSN102MP50S
	1,000	25.4×40	2.30	EKMR201VSN102MQ40S
	1,000	30×30	1.95	EKMR201VSN102MR30S
	1,200	25.4×45	2.58	EKMR201VSN122MQ45S
	1,200	30×35	2.23	EKMR201VSN122MR35S
	1,200	35×25	1.94	EKMR201VSN122MA25S
	1,500	25.4×50	2.94	EKMR201VSN152MQ50S
	1,500	30×40	2.58	EKMR201VSN152MR40S
	1,500	35×30	2.25	EKMR201VSN152MA30S
	1,800	30×45	2.92	EKMR201VSN182MR45S
	1,800	35×35	2.53	EKMR201VSN182MA35S
	2,200	30×50	3.31	EKMR201VSN222MR50S
	2,200	35×40	2.92	EKMR201VSN222MA40S
	2,700	35×45	3.33	EKMR201VSN272MA45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
250	330	22×25	1.21	EKMR251VSN331MP25S
	390	22×30	1.38	EKMR251VSN391MP30S
	470	22×35	1.56	EKMR251VSN471MP35S
	560	22×40	1.74	EKMR251VSN561MP40S
	560	25.4×30	1.61	EKMR251VSN561MQ30S
	560	30×25	1.42	EKMR251VSN561MR25S
	680	22×45	1.97	EKMR251VSN681MP45S
	680	25.4×35	1.85	EKMR251VSN681MQ35S
	820	25.4×40	2.08	EKMR251VSN821MQ40S
	820	25.4×45	2.13	EKMR251VSN821MQ45S
	820	30×30	1.77	EKMR251VSN821MR30S
	820	35×25	1.60	EKMR251VSN821MA25S
	1,000	25.4×50	2.40	EKMR251VSN102MQ50S
	1,000	30×35	2.03	EKMR251VSN102MR35S
	1,200	30×40	2.31	EKMR251VSN122MR40S
	1,200	30×45	2.38	EKMR251VSN122MR45S
	1,200	35×35	2.06	EKMR251VSN122MA35S
	1,500	30×50	2.73	EKMR251VSN152MR50S
	1,500	35×40	2.41	EKMR251VSN152MA40S
	1,800	35×45	2.72	EKMR251VSN182MA45S
	2,200	35×50	3.10	EKMR251VSN222MA50S
315	180	22×25	0.91	EKMR3B1VSN181MP25S
	220	22×30	1.06	EKMR3B1VSN221MP30S
	270	22×35	1.20	EKMR3B1VSN271MP35S
	270	25.4×25	1.15	EKMR3B1VSN271MQ25S
	330	22×40	1.37	EKMR3B1VSN331MP40S
	330	25.4×30	1.30	EKMR3B1VSN331MQ30S
	390	22×45	1.52	EKMR3B1VSN391MP45S
	390	25.4×35	1.48	EKMR3B1VSN391MQ35S
	390	30×25	1.39	EKMR3B1VSN391MR25S
	470	22×50	1.72	EKMR3B1VSN471MP50S
	470	25.4×40	1.67	EKMR3B1VSN471MQ40S
	470	30×30	1.57	EKMR3B1VSN471MR30S
	470	35×25	1.52	EKMR3B1VSN471MA25S
	560	25.4×45	1.86	EKMR3B1VSN561MQ45S
	560	30×35	1.78	EKMR3B1VSN561MR35S
	680	25.4×50	2.10	EKMR3B1VSN681MQ50S
	680	30×40	2.03	EKMR3B1VSN681MR40S
	680	35×30	1.90	EKMR3B1VSN681MA30S
	820	30×45	2.31	EKMR3B1VSN821MR45S
	820	35×35	2.13	EKMR3B1VSN821MA35S
	1,000	30×50	2.61	EKMR3B1VSN102MR50S
	1,000	35×40	2.46	EKMR3B1VSN102MA40S
	1,200	35×45	2.78	EKMR3B1VSN122MA45S
	1,200	35×50	2.86	EKMR3B1VSN122MA50S
350	150	22×25	0.84	EKMR351VSN151MP25S
	220	22×30	1.06	EKMR351VSN221MP30S
	220	25.4×25	1.04	EKMR351VSN221MQ25S
	270	22×35	1.20	EKMR351VSN271MP35S
	270	25.4×30	1.18	EKMR351VSN271MQ30S
	330	22×40	1.37	EKMR351VSN331MP40S
	330	22×45	1.40	EKMR351VSN331MP45S
	330	25.4×35	1.36	EKMR351VSN331MQ35S
	330	30×25	1.28	EKMR351VSN331MR25S
	390	22×50	1.56	EKMR351VSN391MP50S
	390	25.4×40	1.52	EKMR351VSN391MQ40S
	390	30×30	1.43	EKMR351VSN391MR30S
	390	35×25	1.38	EKMR351VSN391MA25S
	470	25.4×45	1.71	EKMR351VSN471MQ45S
	560	25.4×50	1.90	EKMR351VSN561MQ50S
	560	30×35	1.78	EKMR351VSN561MR35S
	560	30×40	1.84	EKMR351VSN561MR40S
	560	35×30	1.72	EKMR351VSN561MA30S
	680	30×45	2.10	EKMR351VSN681MR45S
	680	35×35	1.94	EKMR351VSN681MA35S
	820	30×50	2.36	EKMR351VSN821MR50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMR Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
350	820	35×40	2.23	EKMR351VSN821MA40S
	1,000	35×45	2.54	EKMR351VSN102MA45S
	1,200	35×50	2.86	EKMR351VSN122MA50S
400	120	22×25	0.75	EKMR401VSN121MP25S
	180	22×30	0.96	EKMR401VSN181MP30S
	180	25.4×25	0.94	EKMR401VSN181MQ25S
	220	22×35	1.09	EKMR401VSN221MP35S
	220	25.4×30	1.07	EKMR401VSN221MQ30S
	270	22×40	1.24	EKMR401VSN271MP40S
	270	22×45	1.26	EKMR401VSN271MP45S
	270	25.4×35	1.23	EKMR401VSN271MQ35S
	270	30×25	1.16	EKMR401VSN271MR25S
	330	22×50	1.44	EKMR401VSN331MP50S
	330	25.4×40	1.40	EKMR401VSN331MQ40S
	330	30×30	1.31	EKMR401VSN331MR30S
	330	35×25	1.27	EKMR401VSN331MA25S
	390	25.4×45	1.55	EKMR401VSN391MQ45S
	390	30×35	1.49	EKMR401VSN391MR35S
	470	25.4×50	1.74	EKMR401VSN471MQ50S
	470	30×40	1.69	EKMR401VSN471MR40S
	470	35×30	1.58	EKMR401VSN471MA30S
	560	30×45	1.91	EKMR401VSN561MR45S
	560	35×35	1.76	EKMR401VSN561MA35S
	680	30×50	2.15	EKMR401VSN681MR50S
	680	35×40	2.03	EKMR401VSN681MA40S
	820	35×45	2.30	EKMR401VSN821MA45S
	820	35×50	2.37	EKMR401VSN821MA50S
	1,000	35×50	2.50	EKMR401VSN102MA50S
420	120	35×50	0.78	EKMR421VSN121MP25S
	150	22×30	0.91	EKMR421VSN151MP30S
	150	25.4×25	0.89	EKMR421VSN151MQ25S
	180	22×35	1.03	EKMR421VSN181MP35S
	180	25.4×30	1.00	EKMR421VSN181MQ30S
	220	22×40	1.16	EKMR421VSN221MP40S
	220	22×45	1.19	EKMR421VSN221MP45S
	220	25.4×35	1.16	EKMR421VSN221MQ35S
	220	30×25	1.11	EKMR421VSN221MR25S
	270	22×50	1.36	EKMR421VSN271MP50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
420	270	25.4×40	1.32	EKMR421VSN271MQ40S
	270	30×30	1.26	EKMR421VSN271MR30S
	270	35×25	1.26	EKMR421VSN271MA25S
	330	25.4×45	1.49	EKMR421VSN331MQ45S
	330	30×35	1.45	EKMR421VSN331MR35S
	390	25.4×50	1.66	EKMR421VSN391MQ50S
	390	30×40	1.63	EKMR421VSN391MR40S
	390	35×30	1.58	EKMR421VSN391MA30S
	470	30×45	1.85	EKMR421VSN471MR45S
	470	35×35	1.77	EKMR421VSN471MA35S
	560	30×50	2.07	EKMR421VSN561MR50S
	560	35×40	2.02	EKMR421VSN561MA40S
	680	35×45	2.29	EKMR421VSN681MA45S
	820	35×50	2.59	EKMR421VSN821MA50S
450	100	22×25	0.71	EKMR451VSN101MP25S
	120	22×30	0.82	EKMR451VSN121MP30S
	150	22×35	0.94	EKMR451VSN151MP35S
	150	25.4×25	0.89	EKMR451VSN151MQ25S
	180	22×40	1.05	EKMR451VSN181MP40S
	180	25.4×30	1.00	EKMR451VSN181MQ30S
	220	22×45	1.19	EKMR451VSN221MP45S
	220	25.4×35	1.16	EKMR451VSN221MQ35S
	220	30×25	1.11	EKMR451VSN221MR25S
	270	22×50	1.36	EKMR451VSN271MP50S
	270	25.4×40	1.32	EKMR451VSN271MQ40S
	270	25.4×45	1.35	EKMR451VSN271MQ45S
	270	30×30	1.26	EKMR451VSN271MR30S
	270	35×25	1.26	EKMR451VSN271MA25S
	330	25.4×50	1.52	EKMR451VSN331MQ50S
	330	30×35	1.45	EKMR451VSN331MR35S
	330	35×30	1.45	EKMR451VSN331MA30S
	390	30×40	1.63	EKMR451VSN391MR40S
	470	30×45	1.85	EKMR451VSN471MR45S
	470	30×50	1.90	EKMR451VSN471MR50S
	470	35×35	1.77	EKMR451VSN471MA35S
	560	35×40	2.02	EKMR451VSN561MA40S
	560	35×45	2.08	EKMR451VSN561MA45S
	680	35×50	2.36	EKMR451VSN681MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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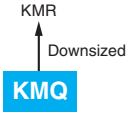
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

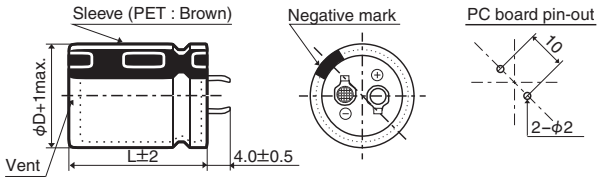


◆SPECIFICATIONS

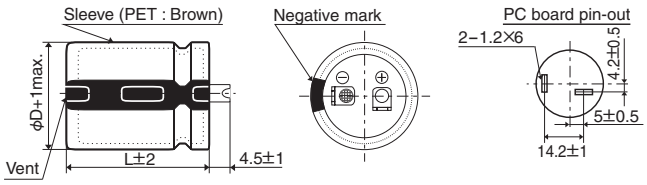
Items	Characteristics								
Category Temperature Range	−40 to +105℃ (35&50Vdc), −25 to +105℃ (160 to 450Vdc)								
Rated Voltage Range	35&50Vdc, 160 to 450Vdc								
Capacitance Tolerance	±20% (M)								(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	35V		50V		160 to 250V	315 to 400V	420 & 450V	
	Nominal capacitance (μF)	10,000>C	C≧10,000	10,000>C	C≧10,000	–	–	–	
	tanδ (Max.)	0.30	0.35	0.25	0.30	0.15	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	35&50V	160 to 250V	315 to 450V					
	Z(−25℃)/Z(+20℃)	4	4	8					
	Z(−40℃)/Z(+20℃)	10	–	–					(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±15% of the initial value							
	D.F. (tanδ)	≦150% of the initial specified value							
	Leakage current	≦The initial specified value							

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

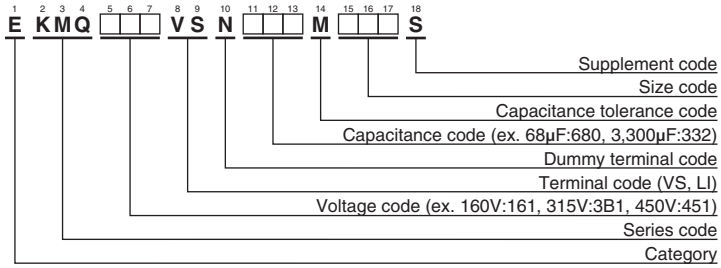


●Terminal Code : LI (φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
35	4,700	22×25	0.30	1.87	EKMQ350VSN472MP25S
	5,600	22×25	0.30	2.04	EKMQ350VSN562MP25S
	5,600	25.4×25	0.30	2.00	EKMQ350VSN562MQ25S
	6,800	22×30	0.30	2.36	EKMQ350VSN682MP30S
	6,800	25.4×25	0.30	2.21	EKMQ350VSN682MQ25S
	8,200	22×35	0.30	2.65	EKMQ350VSN822MP35S
	8,200	25.4×30	0.30	2.49	EKMQ350VSN822MQ30S
	8,200	30×25	0.30	2.62	EKMQ350VSN822MR25S
	10,000	22×40	0.35	3.00	EKMQ350VSN103MP40S
	10,000	25.4×35	0.35	2.88	EKMQ350VSN103MQ35S
	10,000	30×25	0.35	2.90	EKMQ350VSN103MR25S
	12,000	22×50	0.35	3.47	EKMQ350VSN123MP50S
	12,000	25.4×35	0.35	3.15	EKMQ350VSN123MQ35S
	12,000	30×30	0.35	3.25	EKMQ350VSN123MR30S
	12,000	35×25	0.35	3.20	EKMQ350VSN123MA25S
	15,000	25.4×40	0.35	3.61	EKMQ350VSN153MQ40S
	15,000	30×35	0.35	3.78	EKMQ350VSN153MR35S
	15,000	35×25	0.35	3.60	EKMQ350VSN153MA25S
	18,000	25.4×50	0.35	4.14	EKMQ350VSN183MQ50S
	18,000	30×40	0.35	4.30	EKMQ350VSN183MR40S
	18,000	35×30	0.35	4.10	EKMQ350VSN183MA30S
	22,000	30×50	0.35	5.00	EKMQ350VSN223MR50S
	22,000	35×35	0.35	4.64	EKMQ350VSN223MA35S
	27,000	35×40	0.35	5.37	EKMQ350VSN273MA40S
	33,000	35×50	0.35	6.00	EKMQ350VSN333MA50S
50	2,700	22×25	0.25	1.65	EKMQ500VSN272MP25S
	3,300	22×30	0.25	1.92	EKMQ500VSN332MP30S
	3,300	25.4×25	0.25	1.76	EKMQ500VSN332MQ25S
	3,900	22×30	0.25	2.08	EKMQ500VSN392MP30S
	3,900	25.4×25	0.25	2.04	EKMQ500VSN392MQ25S
	4,700	22×35	0.25	2.43	EKMQ500VSN472MP35S
	4,700	25.4×30	0.25	2.50	EKMQ500VSN472MQ30S
	4,700	30×25	0.25	2.29	EKMQ500VSN472MR25S
	5,600	22×40	0.25	2.63	EKMQ500VSN562MP40S
	5,600	25.4×35	0.25	2.61	EKMQ500VSN562MQ35S
	5,600	30×25	0.25	2.80	EKMQ500VSN562MR25S
	6,800	22×50	0.25	3.05	EKMQ500VSN682MP50S
	6,800	25.4×40	0.25	2.94	EKMQ500VSN682MQ40S
	6,800	30×30	0.25	3.30	EKMQ500VSN682MR30S
	6,800	35×25	0.25	2.77	EKMQ500VSN682MA25S
	8,200	25.4×45	0.25	3.60	EKMQ500VSN822MQ45S
	8,200	30×35	0.25	3.60	EKMQ500VSN822MR35S
	8,200	35×30	0.25	3.60	EKMQ500VSN822MA30S
	10,000	25.4×50	0.30	4.00	EKMQ500VSN103MQ50S
	10,000	30×40	0.30	4.00	EKMQ500VSN103MR40S
	10,000	35×30	0.30	4.00	EKMQ500VSN103MA30S
	12,000	30×50	0.30	4.29	EKMQ500VSN123MR50S
	12,000	35×35	0.30	4.37	EKMQ500VSN123MA35S
	15,000	35×40	0.30	4.50	EKMQ500VSN153MA40S
	18,000	35×50	0.30	5.30	EKMQ500VSN183MA50S
160	470	22×25	0.15	1.40	EKMQ161VSN471MP25S
	560	22×30	0.15	1.50	EKMQ161VSN561MP30S
	680	22×30	0.15	1.70	EKMQ161VSN681MP30S
	680	25.4×25	0.15	1.70	EKMQ161VSN681MQ25S
	820	22×35	0.15	2.00	EKMQ161VSN821MP35S
	820	25.4×30	0.15	2.00	EKMQ161VSN821MQ30S
	820	30×25	0.15	2.00	EKMQ161VSN821MR25S
	1,000	22×40	0.15	2.20	EKMQ161VSN102MP40S
	1,000	25.4×35	0.15	2.20	EKMQ161VSN102MQ35S
	1,000	30×25	0.15	2.20	EKMQ161VSN102MR25S
	1,200	25.4×40	0.15	2.30	EKMQ161VSN122MQ40S
	1,200	30×30	0.15	2.30	EKMQ161VSN122MR30S
	1,200	35×25	0.15	2.30	EKMQ161VSN122MA25S
	1,500	25.4×45	0.15	2.50	EKMQ161VSN152MQ45S
	1,500	30×35	0.15	2.50	EKMQ161VSN152MR35S
	1,500	35×30	0.15	2.50	EKMQ161VSN152MA30S
	1,800	25.4×50	0.15	2.70	EKMQ161VSN182MQ50S
160	1,800	30×40	0.15	2.70	EKMQ161VSN182MR40S
	1,800	35×30	0.15	2.70	EKMQ161VSN182MA30S
	2,200	30×45	0.15	2.90	EKMQ161VSN222MR45S
	2,200	35×35	0.15	2.90	EKMQ161VSN222MA35S
	2,700	30×50	0.15	3.10	EKMQ161VSN272MR50S
	2,700	35×40	0.15	3.10	EKMQ161VSN272MA40S
	3,300	35×50	0.15	3.30	EKMQ161VSN332MA50S
180	390	22×25	0.15	1.30	EKMQ181VSN391MP25S
	470	22×30	0.15	1.40	EKMQ181VSN471MP30S
	560	22×30	0.15	1.50	EKMQ181VSN561MP30S
	560	25.4×25	0.15	1.50	EKMQ181VSN561MQ25S
	680	22×35	0.15	1.70	EKMQ181VSN681MP35S
	680	25.4×30	0.15	1.70	EKMQ181VSN681MQ30S
	820	22×40	0.15	2.00	EKMQ181VSN821MP40S
	820	25.4×30	0.15	2.00	EKMQ181VSN821MQ30S
	820	30×25	0.15	2.00	EKMQ181VSN821MR25S
	1,000	22×45	0.15	2.20	EKMQ181VSN102MP45S
	1,000	25.4×40	0.15	2.20	EKMQ181VSN102MQ40S
	1,000	30×30	0.15	2.20	EKMQ181VSN102MR30S
	1,000	35×25	0.15	2.20	EKMQ181VSN102MA25S
	1,200	25.4×45	0.15	2.30	EKMQ181VSN122MQ45S
	1,200	30×35	0.15	2.30	EKMQ181VSN122MR35S
	1,200	35×30	0.15	2.30	EKMQ181VSN122MA30S
	1,500	25.4×50	0.15	2.50	EKMQ181VSN152MQ50S
	1,500	30×40	0.15	2.50	EKMQ181VSN152MR40S
	1,500	35×30	0.15	2.50	EKMQ181VSN152MA30S
	1,800	30×45	0.15	2.70	EKMQ181VSN182MR45S
	1,800	35×35	0.15	2.70	EKMQ181VSN182MA35S
	2,200	30×50	0.15	2.90	EKMQ181VSN222MR50S
	2,200	35×40	0.15	2.90	EKMQ181VSN222MA40S
	2,700	35×50	0.15	3.10	EKMQ181VSN272MA50S
200	390	22×25	0.15	1.31	EKMQ201VSN391MP25S
	470	22×30	0.15	1.45	EKMQ201VSN471MP30S
	560	22×30	0.15	1.67	EKMQ201VSN561MP30S
	560	25.4×25	0.15	1.67	EKMQ201VSN561MQ25S
	680	22×40	0.15	1.75	EKMQ201VSN681MP40S
	680	25.4×30	0.15	1.75	EKMQ201VSN681MQ30S
	820	22×45	0.15	2.04	EKMQ201VSN821MP45S
	820	25.4×35	0.15	2.04	EKMQ201VSN821MQ35S
	820	30×25	0.15	2.04	EKMQ201VSN821MR25S
	1,000	22×50	0.15	2.30	EKMQ201VSN102MP50S
	1,000	25.4×45	0.15	2.30	EKMQ201VSN102MQ45S
	1,000	30×30	0.15	2.30	EKMQ201VSN102MR30S
	1,000	35×25	0.15	2.30	EKMQ201VSN102MA25S
	1,200	25.4×50	0.15	2.65	EKMQ201VSN122MQ50S
	1,200	30×35	0.15	2.65	EKMQ201VSN122MR35S
	1,200	35×30	0.15	2.65	EKMQ201VSN122MA30S
	1,500	30×40	0.15	2.80	EKMQ201VSN152MR40S
	1,500	35×30	0.15	2.80	EKMQ201VSN152MA30S
	1,800	30×45	0.15	3.08	EKMQ201VSN182MR45S
	1,800	35×40	0.15	3.08	EKMQ201VSN182MA40S
	2,200	35×45	0.15	3.48	EKMQ201VSN222MA45S
250	220	22×25	0.15	1.00	EKMQ251VSN221MP25S
	270	22×25	0.15	1.10	EKMQ251VSN271MP25S
	330	22×30	0.15	1.20	EKMQ251VSN331MP30S
	330	25.4×25	0.15	1.20	EKMQ251VSN331MQ25S
	390	22×35	0.15	1.30	EKMQ251VSN391MP35S
	390	25.4×25	0.15	1.30	EKMQ251VSN391MQ25S
	470	22×40	0.15	1.40	EKMQ251VSN471MP40S
	470	25.4×30	0.15	1.40	EKMQ251VSN471MQ30S
	470	30×25	0.15	1.40	EKMQ251VSN471MR25S
	560	22×45	0.15	1.50	EKMQ251VSN561MP45S
	560	25.4×35	0.15	1.50	EKMQ251VSN561MQ35S
	560	30×25	0.15	1.50	EKMQ251VSN561MR25S
	680	22×50	0.15	1.70	EKMQ251VSN681MP50S
	680	25.4×40	0.15	1.70	EKMQ251VSN681MQ40S
	680	30×30	0.15	1.70	EKMQ251VSN681MR30S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
250	680	35×25	0.15	1.70	EKMQ251VSN681MA25S
	820	25.4×45	0.15	2.00	EKMQ251VSN821MQ45S
	820	30×35	0.15	2.00	EKMQ251VSN821MR35S
	820	35×30	0.15	2.00	EKMQ251VSN821MA30S
	1,000	30×40	0.15	2.20	EKMQ251VSN102MR40S
	1,000	35×30	0.15	2.20	EKMQ251VSN102MA30S
	1,200	30×45	0.15	2.30	EKMQ251VSN122MR45S
	1,200	35×35	0.15	2.30	EKMQ251VSN122MA35S
	1,500	35×45	0.15	2.50	EKMQ251VSN152MA45S
	1,800	35×50	0.15	2.70	EKMQ251VSN182MA50S
315	150	22×25	0.15	0.82	EKMQ3B1VSN151MP25S
	180	22×30	0.15	0.90	EKMQ3B1VSN181MP30S
	220	22×30	0.15	1.00	EKMQ3B1VSN221MP30S
	220	25.4×25	0.15	1.00	EKMQ3B1VSN221MQ25S
	270	22×35	0.15	1.10	EKMQ3B1VSN271MP35S
	270	25.4×30	0.15	1.10	EKMQ3B1VSN271MQ30S
	330	22×45	0.15	1.20	EKMQ3B1VSN331MP45S
	330	25.4×35	0.15	1.20	EKMQ3B1VSN331MQ35S
	330	30×25	0.15	1.20	EKMQ3B1VSN331MR25S
	390	22×45	0.15	1.30	EKMQ3B1VSN391MP45S
	390	25.4×40	0.15	1.30	EKMQ3B1VSN391MQ40S
	390	30×30	0.15	1.30	EKMQ3B1VSN391MR30S
	390	35×25	0.15	1.30	EKMQ3B1VSN391MA25S
	470	25.4×45	0.15	1.40	EKMQ3B1VSN471MQ45S
	470	30×35	0.15	1.40	EKMQ3B1VSN471MR35S
	470	35×25	0.15	1.40	EKMQ3B1VSN471MA25S
	560	25.4×50	0.15	1.50	EKMQ3B1VSN561MQ50S
	560	30×40	0.15	1.50	EKMQ3B1VSN561MR40S
	560	35×30	0.15	1.50	EKMQ3B1VSN561MA30S
	680	30×45	0.15	1.70	EKMQ3B1VSN681MR45S
	680	35×35	0.15	1.70	EKMQ3B1VSN681MA35S
	820	30×50	0.15	2.00	EKMQ3B1VSN821MR50S
	820	35×40	0.15	2.00	EKMQ3B1VSN821MA40S
	1,000	35×45	0.15	2.30	EKMQ3B1VSN102MA45S
350	120	22×25	0.15	0.75	EKMQ351VSN121MP25S
	150	22×30	0.15	0.82	EKMQ351VSN151MP30S
	180	22×30	0.15	0.90	EKMQ351VSN181MP30S
	180	25.4×25	0.15	0.90	EKMQ351VSN181MQ25S
	220	22×35	0.15	1.00	EKMQ351VSN221MP35S
	220	25.4×30	0.15	1.00	EKMQ351VSN221MQ30S
	270	22×40	0.15	1.10	EKMQ351VSN271MP40S
	270	25.4×30	0.15	1.10	EKMQ351VSN271MQ30S
	270	30×25	0.15	1.10	EKMQ351VSN271MR25S
	330	22×45	0.15	1.20	EKMQ351VSN331MP45S
	330	25.4×40	0.15	1.20	EKMQ351VSN331MQ40S
	330	30×30	0.15	1.20	EKMQ351VSN331MR30S
	390	25.4×45	0.15	1.30	EKMQ351VSN391MQ45S
	390	30×35	0.15	1.30	EKMQ351VSN391MR35S
	470	25.4×50	0.15	1.40	EKMQ351VSN471MQ50S
	470	30×35	0.15	1.40	EKMQ351VSN471MR35S
	470	35×30	0.15	1.40	EKMQ351VSN471MA30S
	560	30×45	0.15	1.50	EKMQ351VSN561MR45S
	560	35×35	0.15	1.50	EKMQ351VSN561MA35S
	680	30×50	0.15	1.70	EKMQ351VSN681MR50S
	680	35×40	0.15	1.70	EKMQ351VSN681MA40S
	820	35×45	0.15	1.90	EKMQ351VSN821MA45S
400	100	22×25	0.15	0.70	EKMQ401VSN101MP25S
	120	22×30	0.15	0.75	EKMQ401VSN121MP30S
	150	22×30	0.15	0.88	EKMQ401VSN151MP30S
	150	25.4×25	0.15	0.88	EKMQ401VSN151MQ25S
	180	22×35	0.15	0.95	EKMQ401VSN181MP35S
	180	25.4×30	0.15	0.95	EKMQ401VSN181MQ30S
	220	22×45	0.15	1.10	EKMQ401VSN221MP45S
	220	25.4×35	0.15	1.10	EKMQ401VSN221MQ35S
	220	30×25	0.15	1.10	EKMQ401VSN221MR25S
	270	22×50	0.15	1.22	EKMQ401VSN271MP50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	270	25.4×40	0.15	1.22	EKMQ401VSN271MQ40S
	270	30×30	0.15	1.22	EKMQ401VSN271MR30S
	270	35×25	0.15	1.22	EKMQ401VSN271MA25S
	330	25.4×45	0.15	1.44	EKMQ401VSN331MQ45S
	330	30×35	0.15	1.44	EKMQ401VSN331MR35S
	330	35×30	0.15	1.44	EKMQ401VSN331MA30S
	390	25.4×50	0.15	1.55	EKMQ401VSN391MQ50S
	390	30×40	0.15	1.55	EKMQ401VSN391MR40S
	390	35×30	0.15	1.55	EKMQ401VSN391MA30S
	470	30×45	0.15	1.68	EKMQ401VSN471MR45S
	470	35×35	0.15	1.68	EKMQ401VSN471MA35S
	560	30×50	0.15	1.90	EKMQ401VSN561MR50S
	560	35×40	0.15	1.90	EKMQ401VSN561MA40S
	680	35×45	0.15	2.12	EKMQ401VSN681MA45S
420	82	22×25	0.20	0.64	EKMQ421VSN820MP25S
	100	22×25	0.20	0.66	EKMQ421VSN101MP25S
	100	25.4×25	0.20	0.66	EKMQ421VSN101MQ25S
	120	22×30	0.20	0.81	EKMQ421VSN121MP30S
	120	25.4×25	0.20	0.81	EKMQ421VSN121MQ25S
	150	22×35	0.20	0.84	EKMQ421VSN151MP35S
	150	25.4×30	0.20	0.84	EKMQ421VSN151MQ30S
	150	30×25	0.20	0.84	EKMQ421VSN151MR25S
	180	22×40	0.20	0.91	EKMQ421VSN181MP40S
	180	25.4×30	0.20	0.91	EKMQ421VSN181MQ30S
	180	30×25	0.20	0.91	EKMQ421VSN181MR25S
	220	22×45	0.20	1.05	EKMQ421VSN221MP45S
	220	25.4×35	0.20	1.05	EKMQ421VSN221MQ35S
	220	30×30	0.20	1.05	EKMQ421VSN221MR30S
	220	35×25	0.20	1.05	EKMQ421VSN221MA25S
	270	25.4×40	0.20	1.25	EKMQ421VSN271MQ40S
	270	30×30	0.20	1.25	EKMQ421VSN271MR30S
	270	35×25	0.20	1.25	EKMQ421VSN271MA25S
	330	25.4×50	0.20	1.42	EKMQ421VSN331MQ50S
	330	30×35	0.20	1.42	EKMQ421VSN331MR35S
	330	35×30	0.20	1.42	EKMQ421VSN331MA30S
	390	30×40	0.20	1.61	EKMQ421VSN391MR40S
	390	35×35	0.20	1.61	EKMQ421VSN391MA35S
	470	30×45	0.20	1.86	EKMQ421VSN471MR45S
	470	35×40	0.20	1.86	EKMQ421VSN471MA40S
	560	35×45	0.20	2.10	EKMQ421VSN561MA45S
	680	35×50	0.20	2.20	EKMQ421VSN681MA50S
450	68	22×25	0.20	0.50	EKMQ451VSN680MP25S
	82	22×30	0.20	0.56	EKMQ451VSN820MP30S
	100	22×30	0.20	0.64	EKMQ451VSN101MP30S
	100	25.4×25	0.20	0.64	EKMQ451VSN101MQ25S
	120	22×35	0.20	0.72	EKMQ451VSN121MP35S
	120	25.4×30	0.20	0.72	EKMQ451VSN121MQ30S
	150	22×40	0.20	0.79	EKMQ451VSN151MP40S
	150	25.4×30	0.20	0.79	EKMQ451VSN151MQ30S
	150	30×25	0.20	0.79	EKMQ451VSN151MR25S
	180	22×45	0.20	0.87	EKMQ451VSN181MP45S
	180	25.4×40	0.20	0.87	EKMQ451VSN181MQ40S
	180	30×30	0.20	0.87	EKMQ451VSN181MR30S
	220	25.4×45	0.20	1.00	EKMQ451VSN221MQ45S
	220	30×30	0.20	1.00	EKMQ451VSN221MR30S
	220	35×25	0.20	1.00	EKMQ451VSN221MA25S
	270	25.4×50	0.20	1.19	EKMQ451VSN271MQ50S
	270	30×40	0.20	1.19	EKMQ451VSN271MR40S
	270	35×30	0.20	1.19	EKMQ451VSN271MA30S
	330	30×45	0.20	1.38	EKMQ451VSN331MR45S
	330	35×35	0.20	1.38	EKMQ451VSN331MA35S
	390	30×50	0.20	1.55	EKMQ451VSN391MR50S
	390	35×40	0.20	1.55	EKMQ451VSN391MA40S
	470	35×45	0.20	1.74	EKMQ451VSN471MA45S
	560	35×50	0.20	1.90	EKMQ451VSN561MA50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
35, 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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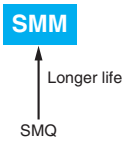
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

SMM Series

- Longer life from SMQ series
- Endurance with ripple current : 3,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

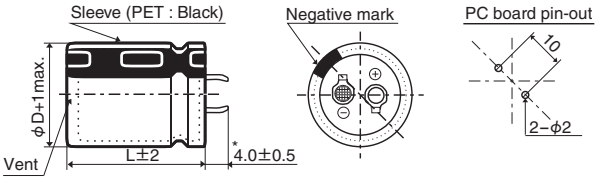


◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +85℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 85℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

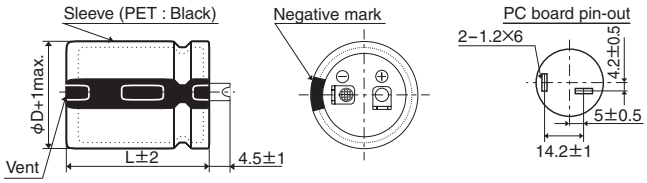
●Terminal Code : VS (φ20 to φ35) : Standard



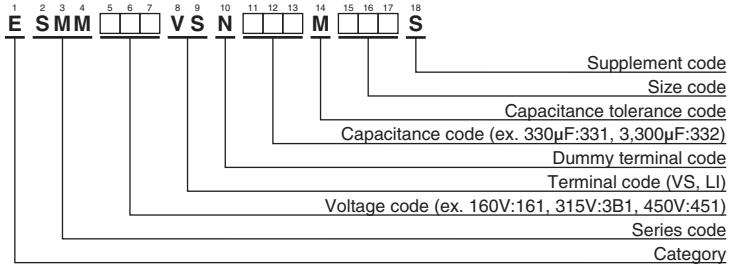
*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

SMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
160	270	20×25	0.15	1.28	ESMM161VSN271MN25S
	270	22×20	0.15	1.30	ESMM161VSN271MP20S
	330	20×25	0.15	1.55	ESMM161VSN331MN25S
	390	20×30	0.15	1.63	ESMM161VSN391MN30S
	390	22×25	0.15	1.63	ESMM161VSN391MP25S
	390	25.4×20	0.15	1.62	ESMM161VSN391MQ20S
	470	20×30	0.15	1.90	ESMM161VSN471MN30S
	470	22×30	0.15	1.86	ESMM161VSN471MP30S
	470	25.4×25	0.15	1.86	ESMM161VSN471MQ25S
	560	20×35	0.15	2.14	ESMM161VSN561MN35S
	560	22×30	0.15	2.15	ESMM161VSN561MP30S
	560	25.4×25	0.15	2.15	ESMM161VSN561MQ25S
	560	30×20	0.15	2.05	ESMM161VSN561MR20S
	680	20×40	0.15	2.35	ESMM161VSN681MN40S
	680	22×35	0.15	2.35	ESMM161VSN681MP35S
	680	25.4×30	0.15	2.33	ESMM161VSN681MQ30S
	680	30×25	0.15	2.33	ESMM161VSN681MR25S
	680	35×20	0.15	2.26	ESMM161VSN681MA20S
	820	20×45	0.15	2.64	ESMM161VSN821MN45S
	820	22×40	0.15	2.68	ESMM161VSN821MP40S
	820	25.4×30	0.15	2.65	ESMM161VSN821MQ30S
	820	30×25	0.15	2.64	ESMM161VSN821MR25S
	820	35×20	0.15	2.49	ESMM161VSN821MA20S
	1,000	22×45	0.15	3.02	ESMM161VSN102MP45S
	1,000	25.4×35	0.15	3.00	ESMM161VSN102MQ35S
	1,000	30×30	0.15	2.96	ESMM161VSN102MR30S
	1,000	35×25	0.15	3.13	ESMM161VSN102MA25S
	1,200	22×50	0.15	3.47	ESMM161VSN122MP50S
	1,200	25.4×40	0.15	3.43	ESMM161VSN122MQ40S
	1,200	30×30	0.15	3.41	ESMM161VSN122MR30S
	1,200	35×25	0.15	3.40	ESMM161VSN122MA25S
	1,500	25.4×50	0.15	3.96	ESMM161VSN152MQ50S
	1,500	30×35	0.15	3.96	ESMM161VSN152MR35S
	1,500	35×30	0.15	3.94	ESMM161VSN152MA30S
	1,800	30×40	0.15	4.31	ESMM161VSN182MR40S
	1,800	35×35	0.15	4.28	ESMM161VSN182MA35S
	2,200	30×50	0.15	4.96	ESMM161VSN222MR50S
	2,200	35×40	0.15	4.96	ESMM161VSN222MA40S
	2,700	35×45	0.15	5.57	ESMM161VSN272MA45S
	3,300	35×50	0.15	6.21	ESMM161VSN332MA50S
180	220	22×20	0.15	1.18	ESMM181VSN221MP20S
	270	20×25	0.15	1.29	ESMM181VSN271MN25S
	330	20×30	0.15	1.77	ESMM181VSN331MN30S
	330	22×25	0.15	1.77	ESMM181VSN331MP25S
	330	25.4×20	0.15	1.49	ESMM181VSN331MQ20S
	390	20×30	0.15	1.84	ESMM181VSN391MN30S
	390	22×25	0.15	1.84	ESMM181VSN391MP25S
	470	20×35	0.15	1.91	ESMM181VSN471MN35S
	470	22×30	0.15	1.91	ESMM181VSN471MP30S
	470	25.4×25	0.15	2.08	ESMM181VSN471MQ25S
	470	30×20	0.15	1.88	ESMM181VSN471MR20S
	560	20×40	0.15	2.15	ESMM181VSN561MN40S
	560	22×35	0.15	2.25	ESMM181VSN561MP35S
	560	25.4×25	0.15	2.25	ESMM181VSN561MQ25S
	680	20×45	0.15	2.41	ESMM181VSN681MN45S
	680	22×35	0.15	2.48	ESMM181VSN681MP35S
	680	25.4×30	0.15	2.50	ESMM181VSN681MQ30S
	680	30×25	0.15	2.46	ESMM181VSN681MR25S
	680	35×20	0.15	2.26	ESMM181VSN681MA20S
	820	20×50	0.15	2.72	ESMM181VSN821MN50S
	820	22×40	0.15	2.86	ESMM181VSN821MP40S
	820	25.4×35	0.15	2.75	ESMM181VSN821MQ35S
	820	30×25	0.15	2.69	ESMM181VSN821MR25S
	1,000	22×50	0.15	3.10	ESMM181VSN102MP50S
	1,000	25.4×40	0.15	3.06	ESMM181VSN102MQ40S
	1,000	30×30	0.15	3.10	ESMM181VSN102MR30S
	1,000	35×25	0.15	2.98	ESMM181VSN102MA25S
180	1,200	25.4×45	0.15	3.63	ESMM181VSN122MQ45S
	1,200	30×35	0.15	3.55	ESMM181VSN122MR35S
	1,200	35×30	0.15	3.49	ESMM181VSN122MA30S
	1,500	30×40	0.15	4.10	ESMM181VSN152MR40S
	1,500	35×35	0.15	4.02	ESMM181VSN152MA35S
	1,800	30×45	0.15	4.55	ESMM181VSN182MR45S
	1,800	35×35	0.15	4.54	ESMM181VSN182MA35S
	2,200	35×40	0.15	4.83	ESMM181VSN222MA40S
	2,700	35×50	0.15	5.30	ESMM181VSN272MA50S
200	220	20×25	0.15	1.19	ESMM201VSN221MN25S
	220	22×20	0.15	1.18	ESMM201VSN221MP20S
	270	20×25	0.15	1.39	ESMM201VSN271MN25S
	270	22×25	0.15	1.37	ESMM201VSN271MP25S
	270	25.4×20	0.15	1.35	ESMM201VSN271MQ20S
	330	20×30	0.15	1.56	ESMM201VSN331MN30S
	330	22×25	0.15	1.51	ESMM201VSN331MP25S
	330	25.4×20	0.15	1.49	ESMM201VSN331MQ20S
	390	20×35	0.15	1.74	ESMM201VSN391MN35S
	390	22×30	0.15	1.73	ESMM201VSN391MP30S
	390	25.4×25	0.15	1.71	ESMM201VSN391MQ25S
	390	30×20	0.15	1.71	ESMM201VSN391MR20S
	470	20×35	0.15	2.03	ESMM201VSN471MN35S
	470	22×30	0.15	1.97	ESMM201VSN471MP30S
	470	25.4×25	0.15	1.95	ESMM201VSN471MQ25S
	470	30×20	0.15	1.88	ESMM201VSN471MR20S
	560	20×40	0.15	2.18	ESMM201VSN561MN40S
	560	22×35	0.15	2.18	ESMM201VSN561MP35S
	560	25.4×30	0.15	2.15	ESMM201VSN561MQ30S
	560	30×25	0.15	2.15	ESMM201VSN561MR25S
	560	35×20	0.15	2.05	ESMM201VSN561MA20S
	680	20×50	0.15	2.48	ESMM201VSN681MN50S
	680	22×40	0.15	2.48	ESMM201VSN681MP40S
	680	25.4×30	0.15	2.48	ESMM201VSN681MQ30S
	680	30×25	0.15	2.48	ESMM201VSN681MR25S
	680	35×20	0.15	2.36	ESMM201VSN681MA20S
	820	22×45	0.15	2.81	ESMM201VSN821MP45S
	820	25.4×35	0.15	2.79	ESMM201VSN821MQ35S
	820	30×30	0.15	2.80	ESMM201VSN821MR30S
	820	35×25	0.15	2.83	ESMM201VSN821MA25S
	1,000	22×50	0.15	3.28	ESMM201VSN102MP50S
	1,000	25.4×40	0.15	3.28	ESMM201VSN102MQ40S
	1,000	30×35	0.15	3.15	ESMM201VSN102MR35S
	1,000	35×30	0.15	3.26	ESMM201VSN102MA30S
	1,200	25.4×45	0.15	3.61	ESMM201VSN122MQ45S
	1,200	30×35	0.15	3.61	ESMM201VSN122MR35S
	1,200	35×30	0.15	3.57	ESMM201VSN122MA30S
	1,500	30×45	0.15	4.13	ESMM201VSN152MR45S
	1,500	35×35	0.15	4.06	ESMM201VSN152MA35S
	1,800	30×50	0.15	4.60	ESMM201VSN182MR50S
	1,800	35×40	0.15	4.59	ESMM201VSN182MA40S
	2,200	35×45	0.15	5.25	ESMM201VSN222MA45S
220	180	22×20	0.15	1.06	ESMM221VSN181MP20S
	220	20×25	0.15	1.25	ESMM221VSN221MN25S
	270	20×30	0.15	1.46	ESMM221VSN271MN30S
	270	22×25	0.15	1.47	ESMM221VSN271MP25S
	270	25.4×20	0.15	1.35	ESMM221VSN271MQ20S
	330	20×35	0.15	1.64	ESMM221VSN331MN35S
	330	22×30	0.15	1.70	ESMM221VSN331MP30S
	330	25.4×25	0.15	1.69	ESMM221VSN331MQ25S
	330	30×20	0.15	1.58	ESMM221VSN331MR20S
	390	20×35	0.15	1.84	ESMM221VSN391MN35S
	390	22×30	0.15	1.89	ESMM221VSN391MP30S
	390	25.4×25	0.15	1.84	ESMM221VSN391MQ25S
	390	30×20	0.15	1.71	ESMM221VSN391MR20S
	470	20×40	0.15	2.12	ESMM221VSN471MN40S
	470	22×35	0.15	2.08	ESMM221VSN471MP35S
	470	25.4×30	0.15	2.08	ESMM221VSN471MQ30S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

SMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
220	470	30×25	0.15	2.12	ESMM221VSN471MR25S
	470	35×20	0.15	1.88	ESMM221VSN471MA20S
	560	20×50	0.15	2.33	ESMM221VSN561MN50S
	560	22×40	0.15	2.33	ESMM221VSN561MP40S
	560	25.4×35	0.15	2.38	ESMM221VSN561MQ35S
	560	30×25	0.15	2.31	ESMM221VSN561MR25S
	560	35×20	0.15	2.14	ESMM221VSN561MA20S
	680	22×45	0.15	2.63	ESMM221VSN681MP45S
	680	25.4×35	0.15	2.68	ESMM221VSN681MQ35S
	680	30×30	0.15	2.62	ESMM221VSN681MR30S
	680	35×25	0.15	2.58	ESMM221VSN681MA25S
	820	25.4×45	0.15	3.01	ESMM221VSN821MQ45S
	820	30×35	0.15	2.99	ESMM221VSN821MR35S
	820	35×30	0.15	2.79	ESMM221VSN821MA30S
	1,000	25.4×50	0.15	3.40	ESMM221VSN102MQ50S
	1,000	30×35	0.15	3.42	ESMM221VSN102MR35S
	1,000	35×30	0.15	3.29	ESMM221VSN102MA30S
	1,200	30×40	0.15	3.88	ESMM221VSN122MR40S
	1,200	35×35	0.15	3.68	ESMM221VSN122MA35S
	1,500	30×50	0.15	4.44	ESMM221VSN152MR50S
	1,500	35×40	0.15	4.10	ESMM221VSN152MA40S
	1,800	35×45	0.15	4.52	ESMM221VSN182MA45S
250	150	22×20	0.15	0.97	ESMM251VSN151MP20S
	180	20×25	0.15	1.20	ESMM251VSN181MN25S
	180	22×20	0.15	1.06	ESMM251VSN181MP20S
	220	20×25	0.15	1.26	ESMM251VSN221MN25S
	220	22×25	0.15	1.24	ESMM251VSN221MP25S
	220	25.4×20	0.15	1.22	ESMM251VSN221MQ20S
	270	20×30	0.15	1.42	ESMM251VSN271MN30S
	270	22×25	0.15	1.50	ESMM251VSN271MP25S
	330	20×35	0.15	1.68	ESMM251VSN331MN35S
	330	22×30	0.15	1.66	ESMM251VSN331MP30S
	330	25.4×25	0.15	1.61	ESMM251VSN331MQ25S
	330	30×20	0.15	1.58	ESMM251VSN331MR20S
	390	20×40	0.15	1.92	ESMM251VSN391MN40S
	390	22×35	0.15	1.88	ESMM251VSN391MP35S
	390	25.4×30	0.15	1.88	ESMM251VSN391MQ30S
	390	30×25	0.15	1.86	ESMM251VSN391MR25S
	390	35×20	0.15	1.71	ESMM251VSN391MA20S
	470	20×50	0.15	2.06	ESMM251VSN471MN50S
	470	22×35	0.15	2.15	ESMM251VSN471MP35S
	470	25.4×35	0.15	2.15	ESMM251VSN471MQ35S
	470	30×25	0.15	2.05	ESMM251VSN471MR25S
	470	35×20	0.15	1.88	ESMM251VSN471MA20S
	560	22×40	0.15	2.48	ESMM251VSN561MP40S
	560	25.4×35	0.15	2.35	ESMM251VSN561MQ35S
	560	30×25	0.15	2.35	ESMM251VSN561MR25S
	680	22×50	0.15	2.61	ESMM251VSN681MP50S
	680	25.4×40	0.15	2.67	ESMM251VSN681MQ40S
	680	30×30	0.15	2.71	ESMM251VSN681MR30S
	680	35×25	0.15	2.58	ESMM251VSN681MA25S
	820	25.4×45	0.15	3.01	ESMM251VSN821MQ45S
	820	30×35	0.15	2.98	ESMM251VSN821MR35S
	820	35×30	0.15	2.96	ESMM251VSN821MA30S
	1,000	30×40	0.15	3.56	ESMM251VSN102MR40S
	1,000	35×35	0.15	3.48	ESMM251VSN102MA35S
	1,200	30×45	0.15	3.99	ESMM251VSN122MR45S
	1,200	35×35	0.15	3.84	ESMM251VSN122MA35S
	1,500	35×40	0.15	4.33	ESMM251VSN152MA40S
	1,800	35×50	0.15	4.54	ESMM251VSN182MA50S
315	100	22×20	0.15	0.79	ESMM3B1VSN101MP20S
	120	20×25	0.15	0.89	ESMM3B1VSN121MN25S
	120	25.4×20	0.15	0.90	ESMM3B1VSN121MQ20S
	150	20×30	0.15	1.05	ESMM3B1VSN151MN30S
	150	22×25	0.15	1.06	ESMM3B1VSN151MP25S
	150	25.4×20	0.15	1.00	ESMM3B1VSN151MQ20S
	180	20×35	0.15	1.18	ESMM3B1VSN181MN35S
315	180	22×30	0.15	1.29	ESMM3B1VSN181MP30S
	180	25.4×25	0.15	1.38	ESMM3B1VSN181MQ25S
	180	30×20	0.15	1.16	ESMM3B1VSN181MR20S
	220	20×35	0.15	1.30	ESMM3B1VSN221MN35S
	220	22×30	0.15	1.41	ESMM3B1VSN221MP30S
	220	25.4×25	0.15	1.47	ESMM3B1VSN221MQ25S
	220	30×20	0.15	1.28	ESMM3B1VSN221MR20S
	270	20×45	0.15	1.52	ESMM3B1VSN271MN45S
	270	22×35	0.15	1.68	ESMM3B1VSN271MP35S
	270	25.4×30	0.15	1.70	ESMM3B1VSN271MQ30S
	270	30×25	0.15	1.55	ESMM3B1VSN271MR25S
	270	35×20	0.15	1.43	ESMM3B1VSN271MA20S
	330	20×50	0.15	1.73	ESMM3B1VSN331MN50S
	330	22×40	0.15	1.91	ESMM3B1VSN331MP40S
	330	25.4×35	0.15	1.94	ESMM3B1VSN331MQ35S
	330	30×25	0.15	1.98	ESMM3B1VSN331MR25S
	390	22×45	0.15	2.07	ESMM3B1VSN391MP45S
	390	25.4×40	0.15	2.11	ESMM3B1VSN391MQ40S
	390	30×30	0.15	2.15	ESMM3B1VSN391MR30S
	390	35×25	0.15	1.95	ESMM3B1VSN391MA25S
	470	25.4×45	0.15	2.31	ESMM3B1VSN471MQ45S
	470	30×35	0.15	2.38	ESMM3B1VSN471MR35S
	470	35×30	0.15	2.46	ESMM3B1VSN471MA30S
	560	25.4×50	0.15	2.46	ESMM3B1VSN561MQ50S
	560	30×35	0.15	2.63	ESMM3B1VSN561MR35S
	560	35×30	0.15	2.69	ESMM3B1VSN561MA30S
	680	30×45	0.15	2.82	ESMM3B1VSN681MR45S
	680	35×35	0.15	3.05	ESMM3B1VSN681MA35S
	820	30×50	0.15	3.28	ESMM3B1VSN821MR50S
	820	35×40	0.15	3.45	ESMM3B1VSN821MA40S
	1,000	35×45	0.15	3.59	ESMM3B1VSN102MA45S
350	82	22×20	0.15	0.72	ESMM351VSN820MP20S
	100	20×25	0.15	0.81	ESMM351VSN101MN25S
	120	20×30	0.15	0.96	ESMM351VSN121MN30S
	120	22×25	0.15	1.04	ESMM351VSN121MP25S
	120	25.4×20	0.15	0.90	ESMM351VSN121MQ20S
	150	20×30	0.15	1.10	ESMM351VSN151MN30S
	150	22×30	0.15	1.20	ESMM351VSN151MP30S
	150	25.4×25	0.15	1.22	ESMM351VSN151MQ25S
	150	30×20	0.15	1.06	ESMM351VSN151MR20S
	180	20×35	0.15	1.24	ESMM351VSN181MN35S
	180	22×30	0.15	1.34	ESMM351VSN181MP30S
	180	25.4×25	0.15	1.37	ESMM351VSN181MQ25S
	180	30×20	0.15	1.16	ESMM351VSN181MR20S
	220	20×45	0.15	1.37	ESMM351VSN221MN45S
	220	22×35	0.15	1.47	ESMM351VSN221MP35S
	220	25.4×30	0.15	1.53	ESMM351VSN221MQ30S
	220	30×25	0.15	1.54	ESMM351VSN221MR25S
	220	35×20	0.15	1.29	ESMM351VSN221MA20S
	270	20×50	0.15	1.56	ESMM351VSN271MN50S
	270	22×40	0.15	1.70	ESMM351VSN271MP40S
	270	25.4×35	0.15	1.73	ESMM351VSN271MQ35S
	270	30×25	0.15	1.80	ESMM351VSN271MR25S
	270	35×20	0.15	1.49	ESMM351VSN271MA20S
	330	22×45	0.15	1.87	ESMM351VSN331MP45S
	330	25.4×35	0.15	1.97	ESMM351VSN331MQ35S
	330	30×30	0.15	2.03	ESMM351VSN331MR30S
	330	35×25	0.15	1.80	ESMM351VSN331MA25S
	390	25.4×40	0.15	2.14	ESMM351VSN391MQ40S
	390	30×35	0.15	2.23	ESMM351VSN391MR35S
	390	35×30	0.15	2.30	ESMM351VSN391MA30S
	470	25.4×50	0.15	2.55	ESMM351VSN471MQ50S
	470	30×35	0.15	2.53	ESMM351VSN471MR35S
	470	35×30	0.15	2.55	ESMM351VSN471MA30S
	560	30×40	0.15	2.73	ESMM351VSN561MR40S
	560	35×35	0.15	2.75	ESMM351VSN561MA35S
	680	30×50	0.15	3.15	ESMM351VSN681MR50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 85℃

SMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	680	35×40	0.15	3.15	ESMM351VSN681MA40S
	820	35×45	0.15	3.47	ESMM351VSN821MA45S
	1,000	35×50	0.15	3.60	ESMM351VSN102MA50S
400	68	20×25	0.15	0.75	ESMM401VSN680MN25S
	68	22×20	0.15	0.65	ESMM401VSN680MP20S
	82	20×25	0.15	0.82	ESMM401VSN820MN25S
	82	22×25	0.15	0.84	ESMM401VSN820MP25S
	82	25.4×20	0.15	0.74	ESMM401VSN820MQ20S
	100	20×30	0.15	0.95	ESMM401VSN101MN30S
	100	22×25	0.15	0.99	ESMM401VSN101MP25S
	100	25.4×20	0.15	0.82	ESMM401VSN101MQ20S
	120	20×35	0.15	1.07	ESMM401VSN121MN35S
	120	22×30	0.15	1.09	ESMM401VSN121MP30S
	120	25.4×25	0.15	1.13	ESMM401VSN121MQ25S
	120	30×20	0.15	0.95	ESMM401VSN121MR20S
	150	20×40	0.15	1.22	ESMM401VSN151MN40S
	150	22×35	0.15	1.24	ESMM401VSN151MP35S
	150	25.4×30	0.15	1.27	ESMM401VSN151MQ30S
	150	30×25	0.15	1.20	ESMM401VSN151MR25S
	180	20×45	0.15	1.28	ESMM401VSN181MN45S
	180	22×40	0.15	1.41	ESMM401VSN181MP40S
	180	25.4×30	0.15	1.44	ESMM401VSN181MQ30S
	180	30×25	0.15	1.52	ESMM401VSN181MR25S
	180	35×20	0.15	1.16	ESMM401VSN181MA20S
	220	20×50	0.15	1.41	ESMM401VSN221MN50S
	220	22×45	0.15	1.58	ESMM401VSN221MP45S
	220	25.4×35	0.15	1.64	ESMM401VSN221MQ35S
	220	30×30	0.15	1.66	ESMM401VSN221MR30S
	220	35×25	0.15	1.47	ESMM401VSN221MA25S
	270	22×50	0.15	1.65	ESMM401VSN271MP50S
	270	25.4×40	0.15	1.79	ESMM401VSN271MQ40S
	270	30×30	0.15	1.82	ESMM401VSN271MR30S
	270	35×25	0.15	1.63	ESMM401VSN271MA25S
	330	25.4×45	0.15	2.00	ESMM401VSN331MQ45S
	330	30×35	0.15	2.05	ESMM401VSN331MR35S
	330	35×30	0.15	2.05	ESMM401VSN331MA30S
	390	25.4×50	0.15	2.12	ESMM401VSN391MQ50S
	390	30×40	0.15	2.26	ESMM401VSN391MR40S
	390	35×35	0.15	2.28	ESMM401VSN391MA35S
	470	30×45	0.15	2.51	ESMM401VSN471MR45S
	470	35×35	0.15	2.54	ESMM401VSN471MA35S
	560	30×50	0.15	2.85	ESMM401VSN561MR50S
	560	35×40	0.15	2.85	ESMM401VSN561MA40S
	680	35×50	0.15	3.10	ESMM401VSN681MA50S
420	47	22×20	0.20	0.54	ESMM421VSN470MP20S
	56	20×25	0.20	0.58	ESMM421VSN560MN25S
	56	22×20	0.20	0.59	ESMM421VSN560MP20S
	68	20×25	0.20	0.70	ESMM421VSN680MN25S
	68	25.4×20	0.20	0.68	ESMM421VSN680MQ20S
	82	20×30	0.20	0.80	ESMM421VSN820MN30S
	82	22×25	0.20	0.85	ESMM421VSN820MP25S
	82	25.4×20	0.20	0.74	ESMM421VSN820MQ20S
	100	20×35	0.20	0.90	ESMM421VSN101MN35S
	100	22×30	0.20	0.97	ESMM421VSN101MP30S
	100	25.4×25	0.20	0.98	ESMM421VSN101MQ25S
	100	30×20	0.20	0.87	ESMM421VSN101MR20S
	120	20×35	0.20	1.04	ESMM421VSN121MN35S
	120	22×30	0.20	1.07	ESMM421VSN121MP30S
	120	25.4×25	0.20	1.08	ESMM421VSN121MQ25S
	120	30×20	0.20	0.95	ESMM421VSN121MR20S
	150	20×40	0.20	1.17	ESMM421VSN151MN40S
	150	22×35	0.20	1.21	ESMM421VSN151MP35S
	150	25.4×30	0.20	1.26	ESMM421VSN151MQ30S
	150	30×25	0.20	1.30	ESMM421VSN151MR25S
	150	35×20	0.20	1.11	ESMM421VSN151MA20S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
420	180	20×50	0.20	1.27	ESMM421VSN181MN50S
	180	22×40	0.20	1.33	ESMM421VSN181MP40S
	180	25.4×35	0.20	1.42	ESMM421VSN181MQ35S
	180	30×25	0.20	1.48	ESMM421VSN181MR25S
	180	35×20	0.20	1.16	ESMM421VSN181MA20S
	220	22×45	0.20	1.55	ESMM421VSN221MP45S
	220	25.4×35	0.20	1.58	ESMM421VSN221MQ35S
	220	30×30	0.20	1.65	ESMM421VSN221MR30S
	220	35×25	0.20	1.47	ESMM421VSN221MA25S
	270	25.4×40	0.20	1.74	ESMM421VSN271MQ40S
	270	30×35	0.20	1.90	ESMM421VSN271MR35S
	270	35×30	0.20	1.94	ESMM421VSN271MA30S
	330	25.4×50	0.20	2.20	ESMM421VSN331MQ50S
	330	30×35	0.20	1.98	ESMM421VSN331MR35S
	330	35×35	0.20	2.17	ESMM421VSN331MA35S
	390	30×40	0.20	2.22	ESMM421VSN391MR40S
	390	35×35	0.20	2.27	ESMM421VSN391MA35S
	470	30×45	0.20	2.50	ESMM421VSN471MR45S
	470	35×40	0.20	2.61	ESMM421VSN471MA40S
	560	35×45	0.20	2.95	ESMM421VSN561MA45S
	680	35×50	0.20	3.15	ESMM421VSN681MA50S
450	47	22×20	0.20	0.54	ESMM451VSN470MP20S
	56	20×25	0.20	0.61	ESMM451VSN560MN25S
	56	22×20	0.20	0.59	ESMM451VSN560MP20S
	68	20×30	0.20	0.71	ESMM451VSN680MN30S
	68	22×25	0.20	0.71	ESMM451VSN680MP25S
	68	25.4×20	0.20	0.68	ESMM451VSN680MQ20S
	82	20×35	0.20	0.80	ESMM451VSN820MN35S
	82	22×25	0.20	0.86	ESMM451VSN820MP25S
	82	25.4×20	0.20	0.74	ESMM451VSN820MQ20S
	82	30×20	0.20	0.79	ESMM451VSN820MR20S
	100	20×35	0.20	0.88	ESMM451VSN101MN35S
	100	22×30	0.20	0.95	ESMM451VSN101MP30S
	100	25.4×25	0.20	0.97	ESMM451VSN101MQ25S
	100	30×20	0.20	0.87	ESMM451VSN101MR20S
	120	20×40	0.20	0.99	ESMM451VSN121MN40S
	120	22×35	0.20	1.07	ESMM451VSN121MP35S
	120	25.4×30	0.20	1.09	ESMM451VSN121MQ30S
	120	30×25	0.20	1.12	ESMM451VSN121MR25S
	120	35×20	0.20	0.99	ESMM451VSN121MA20S
	150	20×45	0.20	1.13	ESMM451VSN151MN45S
	150	22×40	0.20	1.18	ESMM451VSN151MP40S
	150	25.4×30	0.20	1.25	ESMM451VSN151MQ30S
	150	30×25	0.20	1.29	ESMM451VSN151MR25S
	150	35×20	0.20	1.06	ESMM451VSN151MA20S
	180	22×45	0.20	1.32	ESMM451VSN181MP45S
	180	25.4×35	0.20	1.40	ESMM451VSN181MQ35S
	180	30×30	0.20	1.45	ESMM451VSN181MR30S
	180	35×25	0.20	1.33	ESMM451VSN181MA25S
	220	22×50	0.20	1.48	ESMM451VSN221MP50S
	220	25.4×40	0.20	1.59	ESMM451VSN221MQ40S
	220	30×30	0.20	1.64	ESMM451VSN221MR30S
	220	35×25	0.20	1.66	ESMM451VSN221MA25S
	270	25.4×45	0.20	1.73	ESMM451VSN271MQ45S
	270	30×35	0.20	1.89	ESMM451VSN271MR35S
	270	35×30	0.20	1.90	ESMM451VSN271MA30S
	330	25.4×50	0.20	2.12	ESMM451VSN331MQ50S
	330	30×40	0.20	2.12	ESMM451VSN331MR40S
	330	35×35	0.20	2.15	ESMM451VSN331MA35S
	390	30×45	0.20	2.35	ESMM451VSN391MR45S
	390	35×40	0.20	2.38	ESMM451VSN391MA40S
	470	30×50	0.20	2.65	ESMM451VSN471MR50S
	470	35×45	0.20	2.68	ESMM451VSN471MA45S
	560	35×50	0.20	2.88	ESMM451VSN561MA50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

High ripple snap-ins, 105℃

New!

KMT Series

KMT
↑ Higher ripple
KMS

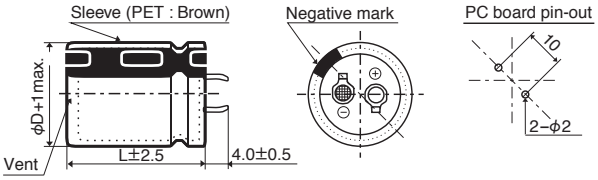
- Higher ripple current from KMS series
- Endurance with ripple current : 3,000 hours at 105℃
- Rated voltage range : 420, 450Vdc, Capacitance range : 82 to 680μF
- For inverter control, switching power supplies
- Non solvent resistant type
- **RoHS Compliant**

◆SPECIFICATIONS

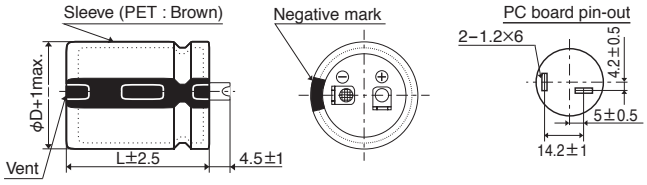
Items	Characteristics		
Category Temperature Range	−25 to +105℃		
Rated Voltage Range	420, 450Vdc		
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	420 & 450V	
	tanδ (Max.)	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	420 & 450V	
	Z(−25℃)/Z(+20℃)	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±15% of the initial value	
	D.F. (tanδ)	≦150% of the initial specified value	
	Leakage current	≦The initial specified value	

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

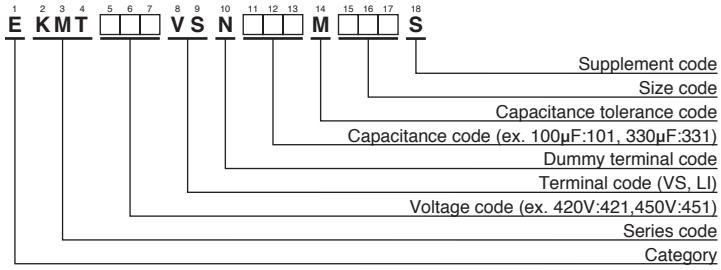


●Terminal Code : LI (φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

High ripple snap-ins, 105℃

New!

KMT Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
420	100	22×25	0.20	0.89	EKMT421VSN101MP25S
	120	22×30	0.20	1.06	EKMT421VSN121MP30S
	120	25.4×25	0.20	1.09	EKMT421VSN121MQ25S
	150	22×35	0.20	1.21	EKMT421VSN151MP35S
	180	22×40	0.20	1.34	EKMT421VSN181MP40S
	180	25.4×30	0.20	1.28	EKMT421VSN181MQ30S
	180	30×25	0.20	1.42	EKMT421VSN181MR25S
	220	22×45	0.20	1.47	EKMT421VSN221MP45S
	220	22×50	0.20	1.60	EKMT421VSN221MP50S
	220	25.4×35	0.20	1.47	EKMT421VSN221MQ35S
	220	30×30	0.20	1.64	EKMT421VSN221MR30S
	220	35×25	0.20	1.64	EKMT421VSN221MA25S
	270	25.4×40	0.20	1.63	EKMT421VSN271MQ40S
	270	25.4×45	0.20	1.79	EKMT421VSN271MQ45S
	270	30×35	0.20	1.87	EKMT421VSN271MR35S
	330	25.4×50	0.20	1.93	EKMT421VSN331MQ50S
	330	30×40	0.20	2.10	EKMT421VSN331MR40S
	330	35×30	0.20	2.05	EKMT421VSN331MA30S
	390	30×45	0.20	2.32	EKMT421VSN391MR45S
	390	35×35	0.20	2.32	EKMT421VSN391MA35S
	470	30×50	0.20	2.51	EKMT421VSN471MR50S
	470	35×40	0.20	2.62	EKMT421VSN471MA40S
	560	35×45	0.20	2.88	EKMT421VSN561MA45S
	680	35×50	0.20	3.10	EKMT421VSN681MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
450	82	22×25	0.20	0.81	EKMT451VSN820MP25S
	100	22×30	0.20	0.97	EKMT451VSN101MP30S
	100	25.4×25	0.20	1.04	EKMT451VSN101MQ25S
	120	22×35	0.20	1.08	EKMT451VSN121MP35S
	150	22×40	0.20	1.22	EKMT451VSN151MP40S
	150	25.4×35	0.20	1.31	EKMT451VSN151MQ35S
	150	30×25	0.20	1.31	EKMT451VSN151MR25S
	180	22×45	0.20	1.35	EKMT451VSN181MP45S
	180	22×50	0.20	1.42	EKMT451VSN181MP50S
	180	25.4×40	0.20	1.35	EKMT451VSN181MQ40S
	180	30×30	0.20	1.49	EKMT451VSN181MR30S
	180	35×25	0.20	1.60	EKMT451VSN181MA25S
	220	25.4×45	0.20	1.55	EKMT451VSN221MQ45S
	220	30×35	0.20	1.71	EKMT451VSN221MR35S
	270	25.4×50	0.20	1.74	EKMT451VSN271MQ50S
	270	30×40	0.20	1.90	EKMT451VSN271MR40S
	270	35×30	0.20	1.90	EKMT451VSN271MA30S
	330	30×45	0.20	2.20	EKMT451VSN331MR45S
	330	35×35	0.20	2.20	EKMT451VSN331MA35S
	390	30×50	0.20	2.40	EKMT451VSN391MR50S
	390	35×40	0.20	2.42	EKMT451VSN391MA40S
	470	35×45	0.20	2.67	EKMT451VSN471MA45S
	560	35×50	0.20	2.85	EKMT451VSN561MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
420, 450Vdc	0.68	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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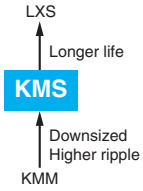
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMS Series

- ●For solar power generation
- ●Endurance with ripple current : 105℃ 3,000 hours
- ●Rated voltage range : 160 to 500V
- ●Capacitance range : 47 to 3,300μF
- ●Non solvent resistant type
- ●**RoHS Compliant**

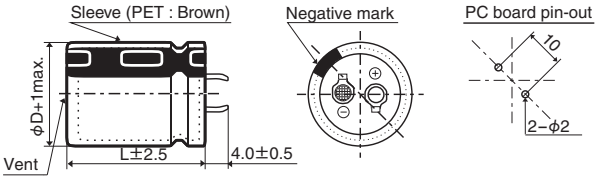


◆SPECIFICATIONS

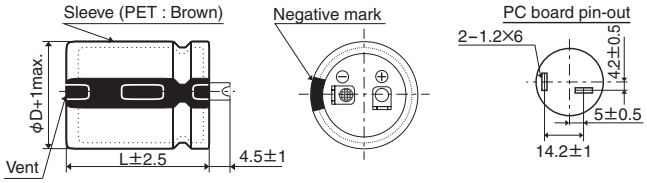
Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	160 to 500Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I≦3$\sqrt{CV}$ Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 160 to 400V — 420 to 500V tanδ (Max.): 0.15 — 0.20 (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 160 to 400V — 420 to 500V Z(−25℃)/Z(+20℃): 4 — 8 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±15% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

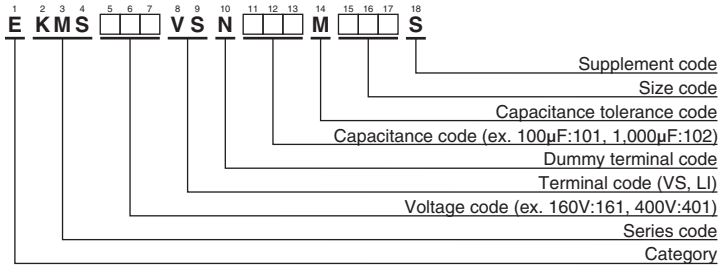


●Terminal Code : LI (φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	470	22×25	0.15	1.47	EKMS161VSN471MP25S
	680	22×30	0.15	1.86	EKMS161VSN681MP30S
	680	25.4×25	0.15	1.84	EKMS161VSN681MQ25S
	820	22×35	0.15	2.09	EKMS161VSN821MP35S
	820	25.4×30	0.15	2.08	EKMS161VSN821MQ30S
	1,000	22×40	0.15	2.35	EKMS161VSN102MP40S
	1,000	22×45	0.15	2.40	EKMS161VSN102MP45S
	1,000	25.4×35	0.15	2.40	EKMS161VSN102MQ35S
	1,000	30×25	0.15	2.50	EKMS161VSN102MR25S
	1,200	22×50	0.15	2.69	EKMS161VSN122MP50S
	1,200	25.4×40	0.15	2.68	EKMS161VSN122MQ40S
	1,200	30×30	0.15	2.77	EKMS161VSN122MR30S
	1,200	35×25	0.15	2.91	EKMS161VSN122MA25S
	1,500	25.4×45	0.15	3.05	EKMS161VSN152MQ45S
	1,500	30×35	0.15	3.17	EKMS161VSN152MR35S
	1,800	25.4×50	0.15	3.40	EKMS161VSN182MQ50S
	1,800	30×40	0.15	3.57	EKMS161VSN182MR40S
	1,800	35×30	0.15	3.62	EKMS161VSN182MA30S
	2,200	30×45	0.15	4.05	EKMS161VSN222MR45S
	2,200	35×35	0.15	4.07	EKMS161VSN222MA35S
	2,700	30×50	0.15	4.56	EKMS161VSN272MR50S
	2,700	35×40	0.15	4.67	EKMS161VSN272MA40S
	2,700	35×45	0.15	4.78	EKMS161VSN272MA45S
	3,300	35×50	0.15	5.40	EKMS161VSN332MA50S
180	390	22×25	0.15	1.34	EKMS181VSN391MP25S
	560	22×30	0.15	1.68	EKMS181VSN561MP30S
	560	25.4×25	0.15	1.67	EKMS181VSN561MQ25S
	680	22×35	0.15	1.90	EKMS181VSN681MP35S
	820	22×40	0.15	2.13	EKMS181VSN821MP40S
	820	25.4×30	0.15	2.08	EKMS181VSN821MQ30S
	820	30×25	0.15	2.26	EKMS181VSN821MR25S
	1,000	22×45	0.15	2.40	EKMS181VSN102MP45S
	1,000	22×50	0.15	2.45	EKMS181VSN102MP50S
	1,000	25.4×35	0.15	2.40	EKMS181VSN102MQ35S
	1,000	25.4×40	0.15	2.45	EKMS181VSN102MQ40S
	1,000	30×30	0.15	2.52	EKMS181VSN102MR30S
	1,200	25.4×45	0.15	2.73	EKMS181VSN122MQ45S
	1,200	30×35	0.15	2.83	EKMS181VSN122MR35S
	1,200	35×25	0.15	2.91	EKMS181VSN122MA25S
	1,500	25.4×50	0.15	3.10	EKMS181VSN152MQ50S
	1,500	30×40	0.15	3.26	EKMS181VSN152MR40S
	1,500	35×30	0.15	3.31	EKMS181VSN152MA30S
	1,800	30×45	0.15	3.66	EKMS181VSN182MR45S
	1,800	35×35	0.15	3.68	EKMS181VSN182MA35S
	2,200	30×50	0.15	4.11	EKMS181VSN222MR50S
	2,200	35×40	0.15	4.22	EKMS181VSN222MA40S
	2,700	35×45	0.15	4.78	EKMS181VSN272MA45S
	2,700	35×50	0.15	4.88	EKMS181VSN272MA50S
200	390	22×25	0.15	1.34	EKMS201VSN391MP25S
	470	22×30	0.15	1.54	EKMS201VSN471MP30S
	560	22×35	0.15	1.72	EKMS201VSN561MP35S
	560	25.4×25	0.15	1.67	EKMS201VSN561MQ25S
	680	22×40	0.15	1.94	EKMS201VSN681MP40S
	680	25.4×30	0.15	1.89	EKMS201VSN681MQ30S
	820	22×45	0.15	2.17	EKMS201VSN821MP45S
	820	25.4×35	0.15	2.17	EKMS201VSN821MQ35S
	820	30×25	0.15	2.26	EKMS201VSN821MR25S
	1,000	22×50	0.15	2.45	EKMS201VSN102MP50S
	1,000	25.4×40	0.15	2.45	EKMS201VSN102MQ40S
	1,000	30×30	0.15	2.52	EKMS201VSN102MR30S
	1,000	35×25	0.15	2.66	EKMS201VSN102MA25S
	1,200	25.4×45	0.15	2.73	EKMS201VSN122MQ45S
	1,200	25.4×50	0.15	2.78	EKMS201VSN122MQ50S
	1,200	30×35	0.15	2.83	EKMS201VSN122MR35S
	1,200	35×30	0.15	2.96	EKMS201VSN122MA30S
	1,500	30×40	0.15	3.26	EKMS201VSN152MR40S
	1,500	35×35	0.15	3.36	EKMS201VSN152MA35S
200	1,800	30×45	0.15	3.66	EKMS201VSN182MR45S
	1,800	30×50	0.15	3.72	EKMS201VSN182MR50S
	1,800	35×40	0.15	3.81	EKMS201VSN182MA40S
	2,200	35×45	0.15	4.32	EKMS201VSN222MA45S
	2,700	35×50	0.15	4.88	EKMS201VSN272MA50S
250	270	22×25	0.15	1.11	EKMS251VSN271MP25S
	330	22×30	0.15	1.29	EKMS251VSN331MP30S
	390	22×35	0.15	1.44	EKMS251VSN391MP35S
	390	25.4×25	0.15	1.40	EKMS251VSN391MQ25S
	470	22×40	0.15	1.61	EKMS251VSN471MP40S
	470	25.4×30	0.15	1.57	EKMS251VSN471MQ30S
	560	22×45	0.15	1.79	EKMS251VSN561MP45S
	560	25.4×35	0.15	1.79	EKMS251VSN561MQ35S
	560	30×25	0.15	1.87	EKMS251VSN561MR25S
	680	22×50	0.15	2.02	EKMS251VSN681MP50S
	680	25.4×40	0.15	2.02	EKMS251VSN681MQ40S
	680	30×30	0.15	2.08	EKMS251VSN681MR30S
	680	35×25	0.15	2.19	EKMS251VSN681MA25S
	820	25.4×45	0.15	2.26	EKMS251VSN821MQ45S
	820	30×35	0.15	2.34	EKMS251VSN821MR35S
	1,000	25.4×50	0.15	2.53	EKMS251VSN102MQ50S
	1,000	30×40	0.15	2.66	EKMS251VSN102MR40S
	1,000	35×30	0.15	2.70	EKMS251VSN102MA30S
	1,200	30×45	0.15	2.99	EKMS251VSN122MR45S
	1,200	30×50	0.15	3.04	EKMS251VSN122MR50S
	1,200	35×35	0.15	3.00	EKMS251VSN122MA35S
	1,500	35×40	0.15	3.48	EKMS251VSN152MA40S
	1,500	35×45	0.15	3.56	EKMS251VSN152MA45S
	1,800	35×50	0.15	3.98	EKMS251VSN182MA50S
315	180	22×25	0.15	0.95	EKMS3B1VSN181MP25S
	220	22×30	0.15	1.10	EKMS3B1VSN221MP30S
	220	25.4×25	0.15	1.10	EKMS3B1VSN221MQ25S
	270	22×35	0.15	1.24	EKMS3B1VSN271MP35S
	330	22×40	0.15	1.40	EKMS3B1VSN331MP40S
	330	25.4×30	0.15	1.38	EKMS3B1VSN331MQ30S
	330	30×25	0.15	1.43	EKMS3B1VSN331MR25S
	390	22×45	0.15	1.56	EKMS3B1VSN391MP45S
	390	22×50	0.15	1.59	EKMS3B1VSN391MP50S
	390	25.4×35	0.15	1.57	EKMS3B1VSN391MQ35S
	470	25.4×40	0.15	1.76	EKMS3B1VSN471MQ40S
	470	30×30	0.15	1.73	EKMS3B1VSN471MR30S
	470	35×25	0.15	1.82	EKMS3B1VSN471MA25S
	560	25.4×45	0.15	1.96	EKMS3B1VSN561MQ45S
	560	25.4×50	0.15	1.99	EKMS3B1VSN561MQ50S
	560	30×35	0.15	1.93	EKMS3B1VSN561MR35S
	560	35×30	0.15	2.02	EKMS3B1VSN561MA30S
	680	30×40	0.15	2.19	EKMS3B1VSN681MR40S
	680	35×35	0.15	2.26	EKMS3B1VSN681MA35S
	820	30×45	0.15	2.47	EKMS3B1VSN821MR45S
	820	30×50	0.15	2.51	EKMS3B1VSN821MR50S
	820	35×40	0.15	2.57	EKMS3B1VSN821MA40S
	1,000	35×45	0.15	2.91	EKMS3B1VSN102MA45S
	1,200	35×50	0.15	3.25	EKMS3B1VSN122MA50S
400	120	22×25	0.15	0.77	EKMS401VSN121MP25S
	150	22×30	0.15	0.90	EKMS401VSN151MP30S
	180	22×35	0.15	1.02	EKMS401VSN181MP35S
	180	25.4×25	0.15	0.99	EKMS401VSN181MQ25S
	220	22×40	0.15	1.15	EKMS401VSN221MP40S
	220	25.4×30	0.15	1.13	EKMS401VSN221MQ30S
	270	22×45	0.15	1.29	EKMS401VSN271MP45S
	270	25.4×35	0.15	1.30	EKMS401VSN271MQ35S
	270	30×25	0.15	1.29	EKMS401VSN271MR25S
	330	22×50	0.15	1.47	EKMS401VSN331MP50S
	330	25.4×40	0.15	1.47	EKMS401VSN331MQ40S
	330	30×30	0.15	1.45	EKMS401VSN331MR30S
	330	35×25	0.15	1.52	EKMS401VSN331MA25S
	390	25.4×45	0.15	1.63	EKMS401VSN391MQ45S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	390	25.4×50	0.15	1.66	EKMS401VSN391MQ50S
	390	30×35	0.15	1.61	EKMS401VSN391MR35S
	470	30×40	0.15	1.82	EKMS401VSN471MR40S
	470	35×30	0.15	1.85	EKMS401VSN471MA30S
	560	30×45	0.15	2.04	EKMS401VSN561MR45S
	560	30×50	0.15	2.07	EKMS401VSN561MR50S
	560	35×35	0.15	2.05	EKMS401VSN561MA35S
	680	35×40	0.15	2.34	EKMS401VSN681MA40S
	680	35×45	0.15	2.40	EKMS401VSN681MA45S
	820	35×50	0.15	2.69	EKMS401VSN821MA50S
420	100	22×25	0.20	0.70	EKMS421VSN101MP25S
	120	22×30	0.20	0.81	EKMS421VSN121MP30S
	120	25.4×25	0.20	0.81	EKMS421VSN121MQ25S
	150	22×35	0.20	0.93	EKMS421VSN151MP35S
	180	22×40	0.20	1.04	EKMS421VSN181MP40S
	180	25.4×30	0.20	1.02	EKMS421VSN181MQ30S
	180	30×25	0.20	1.06	EKMS421VSN181MR25S
	220	22×45	0.20	1.17	EKMS421VSN221MP45S
	220	22×50	0.20	1.20	EKMS421VSN221MP50S
	220	25.4×35	0.20	1.18	EKMS421VSN221MQ35S
	220	30×30	0.20	1.18	EKMS421VSN221MR30S
	270	25.4×40	0.20	1.33	EKMS421VSN271MQ40S
	270	25.4×45	0.20	1.36	EKMS421VSN271MQ45S
	270	35×25	0.20	1.38	EKMS421VSN271MA25S
	330	25.4×50	0.20	1.52	EKMS421VSN331MQ50S
	330	30×35	0.20	1.48	EKMS421VSN331MR35S
	330	30×40	0.20	1.52	EKMS421VSN331MR40S
	330	35×30	0.20	1.55	EKMS421VSN331MA30S
	390	30×45	0.20	1.70	EKMS421VSN391MR45S
	390	35×35	0.20	1.71	EKMS421VSN391MA35S
	470	30×50	0.20	1.90	EKMS421VSN471MR50S
	470	35×40	0.20	1.95	EKMS421VSN471MA40S
	560	35×45	0.20	2.17	EKMS421VSN561MA45S
	680	35×50	0.20	2.45	EKMS421VSN681MA50S
450	82	22×25	0.20	0.64	EKMS451VSN820MP25S
	120	22×30	0.20	0.81	EKMS451VSN121MP30S
	120	22×35	0.20	0.83	EKMS451VSN121MP35S
	120	25.4×25	0.20	0.81	EKMS451VSN121MQ25S
	150	22×40	0.20	0.94	EKMS451VSN151MP40S
	150	25.4×30	0.20	0.93	EKMS451VSN151MQ30S
	180	22×45	0.20	1.06	EKMS451VSN181MP45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
450	180	25.4×35	0.20	1.06	EKMS451VSN181MQ35S
	180	30×25	0.20	1.06	EKMS451VSN181MR25S
	220	22×50	0.20	1.20	EKMS451VSN221MP50S
	220	25.4×40	0.20	1.20	EKMS451VSN221MQ40S
	220	30×30	0.20	1.18	EKMS451VSN221MR30S
	220	35×25	0.20	1.24	EKMS451VSN221MA25S
	270	25.4×45	0.20	1.36	EKMS451VSN271MQ45S
	270	25.4×50	0.20	1.38	EKMS451VSN271MQ50S
	270	30×35	0.20	1.34	EKMS451VSN271MR35S
	270	35×30	0.20	1.40	EKMS451VSN271MA30S
	330	30×40	0.20	1.52	EKMS451VSN331MR40S
	390	30×45	0.20	1.70	EKMS451VSN391MR45S
	390	30×50	0.20	1.73	EKMS451VSN391MR50S
	390	35×35	0.20	1.71	EKMS451VSN391MA35S
	470	35×40	0.20	1.95	EKMS451VSN471MA40S
	470	35×45	0.20	1.99	EKMS451VSN471MA45S
	560	35×50	0.20	2.22	EKMS451VSN561MA50S
500	47	22×25	0.20	0.51	EKMS501VSN470MP25S
	56	22×30	0.20	0.58	EKMS501VSN560MP30S
	68	25.4×25	0.20	0.65	EKMS501VSN680MQ25S
	82	22×35	0.20	0.72	EKMS501VSN820MP35S
	82	25.4×30	0.20	0.74	EKMS501VSN820MQ30S
	100	22×45	0.20	0.83	EKMS501VSN101MP45S
	100	30×25	0.20	0.82	EKMS501VSN101MR25S
	120	22×50	0.20	0.93	EKMS501VSN121MP50S
	120	25.4×35	0.20	0.93	EKMS501VSN121MQ35S
	120	30×30	0.20	0.91	EKMS501VSN121MR30S
	150	25.4×45	0.20	1.08	EKMS501VSN151MQ45S
	150	30×35	0.20	1.04	EKMS501VSN151MR35S
	150	35×25	0.20	0.99	EKMS501VSN151MA25S
	180	25.4×50	0.20	1.20	EKMS501VSN181MQ50S
	180	30×40	0.20	1.17	EKMS501VSN181MR40S
	180	35×30	0.20	1.10	EKMS501VSN181MA30S
	220	30×45	0.20	1.33	EKMS501VSN221MR45S
	220	35×35	0.20	1.23	EKMS501VSN221MA35S
	270	30×50	0.20	1.50	EKMS501VSN271MR50S
	270	35×40	0.20	1.42	EKMS501VSN271MA40S
	330	35×45	0.20	1.60	EKMS501VSN331MA45S
	390	35×50	0.20	1.78	EKMS501VSN391MA50S
	470	35×60	0.20	2.03	EKMS501VSN471MA60S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43
500Vdc	0.70	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

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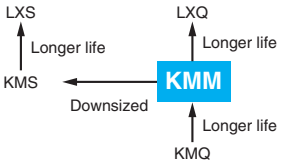
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

KMM Series

- Longer life from KMQ series
- Endurance with ripple current : 2,000 to 3,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

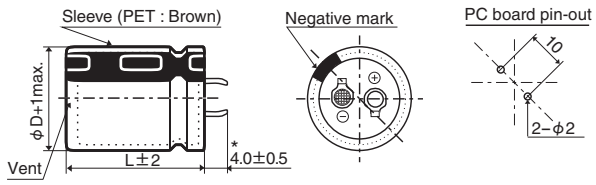


◆SPECIFICATIONS

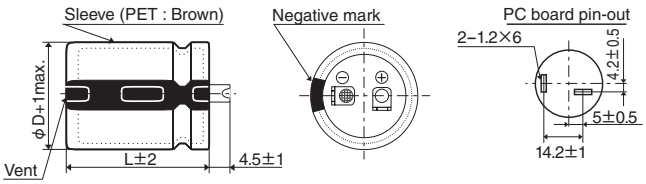
Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage)for 3,000 hours (2,000 hours for φ20×20L products) at 105℃.			
	Capacitance change	≦±20%of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15%of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ20 to φ35) : Standard



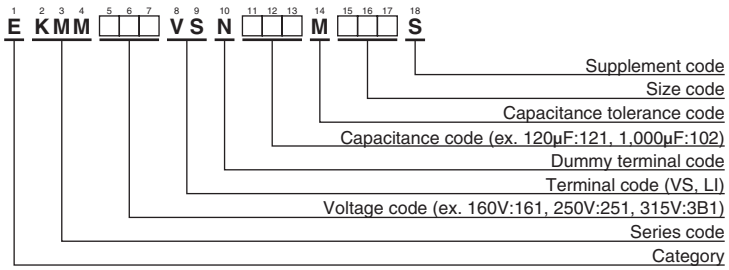
●Terminal Code : LI (φ35)



*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	180	20×20	0.15	0.68	EKMM161VSN181MN20S
	220	20×25	0.15	0.85	EKMM161VSN221MN25S
	220	22×20	0.15	0.81	EKMM161VSN221MP20S
	270	20×25	0.15	1.10	EKMM161VSN271MN25S
	270	25.4×20	0.15	0.98	EKMM161VSN271MQ20S
	330	20×30	0.15	1.20	EKMM161VSN331MN30S
	330	22×25	0.15	1.20	EKMM161VSN331MP25S
	330	25.4×20	0.15	1.02	EKMM161VSN331MQ20S
	390	20×30	0.15	1.30	EKMM161VSN391MN30S
	390	22×25	0.15	1.30	EKMM161VSN391MP25S
	390	25.4×25	0.15	1.26	EKMM161VSN391MQ25S
	390	30×20	0.15	1.25	EKMM161VSN391MR20S
	470	20×35	0.15	1.34	EKMM161VSN471MN35S
	470	22×30	0.15	1.55	EKMM161VSN471MP30S
	470	25.4×25	0.15	1.55	EKMM161VSN471MQ25S
	470	30×20	0.15	1.30	EKMM161VSN471MR20S
	560	20×40	0.15	1.50	EKMM161VSN561MN40S
	560	22×35	0.15	1.67	EKMM161VSN561MP35S
	560	25.4×30	0.15	1.67	EKMM161VSN561MQ30S
	560	30×25	0.15	1.67	EKMM161VSN561MR25S
	560	35×20	0.15	1.46	EKMM161VSN561MA20S
	680	20×45	0.15	1.70	EKMM161VSN681MN45S
	680	22×40	0.15	1.82	EKMM161VSN681MP40S
	680	25.4×30	0.15	1.82	EKMM161VSN681MQ30S
	680	30×25	0.15	1.82	EKMM161VSN681MR25S
	680	35×20	0.15	1.51	EKMM161VSN681MA20S
	820	22×45	0.15	2.04	EKMM161VSN821MP45S
	820	25.4×35	0.15	2.04	EKMM161VSN821MQ35S
	820	30×30	0.15	2.04	EKMM161VSN821MR30S
	820	35×25	0.15	2.04	EKMM161VSN821MA25S
	1,000	22×50	0.15	2.25	EKMM161VSN102MP50S
	1,000	25.4×40	0.15	2.25	EKMM161VSN102MQ40S
	1,000	30×30	0.15	2.25	EKMM161VSN102MR30S
	1,000	35×25	0.15	2.25	EKMM161VSN102MA25S
	1,200	25.4×45	0.15	2.49	EKMM161VSN122MQ45S
	1,200	30×35	0.15	2.49	EKMM161VSN122MR35S
	1,200	35×30	0.15	2.49	EKMM161VSN122MA30S
	1,500	25.4×60	0.15	2.97	EKMM161VSN152MQ60S
	1,500	30×40	0.15	2.84	EKMM161VSN152MR40S
	1,500	35×30	0.15	2.84	EKMM161VSN152MA30S
	1,800	30×45	0.15	3.32	EKMM161VSN182MR45S
	1,800	35×35	0.15	3.00	EKMM161VSN182MA35S
	2,200	30×60	0.15	3.86	EKMM161VSN222MR60S
	2,200	35×45	0.15	3.50	EKMM161VSN222MA45S
	2,700	35×50	0.15	4.00	EKMM161VSN272MA50S
	3,300	35×60	0.15	4.63	EKMM161VSN332MA60S
180	150	20×20	0.15	0.62	EKMM181VSN151MN20S
	180	20×25	0.15	0.77	EKMM181VSN181MN25S
	180	22×20	0.15	0.80	EKMM181VSN181MP20S
	220	20×25	0.15	1.00	EKMM181VSN221MN25S
	220	25.4×20	0.15	0.90	EKMM181VSN221MQ20S
	270	20×30	0.15	1.10	EKMM181VSN271MN30S
	270	22×25	0.15	1.00	EKMM181VSN271MP25S
	270	25.4×20	0.15	0.95	EKMM181VSN271MQ20S
	330	20×30	0.15	1.20	EKMM181VSN331MN30S
	330	22×25	0.15	1.20	EKMM181VSN331MP25S
	330	25.4×25	0.15	1.16	EKMM181VSN331MQ25S
	330	30×20	0.15	1.15	EKMM181VSN331MR20S
	390	20×35	0.15	1.30	EKMM181VSN391MN35S
	390	22×30	0.15	1.35	EKMM181VSN391MP30S
	390	25.4×25	0.15	1.35	EKMM181VSN391MQ25S
	390	30×20	0.15	1.20	EKMM181VSN391MR20S
	470	20×40	0.15	1.40	EKMM181VSN471MN40S
	470	22×35	0.15	1.50	EKMM181VSN471MP35S
	470	25.4×30	0.15	1.50	EKMM181VSN471MQ30S
	470	30×25	0.15	1.50	EKMM181VSN471MR25S
	470	35×20	0.15	1.36	EKMM181VSN471MA20S
180	560	20×45	0.15	1.55	EKMM181VSN561MN45S
	560	22×40	0.15	1.67	EKMM181VSN561MP40S
	560	25.4×30	0.15	1.67	EKMM181VSN561MQ30S
	560	30×25	0.15	1.67	EKMM181VSN561MR25S
	560	35×20	0.15	1.43	EKMM181VSN561MA20S
	680	20×50	0.15	1.75	EKMM181VSN681MN50S
	680	22×45	0.15	1.78	EKMM181VSN681MP45S
	680	25.4×35	0.15	1.78	EKMM181VSN681MQ35S
	680	30×30	0.15	1.78	EKMM181VSN681MR30S
	680	35×25	0.15	1.83	EKMM181VSN681MA25S
	820	22×50	0.15	2.04	EKMM181VSN821MP50S
	820	25.4×40	0.15	2.04	EKMM181VSN821MQ40S
	820	30×30	0.15	2.04	EKMM181VSN821MR30S
	820	35×25	0.15	2.04	EKMM181VSN821MA25S
	1,000	25.4×45	0.15	2.30	EKMM181VSN102MQ45S
	1,000	30×35	0.15	2.30	EKMM181VSN102MR35S
	1,000	35×30	0.15	2.30	EKMM181VSN102MA30S
	1,200	25.4×50	0.15	2.55	EKMM181VSN122MQ50S
	1,200	30×40	0.15	2.55	EKMM181VSN122MR40S
	1,200	35×30	0.15	2.55	EKMM181VSN122MA30S
	1,500	30×45	0.15	2.90	EKMM181VSN152MR45S
	1,500	35×35	0.15	2.90	EKMM181VSN152MA35S
	1,800	30×60	0.15	3.49	EKMM181VSN182MR60S
	1,800	35×40	0.15	3.30	EKMM181VSN182MA40S
	2,200	35×50	0.15	3.65	EKMM181VSN222MA50S
	2,700	35×60	0.15	4.19	EKMM181VSN272MA60S
200	120	20×20	0.15	0.56	EKMM201VSN121MN20S
	150	20×25	0.15	0.71	EKMM201VSN151MN25S
	150	22×20	0.15	0.73	EKMM201VSN151MP20S
	180	20×25	0.15	0.77	EKMM201VSN181MN25S
	180	22×20	0.15	0.80	EKMM201VSN181MP20S
	220	20×25	0.15	1.00	EKMM201VSN221MN25S
	220	25.4×20	0.15	0.85	EKMM201VSN221MQ20S
	270	20×30	0.15	1.10	EKMM201VSN271MN30S
	270	22×25	0.15	1.10	EKMM201VSN271MP25S
	270	30×20	0.15	1.05	EKMM201VSN271MR20S
	330	20×35	0.15	1.20	EKMM201VSN331MN35S
	330	22×30	0.15	1.25	EKMM201VSN331MP30S
	330	25.4×25	0.15	1.25	EKMM201VSN331MQ25S
	330	30×20	0.15	1.10	EKMM201VSN331MR20S
	390	20×40	0.15	1.31	EKMM201VSN391MN40S
	390	22×30	0.15	1.35	EKMM201VSN391MP30S
	390	25.4×25	0.15	1.35	EKMM201VSN391MQ25S
	390	35×20	0.15	1.30	EKMM201VSN391MA20S
	470	20×45	0.15	1.45	EKMM201VSN471MN45S
	470	22×35	0.15	1.50	EKMM201VSN471MP35S
	470	25.4×30	0.15	1.50	EKMM201VSN471MQ30S
	470	30×25	0.15	1.50	EKMM201VSN471MR25S
	470	35×20	0.15	1.41	EKMM201VSN471MA20S
	560	20×50	0.15	1.58	EKMM201VSN561MN50S
	560	22×40	0.15	1.67	EKMM201VSN561MP40S
	560	25.4×30	0.15	1.67	EKMM201VSN561MQ30S
	560	30×25	0.15	1.67	EKMM201VSN561MR25S
	680	22×45	0.15	1.78	EKMM201VSN681MP45S
	680	25.4×35	0.15	1.78	EKMM201VSN681MQ35S
	680	30×30	0.15	1.78	EKMM201VSN681MR30S
	680	35×25	0.15	1.78	EKMM201VSN681MA25S
	820	25.4×45	0.15	2.04	EKMM201VSN821MQ45S
	820	30×30	0.15	2.04	EKMM201VSN821MR30S
	820	35×25	0.15	2.04	EKMM201VSN821MA25S
	1,000	25.4×50	0.15	2.30	EKMM201VSN102MQ50S
	1,000	30×35	0.15	2.30	EKMM201VSN102MR35S
	1,000	35×30	0.15	2.30	EKMM201VSN102MA30S
	1,200	25.4×60	0.15	2.66	EKMM201VSN122MQ60S
	1,200	30×40	0.15	2.65	EKMM201VSN122MR40S
	1,200	35×35	0.15	2.65	EKMM201VSN122MA35S
	1,500	30×50	0.15	3.08	EKMM201VSN152MR50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	1,500	35×40	0.15	3.08	EKMM201VSN152MA40S
	1,800	30×60	0.15	3.49	EKMM201VSN182MR60S
	1,800	35×45	0.15	3.48	EKMM201VSN182MA45S
	2,200	35×50	0.15	3.78	EKMM201VSN222MA50S
220	120	20×20	0.15	0.56	EKMM221VSN121MN20S
	150	20×25	0.15	0.73	EKMM221VSN151MN25S
	150	22×20	0.15	0.67	EKMM221VSN151MP20S
	180	20×25	0.15	0.90	EKMM221VSN181MN25S
	180	25.4×20	0.15	0.76	EKMM221VSN181MQ20S
	220	20×30	0.15	1.00	EKMM221VSN221MN30S
	220	22×25	0.15	1.00	EKMM221VSN221MP25S
	220	25.4×20	0.15	0.84	EKMM221VSN221MQ20S
	270	20×35	0.15	1.15	EKMM221VSN271MN35S
	270	22×30	0.15	1.15	EKMM221VSN271MP30S
	270	25.4×25	0.15	1.08	EKMM221VSN271MQ25S
	270	30×20	0.15	0.98	EKMM221VSN271MR20S
	330	20×40	0.15	1.25	EKMM221VSN331MN40S
	330	22×35	0.15	1.25	EKMM221VSN331MP35S
	330	25.4×25	0.15	1.25	EKMM221VSN331MQ25S
	330	35×20	0.15	1.13	EKMM221VSN331MA20S
	390	20×45	0.15	1.40	EKMM221VSN391MN45S
	390	22×35	0.15	1.40	EKMM221VSN391MP35S
	390	25.4×30	0.15	1.40	EKMM221VSN391MQ30S
	390	30×25	0.15	1.36	EKMM221VSN391MR25S
	390	35×20	0.15	1.23	EKMM221VSN391MA20S
	470	20×50	0.15	1.51	EKMM221VSN471MN50S
	470	22×40	0.15	1.51	EKMM221VSN471MP40S
	470	25.4×35	0.15	1.54	EKMM221VSN471MQ35S
	470	30×25	0.15	1.50	EKMM221VSN471MR25S
	560	22×45	0.15	1.70	EKMM221VSN561MP45S
	560	25.4×40	0.15	1.72	EKMM221VSN561MQ40S
	560	30×30	0.15	1.70	EKMM221VSN561MR30S
	560	35×25	0.15	1.71	EKMM221VSN561MA25S
	680	25.4×45	0.15	1.94	EKMM221VSN681MQ45S
	680	30×35	0.15	1.93	EKMM221VSN681MR35S
	680	35×25	0.15	1.89	EKMM221VSN681MA25S
	820	25.4×50	0.15	2.18	EKMM221VSN821MQ50S
	820	30×40	0.15	2.19	EKMM221VSN821MR40S
	820	35×30	0.15	2.16	EKMM221VSN821MA30S
	1,000	25.4×60	0.15	2.54	EKMM221VSN102MQ60S
	1,000	30×45	0.15	2.50	EKMM221VSN102MR45S
	1,000	35×35	0.15	2.44	EKMM221VSN102MA35S
	1,200	30×50	0.15	2.81	EKMM221VSN122MR50S
	1,200	35×40	0.15	2.79	EKMM221VSN122MA40S
	1,500	30×60	0.15	3.30	EKMM221VSN152MR60S
	1,500	35×45	0.15	3.22	EKMM221VSN152MA45S
	1,800	35×50	0.15	3.63	EKMM221VSN182MA50S
	2,200	35×60	0.15	4.23	EKMM221VSN222MA60S
250	100	20×20	0.15	0.51	EKMM251VSN101MN20S
	120	20×25	0.15	0.58	EKMM251VSN121MN25S
	120	22×20	0.15	0.60	EKMM251VSN121MP20S
	150	20×25	0.15	0.79	EKMM251VSN151MN25S
	150	25.4×20	0.15	0.74	EKMM251VSN151MQ20S
	180	20×30	0.15	0.90	EKMM251VSN181MN30S
	180	22×25	0.15	0.78	EKMM251VSN181MP25S
	180	25.4×20	0.15	0.75	EKMM251VSN181MQ20S
	220	20×30	0.15	1.00	EKMM251VSN221MN30S
	220	22×25	0.15	1.00	EKMM251VSN221MP25S
	220	25.4×25	0.15	0.95	EKMM251VSN221MQ25S
	220	30×20	0.15	0.95	EKMM251VSN221MR20S
	270	20×35	0.15	1.10	EKMM251VSN271MN35S
	270	22×30	0.15	1.18	EKMM251VSN271MP30S
	270	25.4×25	0.15	1.18	EKMM251VSN271MQ25S
	270	30×20	0.15	1.00	EKMM251VSN271MR20S
	330	20×40	0.15	1.20	EKMM251VSN331MN40S
	330	22×35	0.15	1.30	EKMM251VSN331MP35S
	330	25.4×30	0.15	1.30	EKMM251VSN331MQ30S
250	330	30×25	0.15	1.30	EKMM251VSN331MR25S
	330	35×20	0.15	1.16	EKMM251VSN331MA20S
	390	20×50	0.15	1.45	EKMM251VSN391MN50S
	390	22×40	0.15	1.49	EKMM251VSN391MP40S
	390	25.4×35	0.15	1.49	EKMM251VSN391MQ35S
	390	30×25	0.15	1.49	EKMM251VSN391MR25S
	470	22×45	0.15	1.65	EKMM251VSN471MP45S
	470	25.4×35	0.15	1.65	EKMM251VSN471MQ35S
	470	30×30	0.15	1.65	EKMM251VSN471MR30S
	470	35×25	0.15	1.65	EKMM251VSN471MA25S
	560	22×50	0.15	1.67	EKMM251VSN561MP50S
	560	25.4×40	0.15	1.80	EKMM251VSN561MQ40S
	560	30×30	0.15	1.80	EKMM251VSN561MR30S
	560	35×25	0.15	1.80	EKMM251VSN561MA25S
	680	25.4×50	0.15	2.00	EKMM251VSN681MQ50S
	680	30×35	0.15	2.00	EKMM251VSN681MR35S
	680	35×30	0.15	2.00	EKMM251VSN681MA30S
	820	25.4×60	0.15	2.20	EKMM251VSN821MQ60S
	820	30×40	0.15	2.30	EKMM251VSN821MR40S
	820	35×35	0.15	2.30	EKMM251VSN821MA35S
	1,000	30×50	0.15	2.47	EKMM251VSN102MR50S
	1,000	35×40	0.15	2.47	EKMM251VSN102MA40S
	1,200	30×60	0.15	2.85	EKMM251VSN122MR60S
	1,200	35×45	0.15	2.60	EKMM251VSN122MA45S
	1,500	35×50	0.15	3.00	EKMM251VSN152MA50S
	1,800	35×60	0.15	3.42	EKMM251VSN182MA60S
315	56	20×20	0.15	0.38	EKMM3B1VSN560MN20S
	68	20×25	0.15	0.47	EKMM3B1VSN680MN25S
	68	22×20	0.15	0.45	EKMM3B1VSN680MP20S
	82	20×25	0.15	0.64	EKMM3B1VSN820MN25S
	82	22×20	0.15	0.47	EKMM3B1VSN820MP20S
	100	20×30	0.15	0.69	EKMM3B1VSN101MN30S
	100	22×25	0.15	0.61	EKMM3B1VSN101MP25S
	100	25.4×20	0.15	0.56	EKMM3B1VSN101MQ20S
	120	20×30	0.15	0.75	EKMM3B1VSN121MN30S
	120	22×25	0.15	0.75	EKMM3B1VSN121MP25S
	120	25.4×20	0.15	0.62	EKMM3B1VSN121MQ20S
	120	30×20	0.15	0.65	EKMM3B1VSN121MR20S
	150	20×35	0.15	0.82	EKMM3B1VSN151MN35S
	150	22×30	0.15	0.82	EKMM3B1VSN151MP30S
	150	25.4×25	0.15	0.82	EKMM3B1VSN151MQ25S
	150	30×20	0.15	0.70	EKMM3B1VSN151MR20S
	150	35×20	0.15	0.76	EKMM3B1VSN151MA20S
	180	20×40	0.15	0.90	EKMM3B1VSN181MN40S
	180	22×35	0.15	0.92	EKMM3B1VSN181MP35S
	180	25.4×25	0.15	0.92	EKMM3B1VSN181MQ25S
	180	30×25	0.15	0.90	EKMM3B1VSN181MR25S
	180	35×20	0.15	0.85	EKMM3B1VSN181MA20S
	220	20×50	0.15	1.00	EKMM3B1VSN221MN50S
	220	22×40	0.15	1.04	EKMM3B1VSN221MP40S
	220	25.4×30	0.15	1.04	EKMM3B1VSN221MQ30S
	220	30×25	0.15	1.04	EKMM3B1VSN221MR25S
	220	35×20	0.15	0.90	EKMM3B1VSN221MA20S
	270	22×45	0.15	1.16	EKMM3B1VSN271MP45S
	270	25.4×35	0.15	1.16	EKMM3B1VSN271MQ35S
	270	30×25	0.15	1.16	EKMM3B1VSN271MR25S
	270	35×25	0.15	1.15	EKMM3B1VSN271MA25S
	330	22×50	0.15	1.33	EKMM3B1VSN331MP50S
	330	25.4×40	0.15	1.33	EKMM3B1VSN331MQ40S
	330	30×30	0.15	1.33	EKMM3B1VSN331MR30S
	330	35×25	0.15	1.33	EKMM3B1VSN331MA25S
	390	25.4×45	0.15	1.47	EKMM3B1VSN391MQ45S
	390	30×35	0.15	1.47	EKMM3B1VSN391MR35S
	390	35×30	0.15	1.47	EKMM3B1VSN391MA30S
	470	25.4×50	0.15	1.70	EKMM3B1VSN471MQ50S
	470	30×40	0.15	1.70	EKMM3B1VSN471MR40S
	470	35×30	0.15	1.70	EKMM3B1VSN471MA30S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
315	560	30×45	0.15	2.05	EKMM3B1VSN561MR45S
	560	35×35	0.15	2.05	EKMM3B1VSN561MA35S
	680	30×50	0.15	2.17	EKMM3B1VSN681MR50S
	680	35×40	0.15	2.17	EKMM3B1VSN681MA40S
	820	35×45	0.15	2.20	EKMM3B1VSN821MA45S
	1,000	35×60	0.15	2.55	EKMM3B1VSN102MA60S
350	47	20×20	0.15	0.35	EKMM351VSN470MN20S
	56	20×25	0.15	0.43	EKMM351VSN560MN25S
	56	22×20	0.15	0.41	EKMM351VSN560MP20S
	68	20×25	0.15	0.47	EKMM351VSN680MN25S
	68	25.4×20	0.15	0.46	EKMM351VSN680MQ20S
	82	20×30	0.15	0.54	EKMM351VSN820MN30S
	82	22×25	0.15	0.55	EKMM351VSN820MP25S
	82	25.4×20	0.15	0.51	EKMM351VSN820MQ20S
	100	20×30	0.15	0.60	EKMM351VSN101MN30S
	100	22×25	0.15	0.69	EKMM351VSN101MP25S
	100	30×20	0.15	0.60	EKMM351VSN101MR20S
	120	20×35	0.15	0.68	EKMM351VSN121MN35S
	120	22×30	0.15	0.75	EKMM351VSN121MP30S
	120	25.4×25	0.15	0.75	EKMM351VSN121MQ25S
	120	30×20	0.15	0.65	EKMM351VSN121MR20S
	150	20×40	0.15	0.78	EKMM351VSN151MN40S
	150	22×35	0.15	0.82	EKMM351VSN151MP35S
	150	25.4×30	0.15	0.83	EKMM351VSN151MQ30S
	150	30×25	0.15	0.82	EKMM351VSN151MR25S
	150	35×20	0.15	0.76	EKMM351VSN151MA20S
	180	20×45	0.15	0.87	EKMM351VSN181MN45S
	180	22×40	0.15	0.92	EKMM351VSN181MP40S
	180	25.4×30	0.15	0.92	EKMM351VSN181MQ30S
	180	30×25	0.15	0.90	EKMM351VSN181MR25S
	220	20×50	0.15	1.00	EKMM351VSN221MN50S
	220	22×45	0.15	1.05	EKMM351VSN221MP45S
	220	25.4×35	0.15	1.04	EKMM351VSN221MQ35S
	220	30×30	0.15	1.02	EKMM351VSN221MR30S
	220	35×25	0.15	1.04	EKMM351VSN221MA25S
	270	22×50	0.15	1.16	EKMM351VSN271MP50S
	270	25.4×40	0.15	1.18	EKMM351VSN271MQ40S
	270	30×30	0.15	1.17	EKMM351VSN271MR30S
	270	35×25	0.15	1.20	EKMM351VSN271MA25S
	330	25.4×45	0.15	1.29	EKMM351VSN331MQ45S
	330	30×35	0.15	1.34	EKMM351VSN331MR35S
	330	35×30	0.15	1.22	EKMM351VSN331MA30S
	390	25.4×50	0.15	1.51	EKMM351VSN391MQ50S
	390	30×40	0.15	1.51	EKMM351VSN391MR40S
	390	35×35	0.15	1.47	EKMM351VSN391MA35S
	470	25.4×60	0.15	1.66	EKMM351VSN471MQ60S
	470	30×45	0.15	1.65	EKMM351VSN471MR45S
	470	35×35	0.15	1.69	EKMM351VSN471MA35S
	560	30×50	0.15	1.85	EKMM351VSN561MR50S
	560	35×40	0.15	1.90	EKMM351VSN561MA40S
	680	30×60	0.15	2.15	EKMM351VSN681MR60S
	680	35×50	0.15	1.99	EKMM351VSN681MA50S
	820	35×60	0.15	2.31	EKMM351VSN821MA60S
400	39	20×20	0.15	0.32	EKMM401VSN390MN20S
	47	20×25	0.15	0.39	EKMM401VSN470MN25S
	47	22×20	0.15	0.37	EKMM401VSN470MP20S
	56	20×25	0.15	0.51	EKMM401VSN560MN25S
	56	25.4×20	0.15	0.42	EKMM401VSN560MQ20S
	68	20×30	0.15	0.56	EKMM401VSN680MN30S
	68	22×25	0.15	0.50	EKMM401VSN680MP25S
	68	25.4×20	0.15	0.46	EKMM401VSN680MQ20S
	82	20×30	0.15	0.64	EKMM401VSN820MN30S
	82	22×25	0.15	0.64	EKMM401VSN820MP25S
	82	30×20	0.15	0.55	EKMM401VSN820MR20S
	100	20×35	0.15	0.70	EKMM401VSN101MN35S
	100	22×30	0.15	0.70	EKMM401VSN101MP30S
	100	25.4×25	0.15	0.70	EKMM401VSN101MQ25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	100	30×20	0.15	0.60	EKMM401VSN101MR20S
	120	20×40	0.15	0.75	EKMM401VSN121MN40S
	120	22×35	0.15	0.75	EKMM401VSN121MP35S
	120	25.4×25	0.15	0.75	EKMM401VSN121MQ25S
	120	30×25	0.15	0.73	EKMM401VSN121MR25S
	120	35×20	0.15	0.75	EKMM401VSN121MA20S
	150	20×45	0.15	0.83	EKMM401VSN151MN45S
	150	22×40	0.15	0.88	EKMM401VSN151MP40S
	150	25.4×30	0.15	0.88	EKMM401VSN151MQ30S
	150	30×25	0.15	0.88	EKMM401VSN151MR25S
	150	35×20	0.15	0.80	EKMM401VSN151MA20S
	180	22×45	0.15	0.98	EKMM401VSN181MP45S
	180	25.4×35	0.15	0.98	EKMM401VSN181MQ35S
	180	30×30	0.15	0.98	EKMM401VSN181MR30S
	180	35×25	0.15	0.98	EKMM401VSN181MA25S
	220	22×50	0.15	1.10	EKMM401VSN221MP50S
	220	25.4×40	0.15	1.10	EKMM401VSN221MQ40S
	220	30×30	0.15	1.10	EKMM401VSN221MR30S
	220	35×25	0.15	1.10	EKMM401VSN221MA25S
	270	25.4×45	0.15	1.22	EKMM401VSN271MQ45S
	270	30×35	0.15	1.22	EKMM401VSN271MR35S
	270	35×30	0.15	1.22	EKMM401VSN271MA30S
	330	25.4×50	0.15	1.44	EKMM401VSN331MQ50S
	330	30×40	0.15	1.44	EKMM401VSN331MR40S
	330	35×30	0.15	1.44	EKMM401VSN331MA30S
	390	25.4×60	0.15	1.51	EKMM401VSN391MQ60S
	390	30×45	0.15	1.60	EKMM401VSN391MR45S
	390	35×35	0.15	1.60	EKMM401VSN391MA35S
	470	30×50	0.15	1.90	EKMM401VSN471MR50S
	470	35×40	0.15	1.90	EKMM401VSN471MA40S
	560	30×60	0.15	2.10	EKMM401VSN561MR60S
	560	35×45	0.15	2.12	EKMM401VSN561MA45S
	680	35×60	0.15	2.27	EKMM401VSN681MA60S
420	39	20×20	0.20	0.32	EKMM421VSN390MN20S
	47	20×25	0.20	0.39	EKMM421VSN470MN25S
	47	22×20	0.20	0.37	EKMM421VSN470MP20S
	56	20×25	0.20	0.51	EKMM421VSN560MN25S
	56	25.4×20	0.20	0.42	EKMM421VSN560MQ20S
	68	20×30	0.20	0.56	EKMM421VSN680MN30S
	68	22×25	0.20	0.50	EKMM421VSN680MP25S
	68	25.4×20	0.20	0.46	EKMM421VSN680MQ20S
	82	20×35	0.20	0.64	EKMM421VSN820MN35S
	82	22×25	0.20	0.64	EKMM421VSN820MP25S
	82	25.4×25	0.20	0.58	EKMM421VSN820MQ25S
	82	30×20	0.20	0.53	EKMM421VSN820MR20S
	100	20×35	0.20	0.70	EKMM421VSN101MN35S
	100	22×30	0.20	0.70	EKMM421VSN101MP30S
	100	25.4×25	0.20	0.70	EKMM421VSN101MQ25S
	100	30×20	0.20	0.59	EKMM421VSN101MR20S
	120	20×40	0.20	0.75	EKMM421VSN121MN40S
	120	22×35	0.20	0.75	EKMM421VSN121MP35S
	120	25.4×30	0.20	0.75	EKMM421VSN121MQ30S
	120	30×25	0.20	0.73	EKMM421VSN121MR25S
	120	35×20	0.20	0.67	EKMM421VSN121MA20S
	150	20×50	0.20	0.88	EKMM421VSN151MN50S
	150	22×40	0.20	0.88	EKMM421VSN151MP40S
	150	25.4×35	0.20	0.88	EKMM421VSN151MQ35S
	150	30×25	0.20	0.88	EKMM421VSN151MR25S
	180	22×45	0.20	0.95	EKMM421VSN181MP45S
	180	25.4×35	0.20	0.95	EKMM421VSN181MQ35S
	180	30×30	0.20	0.95	EKMM421VSN181MR30S
	180	35×25	0.20	0.94	EKMM421VSN181MA25S
	220	22×50	0.20	1.10	EKMM421VSN221MP50S
	220	25.4×45	0.20	1.10	EKMM421VSN221MQ45S
	220	30×35	0.20	1.10	EKMM421VSN221MR35S
	220	35×25	0.20	1.10	EKMM421VSN221MA25S
	270	25.4×50	0.20	1.22	EKMM421VSN271MQ50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
420	270	30×40	0.20	1.22	EKMM421VSN271MR40S
	270	35×30	0.20	1.22	EKMM421VSN271MA30S
	330	25.4×60	0.20	1.41	EKMM421VSN331MQ60S
	330	30×45	0.20	1.45	EKMM421VSN331MR45S
	330	35×35	0.20	1.45	EKMM421VSN331MA35S
	390	30×50	0.20	1.55	EKMM421VSN391MR50S
	390	35×40	0.20	1.55	EKMM421VSN391MA40S
	470	30×60	0.20	1.79	EKMM421VSN471MR60S
	470	35×45	0.20	1.90	EKMM421VSN471MA45S
	560	35×50	0.20	2.15	EKMM421VSN561MA50S
	680	35×60	0.20	2.27	EKMM421VSN681MA60S
450	39	20×25	0.20	0.34	EKMM451VSN390MN25S
	47	20×25	0.20	0.39	EKMM451VSN470MN25S
	56	20×30	0.20	0.51	EKMM451VSN560MN30S
	56	22×25	0.20	0.40	EKMM451VSN560MP25S
	68	20×35	0.20	0.56	EKMM451VSN680MN35S
	68	22×30	0.20	0.53	EKMM451VSN680MP30S
	68	25.4×25	0.20	0.50	EKMM451VSN680MQ25S
	82	20×35	0.20	0.64	EKMM451VSN820MN35S
	82	22×30	0.20	0.64	EKMM451VSN820MP30S
	82	25.4×25	0.20	0.64	EKMM451VSN820MQ25S
	100	20×45	0.20	0.69	EKMM451VSN101MN45S
	100	22×35	0.20	0.69	EKMM451VSN101MP35S
	100	25.4×30	0.20	0.69	EKMM451VSN101MQ30S
	100	30×25	0.20	0.64	EKMM451VSN101MR25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
450	120	20×50	0.20	0.75	EKMM451VSN121MN50S
	120	22×40	0.20	0.80	EKMM451VSN121MP40S
	120	25.4×30	0.20	0.80	EKMM451VSN121MQ30S
	120	30×25	0.20	0.80	EKMM451VSN121MR25S
	120	35×25	0.20	0.73	EKMM451VSN121MA25S
	150	22×45	0.20	0.88	EKMM451VSN151MP45S
	150	25.4×35	0.20	0.88	EKMM451VSN151MQ35S
	150	30×30	0.20	0.88	EKMM451VSN151MR30S
	150	35×25	0.20	0.75	EKMM451VSN151MA25S
	180	22×50	0.20	1.00	EKMM451VSN181MP50S
	180	25.4×40	0.20	1.00	EKMM451VSN181MQ40S
	180	30×30	0.20	1.00	EKMM451VSN181MR30S
	220	25.4×45	0.20	1.12	EKMM451VSN221MQ45S
	220	30×35	0.20	1.12	EKMM451VSN221MR35S
	220	35×30	0.20	1.12	EKMM451VSN221MA30S
	270	25.4×60	0.20	1.18	EKMM451VSN271MQ60S
	270	30×40	0.20	1.28	EKMM451VSN271MR40S
	270	35×35	0.20	1.28	EKMM451VSN271MA35S
	330	30×50	0.20	1.45	EKMM451VSN331MR50S
	330	35×40	0.20	1.45	EKMM451VSN331MA40S
	390	30×60	0.20	1.51	EKMM451VSN391MR60S
	390	35×40	0.20	1.55	EKMM451VSN391MA40S
	470	35×50	0.20	1.85	EKMM451VSN471MA50S
	560	35×60	0.20	1.91	EKMM451VSN561MA60S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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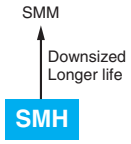
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

SMH Series

- Endurance with ripple current : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

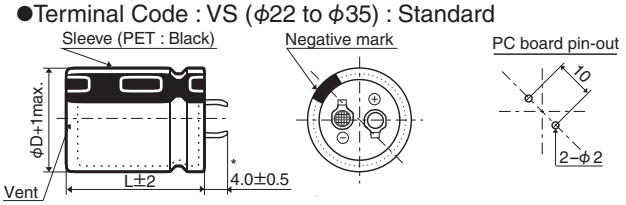


◆SPACIFICATIONS

Items	Characteristics											
Category Temperature Range	−40 to +85℃											
Rated Voltage Range	6.3 to 100Vdc											
Capacitance Tolerance	±20% (M)											(at 20℃, 120Hz)
Leakage Current	I=0.02CV or 3mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)											(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V		
	tanδ (Max.)	0.60	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V		
	Z(−25℃)/Z(+20℃)	4	4	4	3	3	2	2	2	2		
	Z(−40℃)/Z(+20℃)	15	15	15	10	8	6	6	5	5		(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃.											
	Capacitance change	≦±20% of the initial value										
	D.F. (tanδ)	≦200% of the initial specified value										
	Leakage current	≦The initial specified value										
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.											
	Capacitance change	≦±20% of the initial value										
	D.F. (tanδ)	≦150% of the initial specified value										
	Leakage current	≦The initial specified value										

◆DIMENSIONS [mm]

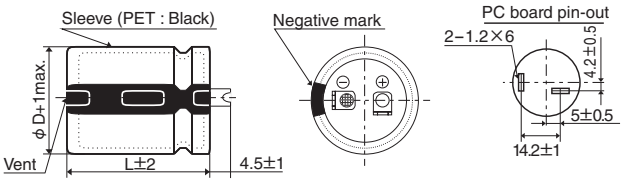
- Terminal Code : VS (φ22 to φ35) : Standard



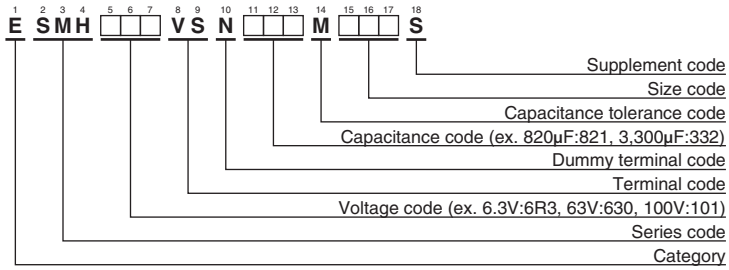
*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

- Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

SMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
6.3	15,000	22×25	0.60	2.44	ESMH6R3VSN153MP25S
	18,000	22×30	0.60	2.67	ESMH6R3VSN183MP30S
	18,000	25.4×25	0.60	2.70	ESMH6R3VSN183MQ25S
	22,000	22×30	0.60	3.06	ESMH6R3VSN223MP30S
	22,000	25.4×25	0.60	3.07	ESMH6R3VSN223MQ25S
	27,000	22×35	0.60	3.49	ESMH6R3VSN273MP35S
	27,000	25.4×30	0.60	3.52	ESMH6R3VSN273MQ30S
	27,000	30×25	0.60	3.57	ESMH6R3VSN273MR25S
	33,000	22×40	0.60	3.97	ESMH6R3VSN333MP40S
	33,000	25.4×35	0.60	4.02	ESMH6R3VSN333MQ35S
	33,000	30×25	0.60	3.95	ESMH6R3VSN333MR25S
	39,000	22×50	0.60	4.55	ESMH6R3VSN393MP50S
	39,000	25.4×40	0.60	4.50	ESMH6R3VSN393MQ40S
	39,000	30×30	0.60	4.45	ESMH6R3VSN393MR30S
	39,000	35×25	0.60	4.51	ESMH6R3VSN393MA25S
	47,000	25.4×45	0.60	5.09	ESMH6R3VSN473MQ45S
	47,000	30×35	0.60	5.06	ESMH6R3VSN473MR35S
	47,000	35×30	0.60	5.01	ESMH6R3VSN473MA30S
	56,000	25.4×50	0.60	5.71	ESMH6R3VSN563MQ50S
	56,000	30×40	0.60	5.70	ESMH6R3VSN563MR40S
	56,000	35×30	0.60	5.77	ESMH6R3VSN563MA30S
	68,000	30×45	0.60	6.48	ESMH6R3VSN683MR45S
	68,000	35×35	0.60	6.42	ESMH6R3VSN683MA35S
	82,000	30×50	0.60	7.32	ESMH6R3VSN823MR50S
	82,000	35×40	0.60	7.29	ESMH6R3VSN823MA40S
	100,000	35×45	0.60	8.31	ESMH6R3VSN104MA45S
10	12,000	22×25	0.50	2.39	ESMH100VSN123MP25S
	15,000	22×30	0.50	2.76	ESMH100VSN153MP30S
	15,000	25.4×25	0.50	2.77	ESMH100VSN153MQ25S
	18,000	22×35	0.50	3.12	ESMH100VSN183MP35S
	18,000	25.4×25	0.50	3.04	ESMH100VSN183MQ25S
	22,000	22×40	0.50	3.55	ESMH100VSN223MP40S
	22,000	25.4×30	0.50	3.48	ESMH100VSN223MQ30S
	22,000	30×25	0.50	3.53	ESMH100VSN223MR25S
	27,000	22×45	0.50	4.04	ESMH100VSN273MP45S
	27,000	25.4×35	0.50	3.98	ESMH100VSN273MQ35S
	27,000	30×30	0.50	3.73	ESMH100VSN273MR30S
	27,000	35×25	0.50	3.73	ESMH100VSN273MA25S
	33,000	22×50	0.50	4.58	ESMH100VSN333MP50S
	33,000	25.4×40	0.50	4.54	ESMH100VSN333MQ40S
	33,000	30×30	0.50	4.13	ESMH100VSN333MR30S
	33,000	35×25	0.50	4.13	ESMH100VSN333MA25S
	39,000	25.4×45	0.50	5.08	ESMH100VSN393MQ45S
	39,000	30×35	0.50	5.05	ESMH100VSN393MR35S
	39,000	35×30	0.50	4.80	ESMH100VSN393MA30S
	47,000	25.4×50	0.50	5.73	ESMH100VSN473MQ50S
	47,000	30×40	0.50	5.72	ESMH100VSN473MR40S
	47,000	35×30	0.50	5.27	ESMH100VSN473MA30S
	56,000	30×45	0.50	6.44	ESMH100VSN563MR45S
	56,000	35×35	0.50	6.38	ESMH100VSN563MA35S
	68,000	30×50	0.50	7.27	ESMH100VSN683MR50S
	68,000	35×40	0.50	7.27	ESMH100VSN683MA40S
	82,000	35×50	0.50	8.49	ESMH100VSN823MA50S
16	8,200	22×25	0.40	2.51	ESMH160VSN822MP25S
	10,000	22×25	0.40	2.77	ESMH160VSN103MP25S
	12,000	22×30	0.40	2.86	ESMH160VSN123MP30S
	12,000	25.4×25	0.40	2.95	ESMH160VSN123MQ25S
	15,000	22×35	0.40	3.29	ESMH160VSN153MP35S
	15,000	25.4×30	0.40	3.46	ESMH160VSN153MQ30S
	15,000	30×25	0.40	3.66	ESMH160VSN153MR25S
	18,000	22×40	0.40	3.72	ESMH160VSN183MP40S
	18,000	25.4×35	0.40	3.98	ESMH160VSN183MQ35S
	18,000	30×25	0.40	4.00	ESMH160VSN183MR25S
	22,000	22×50	0.40	4.37	ESMH160VSN223MP50S
	22,000	25.4×40	0.40	4.26	ESMH160VSN223MQ40S
	22,000	30×30	0.40	4.21	ESMH160VSN223MR30S
	22,000	35×25	0.40	4.15	ESMH160VSN223MA25S
16	27,000	25.4×45	0.40	4.72	ESMH160VSN273MQ45S
	27,000	30×35	0.40	4.82	ESMH160VSN273MR35S
	27,000	35×30	0.40	4.65	ESMH160VSN273MA30S
	33,000	25.4×50	0.40	5.33	ESMH160VSN333MQ50S
	33,000	30×40	0.40	5.36	ESMH160VSN333MR40S
	33,000	35×30	0.40	5.15	ESMH160VSN333MA30S
	39,000	30×45	0.40	6.01	ESMH160VSN393MR45S
	39,000	35×35	0.40	5.95	ESMH160VSN393MA35S
	47,000	30×50	0.40	6.79	ESMH160VSN473MR50S
	47,000	35×40	0.40	6.76	ESMH160VSN473MA40S
	56,000	35×45	0.40	7.62	ESMH160VSN563MA45S
	68,000	35×50	0.40	8.63	ESMH160VSN683MA50S
25	5,600	22×25	0.30	2.21	ESMH250VSN562MP25S
	6,800	22×30	0.30	2.40	ESMH250VSN682MP30S
	6,800	25.4×25	0.30	2.56	ESMH250VSN682MQ25S
	8,200	22×35	0.30	2.72	ESMH250VSN822MP35S
	8,200	25.4×25	0.30	2.80	ESMH250VSN822MQ25S
	10,000	22×40	0.30	3.09	ESMH250VSN103MP40S
	10,000	25.4×30	0.30	3.12	ESMH250VSN103MQ30S
	10,000	30×25	0.30	3.21	ESMH250VSN103MR25S
	12,000	22×45	0.30	3.48	ESMH250VSN123MP45S
	12,000	25.4×35	0.30	3.43	ESMH250VSN123MQ35S
	12,000	30×30	0.30	3.86	ESMH250VSN123MR30S
	12,000	35×25	0.30	3.54	ESMH250VSN123MA25S
	15,000	22×50	0.30	4.00	ESMH250VSN153MP50S
	15,000	25.4×40	0.30	3.95	ESMH250VSN153MQ40S
	15,000	30×30	0.30	4.00	ESMH250VSN153MR30S
	15,000	35×25	0.30	3.95	ESMH250VSN153MA25S
	18,000	25.4×45	0.30	4.45	ESMH250VSN183MQ45S
	18,000	30×35	0.30	4.46	ESMH250VSN183MR35S
	18,000	35×30	0.30	4.63	ESMH250VSN183MA30S
	22,000	25.4×50	0.30	5.02	ESMH250VSN223MQ50S
	22,000	30×45	0.30	5.21	ESMH250VSN223MR45S
	22,000	35×35	0.30	5.16	ESMH250VSN223MA35S
	27,000	30×50	0.30	5.94	ESMH250VSN273MR50S
	27,000	35×40	0.30	5.92	ESMH250VSN273MA40S
	33,000	35×45	0.30	6.75	ESMH250VSN333MA45S
	39,000	35×50	0.30	7.56	ESMH250VSN393MA50S
35	3,900	22×25	0.25	2.22	ESMH350VSN392MP25S
	4,700	22×30	0.25	2.41	ESMH350VSN472MP30S
	4,700	25.4×25	0.25	2.42	ESMH350VSN472MQ25S
	5,600	22×35	0.25	2.75	ESMH350VSN562MP35S
	5,600	25.4×25	0.25	2.64	ESMH350VSN562MQ25S
	6,800	22×40	0.25	2.80	ESMH350VSN682MP40S
	6,800	25.4×30	0.25	2.74	ESMH350VSN682MQ30S
	6,800	30×25	0.25	2.97	ESMH350VSN682MR25S
	8,200	22×45	0.25	3.47	ESMH350VSN822MP45S
	8,200	25.4×35	0.25	3.10	ESMH350VSN822MQ35S
	8,200	30×30	0.25	3.13	ESMH350VSN822MR30S
	8,200	35×25	0.25	2.73	ESMH350VSN822MA25S
	10,000	22×50	0.25	3.57	ESMH350VSN103MP50S
	10,000	25.4×40	0.25	3.53	ESMH350VSN103MQ40S
	10,000	30×30	0.25	3.46	ESMH350VSN103MR30S
	10,000	35×25	0.25	3.02	ESMH350VSN103MA25S
	12,000	25.4×45	0.25	3.98	ESMH350VSN123MQ45S
	12,000	30×35	0.25	4.01	ESMH350VSN123MR35S
	12,000	35×30	0.25	4.42	ESMH350VSN123MA30S
	15,000	25.4×50	0.25	4.54	ESMH350VSN153MQ50S
	15,000	30×40	0.25	4.52	ESMH350VSN153MR40S
	15,000	35×35	0.25	5.01	ESMH350VSN153MA35S
	18,000	30×45	0.25	4.71	ESMH350VSN183MR45S
	18,000	35×40	0.25	5.54	ESMH350VSN183MA40S
	22,000	30×50	0.25	5.33	ESMH350VSN223MR50S
	22,000	35×45	0.25	6.04	ESMH350VSN223MA45S
	27,000	35×50	0.25	6.89	ESMH350VSN273MA50S
50	2,200	22×25	0.20	1.91	ESMH500VSN222MP25S
	3,300	22×30	0.20	2.37	ESMH500VSN332MP30S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

SMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
50	3,300	25.4×25	0.20	2.38	ESMH500VSN332MQ25S
	3,900	22×35	0.20	2.65	ESMH500VSN392MP35S
	3,900	25.4×30	0.20	2.68	ESMH500VSN392MQ30S
	3,900	30×25	0.20	2.55	ESMH500VSN392MR25S
	4,700	22×40	0.20	2.99	ESMH500VSN472MP40S
	4,700	25.4×35	0.20	3.03	ESMH500VSN472MQ35S
	4,700	30×25	0.20	2.81	ESMH500VSN472MR25S
	5,600	22×45	0.20	3.36	ESMH500VSN562MP45S
	5,600	25.4×35	0.20	3.31	ESMH500VSN562MQ35S
	5,600	30×30	0.20	3.37	ESMH500VSN562MR30S
	5,600	35×25	0.20	3.42	ESMH500VSN562MA25S
	6,800	22×50	0.20	3.81	ESMH500VSN682MP50S
	6,800	25.4×40	0.20	3.81	ESMH500VSN682MQ40S
	6,800	30×35	0.20	3.85	ESMH500VSN682MR35S
	6,800	35×30	0.20	3.85	ESMH500VSN682MA30S
	8,200	25.4×50	0.20	4.37	ESMH500VSN822MQ50S
	8,200	30×40	0.20	4.36	ESMH500VSN822MR40S
	8,200	35×30	0.20	4.41	ESMH500VSN822MA30S
	10,000	30×45	0.20	4.97	ESMH500VSN103MR45S
	10,000	35×35	0.20	4.92	ESMH500VSN103MA35S
	12,000	30×50	0.20	5.60	ESMH500VSN123MR50S
	12,000	35×40	0.20	5.58	ESMH500VSN123MA40S
	15,000	35×45	0.20	6.44	ESMH500VSN153MA45S
	18,000	35×50	0.20	6.71	ESMH500VSN183MA50S
63	1,800	22×25	0.15	1.82	ESMH630VSN182MP25S
	2,200	22×30	0.15	2.31	ESMH630VSN222MP30S
	2,200	25.4×25	0.15	2.30	ESMH630VSN222MQ25S
	2,700	22×35	0.15	2.40	ESMH630VSN272MP35S
	2,700	25.4×25	0.15	2.40	ESMH630VSN272MQ25S
	3,300	22×35	0.15	2.62	ESMH630VSN332MP35S
	3,300	25.4×30	0.15	2.64	ESMH630VSN332MQ30S
	3,300	30×25	0.15	2.78	ESMH630VSN332MR25S
	3,900	22×40	0.15	2.93	ESMH630VSN392MP40S
	3,900	25.4×35	0.15	2.97	ESMH630VSN392MQ35S
	3,900	30×30	0.15	3.00	ESMH630VSN392MR30S
	3,900	35×25	0.15	3.00	ESMH630VSN392MA25S
	4,700	22×50	0.15	3.39	ESMH630VSN472MP50S
	4,700	25.4×40	0.15	3.36	ESMH630VSN472MQ40S
	4,700	30×30	0.15	3.32	ESMH630VSN472MR30S
	4,700	35×25	0.15	3.36	ESMH630VSN472MA25S
	5,600	25.4×45	0.15	3.77	ESMH630VSN562MQ45S
	5,600	30×35	0.15	3.75	ESMH630VSN562MR35S
	5,600	35×30	0.15	3.76	ESMH630VSN562MA30S
	6,800	25.4×50	0.15	4.27	ESMH630VSN682MQ50S
	6,800	30×40	0.15	4.27	ESMH630VSN682MR40S
	6,800	35×30	0.15	4.15	ESMH630VSN682MA30S
	8,200	30×45	0.15	4.83	ESMH630VSN822MR45S
	8,200	35×35	0.15	4.79	ESMH630VSN822MA35S
	10,000	30×50	0.15	5.49	ESMH630VSN103MR50S
	10,000	35×40	0.15	5.47	ESMH630VSN103MA40S
	12,000	35×45	0.15	6.19	ESMH630VSN123MA45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
80	1,200	22×25	0.15	1.69	ESMH800VSN122MP25S
	1,500	22×25	0.15	1.88	ESMH800VSN152MP25S
	1,800	22×30	0.15	2.14	ESMH800VSN182MP30S
	1,800	25.4×25	0.15	2.26	ESMH800VSN182MQ25S
	2,200	22×35	0.15	2.44	ESMH800VSN222MP35S
	2,200	25.4×30	0.15	2.46	ESMH800VSN222MQ30S
	2,200	30×25	0.15	2.49	ESMH800VSN222MR25S
	2,700	22×40	0.15	2.78	ESMH800VSN272MP40S
	2,700	25.4×35	0.15	2.81	ESMH800VSN272MQ35S
	2,700	30×25	0.15	2.75	ESMH800VSN272MR25S
	3,300	22×45	0.15	3.16	ESMH800VSN332MP45S
	3,300	25.4×40	0.15	3.21	ESMH800VSN332MQ40S
	3,300	30×30	0.15	3.17	ESMH800VSN332MR30S
	3,300	35×25	0.15	3.21	ESMH800VSN332MA25S
	3,900	22×50	0.15	3.52	ESMH800VSN392MP50S
	3,900	25.4×45	0.15	3.59	ESMH800VSN392MQ45S
	3,900	30×35	0.15	3.57	ESMH800VSN392MR35S
	3,900	35×25	0.15	3.50	ESMH800VSN392MA25S
	4,700	25.4×50	0.15	4.05	ESMH800VSN472MQ50S
	4,700	30×40	0.15	4.05	ESMH800VSN472MR40S
	4,700	35×30	0.15	4.09	ESMH800VSN472MA30S
	5,600	30×45	0.15	4.55	ESMH800VSN562MR45S
	5,600	35×35	0.15	4.51	ESMH800VSN562MA35S
	6,800	30×50	0.15	5.16	ESMH800VSN682MR50S
	6,800	35×40	0.15	5.14	ESMH800VSN682MA40S
	8,200	35×45	0.15	5.83	ESMH800VSN822MA45S
	10,000	35×50	0.15	6.63	ESMH800VSN103MA50S
100	820	22×25	0.15	1.86	ESMH101VSN821MP25S
	1,200	22×30	0.15	2.09	ESMH101VSN122MP30S
	1,200	25.4×25	0.15	2.10	ESMH101VSN122MQ25S
	1,500	22×35	0.15	2.41	ESMH101VSN152MP35S
	1,500	25.4×30	0.15	2.43	ESMH101VSN152MQ30S
	1,500	30×25	0.15	2.46	ESMH101VSN152MR25S
	1,800	22×40	0.15	2.71	ESMH101VSN182MP40S
	1,800	25.4×35	0.15	2.75	ESMH101VSN182MQ35S
	1,800	30×25	0.15	2.72	ESMH101VSN182MR25S
	2,200	22×45	0.15	3.08	ESMH101VSN222MP45S
	2,200	25.4×40	0.15	3.13	ESMH101VSN222MQ40S
	2,200	30×30	0.15	3.09	ESMH101VSN222MR30S
	2,200	35×25	0.15	3.14	ESMH101VSN222MA25S
	2,700	22×50	0.15	3.53	ESMH101VSN272MP50S
	2,700	25.4×45	0.15	3.57	ESMH101VSN272MQ45S
	2,700	30×35	0.15	3.55	ESMH101VSN272MR35S
	2,700	35×30	0.15	3.71	ESMH101VSN272MA30S
	3,300	25.4×50	0.15	4.06	ESMH101VSN332MQ50S
	3,300	30×40	0.15	4.05	ESMH101VSN332MR40S
	3,300	35×30	0.15	4.05	ESMH101VSN332MA30S
	3,900	30×45	0.15	4.54	ESMH101VSN392MR45S
	3,900	35×35	0.15	4.49	ESMH101VSN392MA35S
	4,700	30×50	0.15	5.13	ESMH101VSN472MR50S
	4,700	35×40	0.15	5.11	ESMH101VSN472MA40S
	5,600	35×45	0.15	5.75	ESMH101VSN562MA45S
	6,800	35×50	0.15	6.50	ESMH101VSN682MA50S

*For the rated voltage≧160Vdc, please use SMQ series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
6.3 to 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100Vdc	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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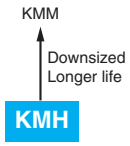
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

KMH Series

●Endurance with ripple current : 2,000 hours at 105℃
●Non solvent resistant type
●RoHS Compliant

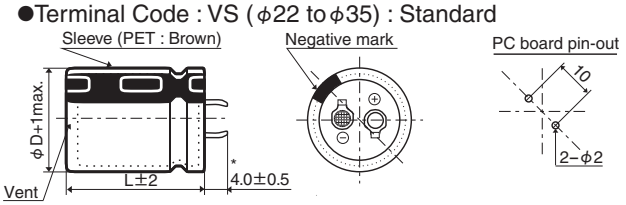


◆SPECIFICATIONS

Items	Characteristics											
Category Temperature Range	−40 to +105℃											
Rated Voltage Range	6.3 to 100Vdc											
Capacitance Tolerance	±20% (M)											(at 20℃, 120Hz)
Leakage Current	I=0.02CV or 3mA, whichever is smaller Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)											(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V		
	tanδ (Max.)	0.60	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V		
	Z(−25℃)/Z(+20℃)	4	4	4	3	3	2	2	2	2		
	Z(−45℃)/Z(+20℃)	15	15	15	10	8	6	6	5	5		(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃											
	Capacitance change	≦±20% of the initial value										
	D.F. (tanδ)	≦200% of the initial specified value										
	Leakage current	≦The initial specified value										
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.											
	Capacitance change	≦±20% of the initial value										
	D.F. (tanδ)	≦150% of the initial specified value										
	Leakage current	≦The initial specified value										

◆DIMENSIONS [mm]

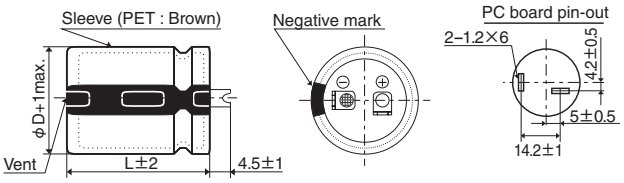
●Terminal Code : VS (φ22 to φ35) : Standard



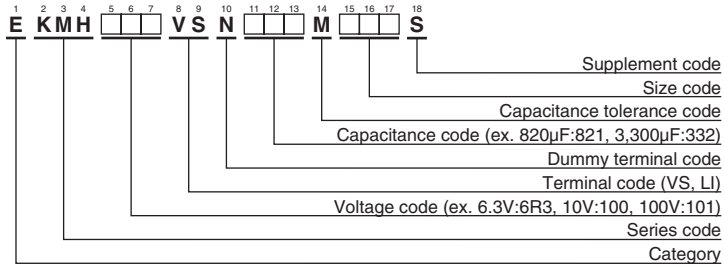
*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
6.3	12,000	22×25	0.60	1.54	EKMH6R3VSN123MP25S
	15,000	22×25	0.60	1.72	EKMH6R3VSN153MP25S
	18,000	22×30	0.60	1.95	EKMH6R3VSN183MP30S
	18,000	25.4×25	0.60	1.96	EKMH6R3VSN183MQ25S
	22,000	22×35	0.60	2.23	EKMH6R3VSN223MP35S
	22,000	25.4×30	0.60	2.25	EKMH6R3VSN223MQ30S
	22,000	30×25	0.60	2.28	EKMH6R3VSN223MR25S
	27,000	22×40	0.60	2.54	EKMH6R3VSN273MP40S
	27,000	25.4×35	0.60	2.57	EKMH6R3VSN273MQ35S
	27,000	30×25	0.60	2.52	EKMH6R3VSN273MR25S
	33,000	22×45	0.60	2.88	EKMH6R3VSN333MP45S
	33,000	25.4×40	0.60	2.93	EKMH6R3VSN333MQ40S
	33,000	30×30	0.60	2.89	EKMH6R3VSN333MR30S
	33,000	35×25	0.60	2.93	EKMH6R3VSN333MA25S
	39,000	25.4×40	0.60	3.18	EKMH6R3VSN393MQ40S
	39,000	30×35	0.60	3.26	EKMH6R3VSN393MR35S
	39,000	35×30	0.60	3.40	EKMH6R3VSN393MA30S
	47,000	25.4×50	0.60	3.69	EKMH6R3VSN473MQ50S
	47,000	30×40	0.60	3.69	EKMH6R3VSN473MR40S
	47,000	35×30	0.60	3.73	EKMH6R3VSN473MA30S
	56,000	30×45	0.60	4.16	EKMH6R3VSN563MR45S
	56,000	35×35	0.60	4.12	EKMH6R3VSN563MA35S
	68,000	30×50	0.60	4.71	EKMH6R3VSN683MR50S
	68,000	35×40	0.60	4.69	EKMH6R3VSN683MA40S
	82,000	35×45	0.60	5.32	EKMH6R3VSN823MA45S
10	10,000	22×25	0.50	1.55	EKMH100VSN103MP25S
	12,000	22×30	0.50	1.77	EKMH100VSN123MP30S
	15,000	22×30	0.50	1.97	EKMH100VSN153MP30S
	15,000	25.4×25	0.50	1.96	EKMH100VSN153MQ25S
	18,000	22×35	0.50	2.21	EKMH100VSN183MP35S
	18,000	25.4×30	0.50	2.23	EKMH100VSN183MQ30S
	22,000	22×40	0.50	2.51	EKMH100VSN223MP40S
	22,000	25.4×35	0.50	2.54	EKMH100VSN223MQ35S
	22,000	30×25	0.50	2.40	EKMH100VSN223MR25S
	27,000	22×50	0.50	2.93	EKMH100VSN273MP50S
	27,000	25.4×40	0.50	2.90	EKMH100VSN273MQ40S
	27,000	30×30	0.50	2.87	EKMH100VSN273MR30S
	27,000	35×25	0.50	2.73	EKMH100VSN273MA25S
	33,000	25.4×45	0.50	3.30	EKMH100VSN333MQ45S
	33,000	30×35	0.50	3.28	EKMH100VSN333MR35S
	33,000	35×30	0.50	3.16	EKMH100VSN333MA30S
	39,000	25.4×50	0.50	3.68	EKMH100VSN393MQ50S
	39,000	30×40	0.50	3.69	EKMH100VSN393MR40S
	39,000	35×30	0.50	3.43	EKMH100VSN393MA30S
	47,000	30×45	0.50	4.17	EKMH100VSN473MR45S
	47,000	35×35	0.50	3.76	EKMH100VSN473MA35S
	56,000	30×50	0.50	4.68	EKMH100VSN563MR50S
	56,000	35×40	0.50	4.67	EKMH100VSN563MA40S
	68,000	35×50	0.50	5.46	EKMH100VSN683MA50S
16	6,800	22×25	0.40	1.57	EKMH160VSN682MP25S
	10,000	22×30	0.40	1.97	EKMH160VSN103MP30S
	10,000	25.4×25	0.40	1.97	EKMH160VSN103MQ25S
	12,000	22×35	0.40	2.22	EKMH160VSN123MP35S
	12,000	25.4×30	0.40	2.24	EKMH160VSN123MQ30S
	12,000	30×25	0.40	2.45	EKMH160VSN123MR25S
	15,000	22×40	0.40	2.55	EKMH160VSN153MP40S
	15,000	25.4×35	0.40	2.58	EKMH160VSN153MQ35S
	15,000	30×25	0.40	2.52	EKMH160VSN153MR25S
	18,000	22×45	0.40	2.87	EKMH160VSN183MP45S
	18,000	25.4×40	0.40	2.92	EKMH160VSN183MQ40S
	18,000	30×30	0.40	2.88	EKMH160VSN183MR30S
	18,000	35×25	0.40	2.92	EKMH160VSN183MA25S
	22,000	25.4×45	0.40	3.32	EKMH160VSN223MQ45S
	22,000	30×35	0.40	3.29	EKMH160VSN223MR35S
	22,000	35×25	0.40	3.23	EKMH160VSN223MA25S
	27,000	25.4×50	0.40	3.78	EKMH160VSN273MQ50S
	27,000	30×40	0.40	3.77	EKMH160VSN273MR40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
16	27,000	35×30	0.40	3.45	EKMH160VSN273MA30S
	33,000	30×45	0.40	4.30	EKMH160VSN333MR45S
	33,000	35×35	0.40	4.26	EKMH160VSN333MA35S
	39,000	30×50	0.40	4.81	EKMH160VSN393MR50S
	39,000	35×40	0.40	4.79	EKMH160VSN393MA40S
	47,000	35×45	0.40	5.43	EKMH160VSN473MA45S
25	4,700	22×25	0.30	1.50	EKMH250VSN472MP25S
	5,600	22×25	0.30	1.63	EKMH250VSN562MP25S
	6,800	22×30	0.30	1.86	EKMH250VSN682MP30S
	6,800	25.4×25	0.30	1.87	EKMH250VSN682MQ25S
	8,200	22×35	0.30	2.11	EKMH250VSN822MP35S
	8,200	25.4×30	0.30	2.12	EKMH250VSN822MQ30S
	8,200	30×25	0.30	2.15	EKMH250VSN822MR25S
	10,000	22×40	0.30	2.39	EKMH250VSN103MP40S
	10,000	25.4×35	0.30	2.42	EKMH250VSN103MQ35S
	10,000	30×25	0.30	2.37	EKMH250VSN103MR25S
	12,000	22×45	0.30	2.69	EKMH250VSN123MP45S
	12,000	25.4×40	0.30	2.74	EKMH250VSN123MQ40S
	12,000	30×30	0.30	2.70	EKMH250VSN123MR30S
	12,000	35×25	0.30	2.74	EKMH250VSN123MA25S
	15,000	25.4×45	0.30	3.15	EKMH250VSN153MQ45S
	15,000	30×35	0.30	3.13	EKMH250VSN153MR35S
	15,000	35×30	0.30	3.27	EKMH250VSN153MA30S
	18,000	25.4×50	0.30	3.54	EKMH250VSN183MQ50S
	18,000	30×40	0.30	3.54	EKMH250VSN183MR40S
	18,000	35×30	0.30	3.58	EKMH250VSN183MA30S
	22,000	30×45	0.30	4.04	EKMH250VSN223MR45S
	22,000	35×35	0.30	3.64	EKMH250VSN223MA35S
	27,000	35×45	0.30	4.73	EKMH250VSN273MA45S
	33,000	35×50	0.30	5.39	EKMH250VSN333MA50S
35	3,300	22×25	0.25	1.40	EKMH350VSN332MP25S
	3,900	22×30	0.25	1.57	EKMH350VSN392MP30S
	4,700	22×30	0.25	1.72	EKMH350VSN472MP30S
	4,700	25.4×25	0.25	1.80	EKMH350VSN472MQ25S
	5,600	22×35	0.25	1.95	EKMH350VSN562MP35S
	5,600	25.4×30	0.25	1.96	EKMH350VSN562MQ30S
	5,600	30×25	0.25	1.99	EKMH350VSN562MR25S
	6,800	22×40	0.25	2.20	EKMH350VSN682MP40S
	6,800	25.4×35	0.25	2.23	EKMH350VSN682MQ35S
	6,800	30×25	0.25	2.19	EKMH350VSN682MR25S
	8,200	22×50	0.25	2.55	EKMH350VSN822MP50S
	8,200	25.4×40	0.25	2.53	EKMH350VSN822MQ40S
	8,200	30×30	0.25	2.75	EKMH350VSN822MR30S
	8,200	35×25	0.25	2.75	EKMH350VSN822MA25S
	10,000	25.4×45	0.25	2.87	EKMH350VSN103MQ45S
	10,000	30×35	0.25	2.90	EKMH350VSN103MR35S
	10,000	35×30	0.25	2.91	EKMH350VSN103MA30S
	12,000	25.4×50	0.25	3.24	EKMH350VSN123MQ50S
	12,000	30×40	0.25	3.23	EKMH350VSN123MR40S
	12,000	35×30	0.25	2.99	EKMH350VSN123MA30S
	15,000	30×45	0.25	3.72	EKMH350VSN153MR45S
	15,000	35×35	0.25	3.67	EKMH350VSN153MA35S
	18,000	35×40	0.25	4.37	EKMH350VSN183MA40S
	22,000	35×50	0.25	4.92	EKMH350VSN223MA50S
50	1,800	22×25	0.20	1.33	EKMH500VSN182MP25S
	2,700	22×30	0.20	1.69	EKMH500VSN272MP30S
	2,700	25.4×25	0.20	1.70	EKMH500VSN272MQ25S
	3,300	22×35	0.20	1.93	EKMH500VSN332MP35S
	3,300	25.4×30	0.20	1.85	EKMH500VSN332MQ30S
	3,900	22×40	0.20	2.16	EKMH500VSN392MP40S
	3,900	25.4×35	0.20	2.18	EKMH500VSN392MQ35S
	3,900	30×25	0.20	1.95	EKMH500VSN392MR25S
	4,700	22×45	0.20	2.43	EKMH500VSN472MP45S
	4,700	25.4×35	0.20	2.39	EKMH500VSN472MQ35S
	4,700	30×30	0.20	2.25	EKMH500VSN472MR30S
	4,700	35×25	0.20	2.48	EKMH500VSN472MA25S
	5,600	22×50	0.20	2.75	EKMH500VSN562MP50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
50	5,600	25.4×40	0.20	2.70	EKMH500VSN562MQ40S
	5,600	30×35	0.20	2.76	EKMH500VSN562MR35S
	5,600	35×25	0.20	2.70	EKMH500VSN562MA25S
	6,800	25.4×50	0.20	3.30	EKMH500VSN682MQ50S
	6,800	30×40	0.20	3.30	EKMH500VSN682MR40S
	6,800	35×30	0.20	3.25	EKMH500VSN682MA30S
	8,200	30×45	0.20	3.60	EKMH500VSN822MR45S
	8,200	35×35	0.20	3.55	EKMH500VSN822MA35S
	10,000	30×50	0.20	4.04	EKMH500VSN103MR50S
	10,000	35×40	0.20	4.03	EKMH500VSN103MA40S
	12,000	35×45	0.20	4.55	EKMH500VSN123MA45S
63	1,200	22×25	0.15	1.19	EKMH630VSN122MP25S
	1,500	22×25	0.15	1.33	EKMH630VSN152MP25S
	1,800	22×30	0.15	1.51	EKMH630VSN182MP30S
	1,800	25.4×25	0.15	1.52	EKMH630VSN182MQ25S
	2,200	22×35	0.15	1.73	EKMH630VSN222MP35S
	2,200	25.4×30	0.15	1.74	EKMH630VSN222MQ30S
	2,700	22×40	0.15	1.97	EKMH630VSN272MP40S
	2,700	25.4×35	0.15	1.99	EKMH630VSN272MQ35S
	2,700	30×25	0.15	1.76	EKMH630VSN272MR25S
	3,300	22×50	0.15	2.29	EKMH630VSN332MP50S
	3,300	25.4×40	0.15	2.27	EKMH630VSN332MQ40S
	3,300	30×30	0.15	2.24	EKMH630VSN332MR30S
	3,300	35×25	0.15	2.06	EKMH630VSN332MA25S
	3,900	25.4×45	0.15	2.54	EKMH630VSN392MQ45S
	3,900	30×35	0.15	2.55	EKMH630VSN392MR35S
	3,900	35×25	0.15	2.24	EKMH630VSN392MA25S
	4,700	25.4×50	0.15	2.86	EKMH630VSN472MQ50S
	4,700	30×40	0.15	2.86	EKMH630VSN472MR40S
	4,700	35×30	0.15	2.79	EKMH630VSN472MA30S
	5,600	30×45	0.15	3.22	EKMH630VSN562MR45S
	5,600	35×35	0.15	3.19	EKMH630VSN562MA35S
	6,800	30×50	0.15	3.65	EKMH630VSN682MR50S
	6,800	35×40	0.15	3.64	EKMH630VSN682MA40S
	8,200	35×45	0.15	3.90	EKMH630VSN822MA45S
	10,000	35×50	0.15	4.40	EKMH630VSN103MA50S
80	820	22×25	0.15	1.11	EKMH800VSN821MP25S
	1,000	22×25	0.15	1.22	EKMH800VSN102MP25S
	1,200	22×30	0.15	1.38	EKMH800VSN122MP30S
	1,200	25.4×25	0.15	1.39	EKMH800VSN122MQ25S
	1,500	22×35	0.15	1.59	EKMH800VSN152MP35S
	1,500	25.4×30	0.15	1.61	EKMH800VSN152MQ30S
	1,800	22×40	0.15	1.80	EKMH800VSN182MP40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
80	1,800	25.4×30	0.15	1.76	EKMH800VSN182MQ30S
	1,800	30×25	0.15	1.65	EKMH800VSN182MR25S
	2,200	22×45	0.15	2.04	EKMH800VSN222MP45S
	2,200	25.4×35	0.15	2.01	EKMH800VSN222MQ35S
	2,200	30×30	0.15	2.05	EKMH800VSN222MR30S
	2,200	35×25	0.15	2.07	EKMH800VSN222MA25S
	2,700	25.4×45	0.15	2.36	EKMH800VSN272MQ45S
	2,700	30×35	0.15	2.35	EKMH800VSN272MR35S
	2,700	35×25	0.15	2.29	EKMH800VSN272MA25S
	3,300	25.4×50	0.15	2.68	EKMH800VSN332MQ50S
	3,300	30×40	0.15	2.68	EKMH800VSN332MR40S
	3,300	35×30	0.15	2.45	EKMH800VSN332MA30S
	3,900	30×45	0.15	3.00	EKMH800VSN392MR45S
	3,900	35×35	0.15	2.98	EKMH800VSN392MA35S
	4,700	30×50	0.15	3.39	EKMH800VSN472MR50S
	4,700	35×40	0.15	3.38	EKMH800VSN472MA40S
	5,600	35×45	0.15	3.80	EKMH800VSN562MA45S
	6,800	35×50	0.15	3.90	EKMH800VSN682MA50S
100	560	22×25	0.15	1.05	EKMH101VSN561MP25S
	820	22×30	0.15	1.32	EKMH101VSN821MP30S
	820	25.4×25	0.15	1.33	EKMH101VSN821MQ25S
	1,000	22×35	0.15	1.50	EKMH101VSN102MP35S
	1,000	25.4×30	0.15	1.51	EKMH101VSN102MQ30S
	1,200	22×40	0.15	1.69	EKMH101VSN122MP40S
	1,200	25.4×35	0.15	1.71	EKMH101VSN122MQ35S
	1,200	30×25	0.15	1.68	EKMH101VSN122MR25S
	1,500	22×45	0.15	1.94	EKMH101VSN152MP45S
	1,500	25.4×40	0.15	1.98	EKMH101VSN152MQ40S
	1,500	30×30	0.15	1.95	EKMH101VSN152MR30S
	1,500	35×25	0.15	1.98	EKMH101VSN152MA25S
	1,800	25.4×45	0.15	2.23	EKMH101VSN182MQ45S
	1,800	30×35	0.15	2.50	EKMH101VSN182MR35S
	1,800	35×25	0.15	2.17	EKMH101VSN182MA25S
	2,200	25.4×50	0.15	2.53	EKMH101VSN222MQ50S
	2,200	30×40	0.15	2.70	EKMH101VSN222MR40S
	2,200	35×30	0.15	2.50	EKMH101VSN222MA30S
	2,700	30×45	0.15	2.88	EKMH101VSN272MR45S
	2,700	35×35	0.15	2.86	EKMH101VSN272MA35S
	3,300	30×50	0.15	3.28	EKMH101VSN332MR50S
	3,300	35×40	0.15	3.27	EKMH101VSN332MA40S
	3,900	35×45	0.15	3.67	EKMH101VSN392MA45S
	4,700	35×50	0.15	3.80	EKMH101VSN472MA50S

*For the rated voltage≧160Vdc, please use KMR and KMQ series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
6.3 to 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100Vdc	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS 15mm height snap-ins, 85℃

SLM Series

- ●15mm height snap-ins
- ●Endurance with ripple current : 2,000 hours at 85℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

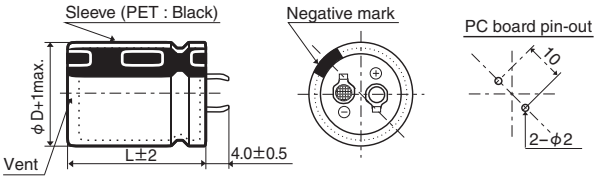
SLM
↑ Low profile
SMQ

◆SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	−25 to +85℃		
Rated Voltage Range	160 to 400Vdc		
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I≦3$\sqrt{CV}$ Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	
	tanδ (Max.)	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	
	Z (−25℃)/Z (+20℃)	4	(at 120Hz)
Endurace	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±15% of the initial value	
	D.F. (tanδ)	≦150% of the initial specified value	
	Leakage current	≦The initial specified value	

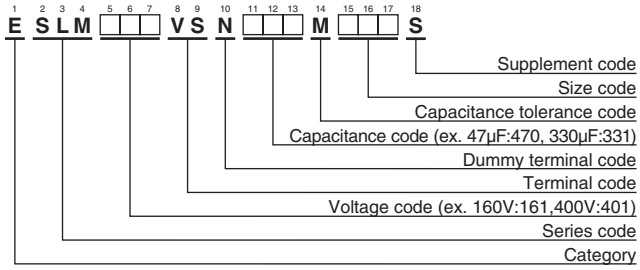
◆DIMENSIONS [mm]

●Terminal Code : VS



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
160	180	22×15	0.20	0.99	ESLM161VSN181MP15S
	270	25.4×15	0.20	1.29	ESLM161VSN271MQ15S
	390	30×15	0.20	1.47	ESLM161VSN391MR15S
	560	35×15	0.20	1.74	ESLM161VSN561MA15S
180	150	22×15	0.20	0.90	ESLM181VSN151MP15S
	220	25.4×15	0.20	1.16	ESLM181VSN221MQ15S
	330	30×15	0.20	1.35	ESLM181VSN331MR15S
	470	35×15	0.20	1.60	ESLM181VSN471MA15S
200	150	22×15	0.20	0.90	ESLM201VSN151MP15S
	220	25.4×15	0.20	1.16	ESLM201VSN221MQ15S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
200	270	30×15	0.20	1.22	ESLM201VSN271MR15S
	390	35×15	0.20	1.46	ESLM201VSN391MA15S
250	100	22×15	0.20	0.73	ESLM251VSN101MP15S
	150	25.4×15	0.20	0.96	ESLM251VSN151MQ15S
	220	30×15	0.20	1.10	ESLM251VSN221MR15S
	330	35×15	0.20	1.34	ESLM251VSN331MA15S
400	47	22×15	0.20	0.50	ESLM401VSN470MP15S
	68	25.4×15	0.20	0.65	ESLM401VSN680MQ15S
	100	30×15	0.20	0.74	ESLM401VSN101MR15S
	120	35×15	0.20	0.81	ESLM401VSN121MA15S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS 15mm height snap-ins, 105℃

KLM Series

- ●15mm height snap-ins
- ●Endurance with ripple current : 2,000 hours at 105℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

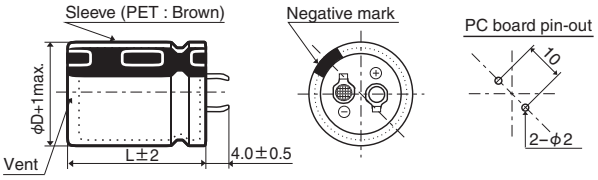
KLM
↑ Low profile
KMQ

◆SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	−25 to +105℃		
Rated Voltage Range	160 to 400Vdc		
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	
	tanδ (Max.)	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	
	Z (−25℃)/Z (+20℃)	4	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±15% of the initial value	
	D.F. (tanδ)	≦150% of the initial specified value	
	Leakage current	≦The initial specified value	

◆DIMENSIONS [mm]

●Terminal Code : VS



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E KLM □□□ VS N □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470, 100μF:101)
- Dummy terminal code
- Terminal code
- Voltage code (ex. 160V:161,400V:401)
- Series code
- Category

Please refer to "Product code guide (snap-in type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	150	22×15	0.20	0.68	EKLM161VSN151MP15S
	180	25.4×15	0.20	0.79	EKLM161VSN181MQ15S
	220	25.4×15	0.20	0.88	EKLM161VSN221MQ15S
	270	30×15	0.20	0.96	EKLM161VSN271MR15S
	330	30×15	0.20	1.06	EKLM161VSN331MR15S
	390	35×15	0.20	1.20	EKLM161VSN391MA15S
180	120	22×15	0.20	0.61	EKLM181VSN121MP15S
	150	25.4×15	0.20	0.73	EKLM181VSN151MQ15S
	180	25.4×15	0.20	0.79	EKLM181VSN181MQ15S
	220	30×15	0.20	0.86	EKLM181VSN221MR15S
	270	30×15	0.20	0.96	EKLM181VSN271MR15S
	330	35×15	0.20	1.10	EKLM181VSN331MA15S
	390	35×15	0.20	1.17	EKLM181VSN391MA15S
200	120	22×15	0.20	0.61	EKLM201VSN121MP15S
	150	25.4×15	0.20	0.73	EKLM201VSN151MQ15S
	180	30×15	0.20	0.79	EKLM201VSN181MR15S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	220	30×15	0.20	0.90	EKLM201VSN221MR15S
	270	35×15	0.20	1.00	EKLM201VSN271MA15S
	330	35×15	0.20	1.07	EKLM201VSN331MA15S
250	82	22×15	0.20	0.50	EKLM251VSN820MP15S
	100	25.4×15	0.20	0.59	EKLM251VSN101MQ15S
	120	25.4×15	0.20	0.65	EKLM251VSN121MQ15S
	150	30×15	0.20	0.71	EKLM251VSN151MR15S
	180	30×15	0.20	0.79	EKLM251VSN181MR15S
	220	35×15	0.20	0.90	EKLM251VSN221MA15S
400	39	22×15	0.20	0.35	EKLM401VSN390MP15S
	47	25.4×15	0.20	0.40	EKLM401VSN470MQ15S
	56	25.4×15	0.20	0.44	EKLM401VSN560MQ15S
	68	30×15	0.20	0.46	EKLM401VSN680MR15S
	82	30×15	0.20	0.51	EKLM401VSN820MR15S
	100	35×15	0.20	0.56	EKLM401VSN101MA15S
	120	35×15	0.20	0.62	EKLM401VSN121MA15S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

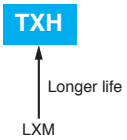
LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

New!

TXH Series

●Endurance with ripple current : 10,000 hours at 105℃
●Non solvent resistant type
●**RoHS Compliant**

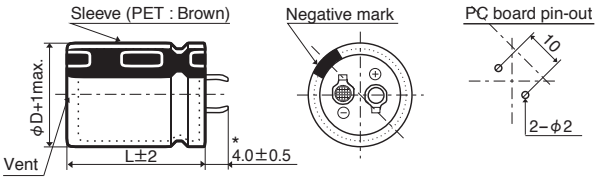


◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	200 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	200 to 400V	450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	200 to 400V	450V	
	Z (-25℃)/Z (+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 10,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

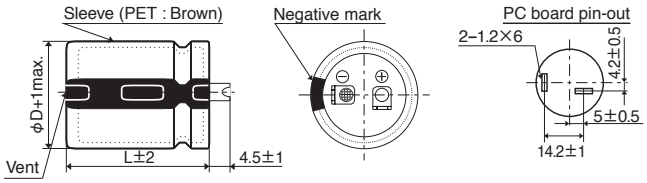
●Terminal Code : VS (φ22 to φ35) : Standard



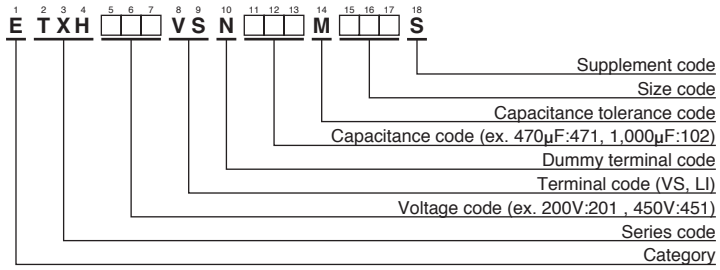
*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

New!

TXH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
200	560	30×30	0.15	1.50	ETXH201VSN561MR30S
	680	30×35	0.15	1.70	ETXH201VSN681MR35S
	820	30×40	0.15	2.00	ETXH201VSN821MR40S
	820	35×30	0.15	2.00	ETXH201VSN821MA30S
	1,000	30×45	0.15	2.20	ETXH201VSN102MR45S
	1,000	35×35	0.15	2.20	ETXH201VSN102MA35S
	1,000	40×30	0.15	2.17	ETXH201VSN102MB30S
	1,200	35×40	0.15	2.40	ETXH201VSN122MA40S
	1,200	40×35	0.15	2.45	ETXH201VSN122MB35S
	1,500	35×50	0.15	2.81	ETXH201VSN152MA50S
	1,500	40×40	0.15	2.79	ETXH201VSN152MB40S
	1,800	40×50	0.15	3.24	ETXH201VSN182MB50S
250	390	30×30	0.15	1.30	ETXH251VSN391MR30S
	470	30×35	0.15	1.42	ETXH251VSN471MR35S
	560	35×30	0.15	1.58	ETXH251VSN561MA30S
	680	30×45	0.15	1.80	ETXH251VSN681MR45S
	680	35×35	0.15	1.76	ETXH251VSN681MA35S
	820	30×50	0.15	2.03	ETXH251VSN821MR50S
	820	35×40	0.15	2.01	ETXH251VSN821MA40S
	820	40×30	0.15	1.96	ETXH251VSN821MB30S
	1,000	35×45	0.15	2.30	ETXH251VSN102MA45S
	1,000	40×35	0.15	2.27	ETXH251VSN102MB35S
	1,200	35×50	0.15	2.55	ETXH251VSN122MA50S
	1,200	40×40	0.15	2.53	ETXH251VSN122MB40S
	1,500	40×50	0.15	2.96	ETXH251VSN152MB50S
	1,800	40×60	0.15	3.39	ETXH251VSN182MB60S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
400	220	30×35	0.15	1.00	ETXH401VSN221MR35S
	270	30×40	0.15	1.15	ETXH401VSN271MR40S
	270	35×30	0.15	1.13	ETXH401VSN271MA30S
	330	30×45	0.15	1.29	ETXH401VSN331MR45S
	330	35×35	0.15	1.26	ETXH401VSN331MA35S
	330	40×30	0.15	1.28	ETXH401VSN331MB30S
	390	30×50	0.15	1.44	ETXH401VSN391MR50S
	390	35×40	0.15	1.43	ETXH401VSN391MA40S
	470	35×45	0.15	1.60	ETXH401VSN471MA45S
	470	40×35	0.15	1.58	ETXH401VSN471MB35S
	560	35×50	0.15	1.79	ETXH401VSN561MA50S
	560	40×40	0.15	1.78	ETXH401VSN561MB40S
	680	40×50	0.15	2.05	ETXH401VSN681MB50S
	820	40×60	0.15	2.36	ETXH401VSN821MB60S
450	220	30×40	0.20	1.04	ETXH451VSN221MR40S
	220	35×30	0.20	1.02	ETXH451VSN221MA30S
	270	30×45	0.20	1.19	ETXH451VSN271MR45S
	270	35×35	0.20	1.16	ETXH451VSN271MA35S
	330	30×50	0.20	1.33	ETXH451VSN331MR50S
	330	35×40	0.20	1.32	ETXH451VSN331MA40S
	390	35×45	0.20	1.48	ETXH451VSN391MA45S
	470	35×50	0.20	1.64	ETXH451VSN471MA50S
	560	40×60	0.20	1.98	ETXH451VSN561MB60S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
200, 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400, 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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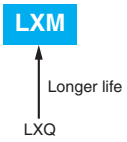
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXM Series

●Endurance with ripple current : 7,000 hours at 105℃
●Non solvent resistant type
●RoHS Compliant

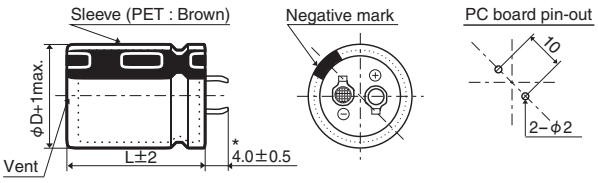


◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z (-25℃)/Z (+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 7,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦250% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

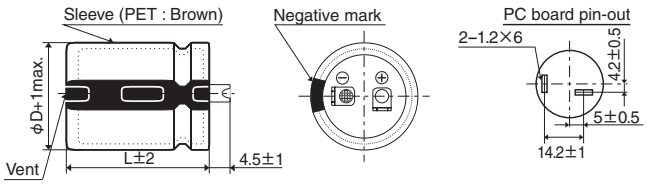
●Terminal Code : VS (φ22 to φ35) : Standard



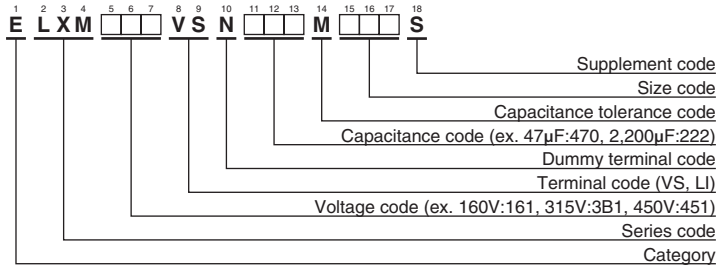
*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	330	22×25	0.15	1.11	ELXM161VSN331MP25S
	390	22×30	0.15	1.26	ELXM161VSN391MP30S
	470	22×30	0.15	1.39	ELXM161VSN471MP30S
	470	25.4×25	0.15	1.38	ELXM161VSN471MQ25S
	560	22×35	0.15	1.55	ELXM161VSN561MP35S
	560	25.4×30	0.15	1.55	ELXM161VSN561MQ30S
	680	22×40	0.15	1.75	ELXM161VSN681MP40S
	680	25.4×35	0.15	1.78	ELXM161VSN681MQ35S
	680	30×25	0.15	1.74	ELXM161VSN681MR25S
	820	22×50	0.15	1.97	ELXM161VSN821MP50S
	820	25.4×40	0.15	2.01	ELXM161VSN821MQ40S
	820	30×30	0.15	1.96	ELXM161VSN821MR30S
	1,000	25.4×45	0.15	2.27	ELXM161VSN102MQ45S
	1,000	30×35	0.15	2.26	ELXM161VSN102MR35S
	1,200	25.4×50	0.15	2.54	ELXM161VSN122MQ50S
	1,200	30×40	0.15	2.56	ELXM161VSN122MR40S
	1,200	35×30	0.15	2.52	ELXM161VSN122MA30S
	1,500	30×45	0.15	2.96	ELXM161VSN152MR45S
	1,500	35×35	0.15	2.89	ELXM161VSN152MA35S
	1,800	30×50	0.15	3.32	ELXM161VSN182MR50S
	1,800	35×40	0.15	3.30	ELXM161VSN182MA40S
	2,200	35×50	0.15	3.87	ELXM161VSN222MA50S
180	270	22×25	0.15	1.00	ELXM181VSN271MP25S
	330	22×30	0.15	1.16	ELXM181VSN331MP30S
	390	22×30	0.15	1.26	ELXM181VSN391MP30S
	390	25.4×25	0.15	1.26	ELXM181VSN391MQ25S
	470	22×35	0.15	1.42	ELXM181VSN471MP35S
	470	25.4×30	0.15	1.42	ELXM181VSN471MQ30S
	560	22×40	0.15	1.59	ELXM181VSN561MP40S
	560	25.4×30	0.15	1.55	ELXM181VSN561MQ30S
	560	30×25	0.15	1.58	ELXM181VSN561MR25S
	680	22×45	0.15	1.79	ELXM181VSN681MP45S
	680	25.4×35	0.15	1.78	ELXM181VSN681MQ35S
	680	30×30	0.15	1.79	ELXM181VSN681MR30S
	820	25.4×40	0.15	2.01	ELXM181VSN821MQ40S
	820	30×35	0.15	2.04	ELXM181VSN821MR35S
	1,000	25.4×50	0.15	2.32	ELXM181VSN102MQ50S
	1,000	30×35	0.15	2.26	ELXM181VSN102MR35S
	1,000	35×30	0.15	2.30	ELXM181VSN102MA30S
	1,200	30×45	0.15	2.65	ELXM181VSN122MR45S
	1,200	35×35	0.15	2.58	ELXM181VSN122MA35S
	1,500	30×50	0.15	3.03	ELXM181VSN152MR50S
	1,500	35×40	0.15	3.01	ELXM181VSN152MA40S
	1,800	35×45	0.15	3.41	ELXM181VSN182MA45S
	2,200	35×50	0.15	3.87	ELXM181VSN222MA50S
200	220	22×25	0.15	0.90	ELXM201VSN221MP25S
	270	22×30	0.15	1.05	ELXM201VSN271MP30S
	330	22×30	0.15	1.16	ELXM201VSN331MP30S
	330	25.4×25	0.15	1.16	ELXM201VSN331MQ25S
	390	22×35	0.15	1.29	ELXM201VSN391MP35S
	390	25.4×30	0.15	1.29	ELXM201VSN391MQ30S
	470	22×40	0.15	1.46	ELXM201VSN471MP40S
	470	25.4×30	0.15	1.42	ELXM201VSN471MQ30S
	470	30×25	0.15	1.45	ELXM201VSN471MR25S
	560	22×45	0.15	1.63	ELXM201VSN561MP45S
	560	25.4×35	0.15	1.62	ELXM201VSN561MQ35S
	560	30×30	0.15	1.62	ELXM201VSN561MR30S
	680	25.4×40	0.15	1.83	ELXM201VSN681MQ40S
	680	30×30	0.15	1.79	ELXM201VSN681MR30S
	820	25.4×45	0.15	2.06	ELXM201VSN821MQ45S
	820	30×35	0.15	2.04	ELXM201VSN821MR35S
	1,000	30×45	0.15	2.42	ELXM201VSN102MR45S
	1,000	35×30	0.15	2.30	ELXM201VSN102MA30S
	1,200	30×50	0.15	2.71	ELXM201VSN122MR50S
	1,200	35×40	0.15	2.70	ELXM201VSN122MA40S
	1,500	35×45	0.15	3.11	ELXM201VSN152MA45S
	1,800	35×50	0.15	3.50	ELXM201VSN182MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
220	220	22×25	0.15	0.90	ELXM221VSN221MP25S
	270	22×30	0.15	1.05	ELXM221VSN271MP30S
	330	22×35	0.15	1.19	ELXM221VSN331MP35S
	330	25.4×25	0.15	1.16	ELXM221VSN331MQ25S
	390	22×40	0.15	1.33	ELXM221VSN391MP40S
	390	25.4×30	0.15	1.29	ELXM221VSN391MQ30S
	470	22×45	0.15	1.49	ELXM221VSN471MP45S
	470	25.4×35	0.15	1.48	ELXM221VSN471MQ35S
	470	30×25	0.15	1.45	ELXM221VSN471MR25S
	560	22×50	0.15	1.63	ELXM221VSN561MP50S
	560	25.4×40	0.15	1.71	ELXM221VSN561MQ40S
	560	30×30	0.15	1.62	ELXM221VSN561MR30S
	680	25.4×45	0.15	1.87	ELXM221VSN681MQ45S
	680	30×35	0.15	1.86	ELXM221VSN681MR35S
	820	25.4×50	0.15	2.10	ELXM221VSN821MQ50S
	820	30×40	0.15	2.12	ELXM221VSN821MR40S
	820	35×30	0.15	2.08	ELXM221VSN821MA30S
	1,000	30×50	0.15	2.48	ELXM221VSN102MR50S
	1,000	35×40	0.15	2.46	ELXM221VSN102MA40S
	1,200	35×45	0.15	2.78	ELXM221VSN122MA45S
	1,500	35×50	0.15	3.20	ELXM221VSN152MA50S
250	180	22×25	0.15	0.82	ELXM251VSN181MP25S
	220	22×30	0.15	0.95	ELXM251VSN221MP30S
	270	22×35	0.15	1.08	ELXM251VSN271MP35S
	270	25.4×25	0.15	1.05	ELXM251VSN271MQ25S
	330	22×40	0.15	1.22	ELXM251VSN331MP40S
	330	25.4×30	0.15	1.19	ELXM251VSN331MQ30S
	390	22×45	0.15	1.36	ELXM251VSN391MP45S
	390	25.4×35	0.15	1.35	ELXM251VSN391MQ35S
	390	30×25	0.15	1.32	ELXM251VSN391MR25S
	470	22×50	0.15	1.49	ELXM251VSN471MP50S
	470	25.4×40	0.15	1.52	ELXM251VSN471MQ40S
	470	30×30	0.15	1.49	ELXM251VSN471MR30S
	560	25.4×45	0.15	1.70	ELXM251VSN561MQ45S
	560	30×35	0.15	1.69	ELXM251VSN561MR35S
	680	25.4×50	0.15	1.91	ELXM251VSN681MQ50S
	680	30×40	0.15	1.93	ELXM251VSN681MR40S
	680	35×30	0.15	1.90	ELXM251VSN681MA30S
	820	30×45	0.15	2.19	ELXM251VSN821MR45S
	820	35×35	0.15	2.13	ELXM251VSN821MA35S
	1,000	35×40	0.15	2.46	ELXM251VSN102MA40S
	1,200	35×50	0.15	2.86	ELXM251VSN122MA50S
315	100	22×25	0.15	0.67	ELXM3B1VSN101MP25S
	120	22×30	0.15	0.77	ELXM3B1VSN121MP30S
	150	22×30	0.15	0.86	ELXM3B1VSN151MP30S
	150	25.4×25	0.15	0.85	ELXM3B1VSN151MQ25S
	180	22×35	0.15	0.96	ELXM3B1VSN181MP35S
	180	25.4×30	0.15	0.96	ELXM3B1VSN181MQ30S
	220	22×40	0.15	1.09	ELXM3B1VSN221MP40S
	220	25.4×30	0.15	1.06	ELXM3B1VSN221MQ30S
	220	30×25	0.15	1.08	ELXM3B1VSN221MR25S
	270	22×45	0.15	1.24	ELXM3B1VSN271MP45S
	270	25.4×35	0.15	1.23	ELXM3B1VSN271MQ35S
	270	30×30	0.15	1.23	ELXM3B1VSN271MR30S
	330	25.4×40	0.15	1.40	ELXM3B1VSN331MQ40S
	330	30×35	0.15	1.42	ELXM3B1VSN331MR35S
	330	35×30	0.15	1.45	ELXM3B1VSN331MA30S
	390	25.4×50	0.15	1.59	ELXM3B1VSN391MQ50S
	390	30×35	0.15	1.54	ELXM3B1VSN391MR35S
	390	35×30	0.15	1.57	ELXM3B1VSN391MA30S
	470	30×45	0.15	1.81	ELXM3B1VSN471MR45S
	470	35×35	0.15	1.77	ELXM3B1VSN471MA35S
	560	30×50	0.15	2.03	ELXM3B1VSN561MR50S
	560	35×40	0.15	2.02	ELXM3B1VSN561MA40S
	680	35×45	0.15	2.29	ELXM3B1VSN681MA45S
	820	35×50	0.15	2.59	ELXM3B1VSN821MA50S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
350	100	22×25	0.15	0.67	ELXM351VSN101MP25S
	120	22×30	0.15	0.77	ELXM351VSN121MP30S
	120	25.4×25	0.15	0.76	ELXM351VSN121MQ25S
	150	22×35	0.15	0.88	ELXM351VSN151MP35S
	150	25.4×30	0.15	0.88	ELXM351VSN151MQ30S
	180	22×40	0.15	0.99	ELXM351VSN181MP40S
	180	25.4×30	0.15	0.96	ELXM351VSN181MQ30S
	180	30×25	0.15	0.98	ELXM351VSN181MR25S
	220	22×45	0.15	1.12	ELXM351VSN221MP45S
	220	25.4×35	0.15	1.11	ELXM351VSN221MQ35S
	220	30×30	0.15	1.11	ELXM351VSN221MR30S
	270	25.4×40	0.15	1.26	ELXM351VSN271MQ40S
	270	30×35	0.15	1.28	ELXM351VSN271MR35S
	330	25.4×45	0.15	1.40	ELXM351VSN331MQ45S
	330	30×35	0.15	1.42	ELXM351VSN331MR35S
	330	35×30	0.15	1.45	ELXM351VSN331MA30S
	390	30×40	0.15	1.60	ELXM351VSN391MR40S
	390	35×35	0.15	1.61	ELXM351VSN391MA35S
	470	30×50	0.15	1.86	ELXM351VSN471MR50S
	470	35×40	0.15	1.85	ELXM351VSN471MA40S
	560	35×40	0.15	2.02	ELXM351VSN561MA40S
	680	35×50	0.15	2.36	ELXM351VSN681MA50S
400	68	22×25	0.15	0.55	ELXM401VSN680MP25S
	82	22×30	0.15	0.63	ELXM401VSN820MP30S
	100	22×30	0.15	0.70	ELXM401VSN101MP30S
	100	25.4×25	0.15	0.70	ELXM401VSN101MQ25S
	120	22×35	0.15	0.79	ELXM401VSN121MP35S
	120	25.4×30	0.15	0.79	ELXM401VSN121MQ30S
	150	22×40	0.15	0.90	ELXM401VSN151MP40S
	150	25.4×30	0.15	0.88	ELXM401VSN151MQ30S
	150	30×25	0.15	0.90	ELXM401VSN151MR25S
	180	22×45	0.15	0.99	ELXM401VSN181MP45S
	180	25.4×35	0.15	1.01	ELXM401VSN181MQ35S
	180	30×30	0.15	1.01	ELXM401VSN181MR30S
	220	25.4×40	0.15	1.14	ELXM401VSN221MQ40S
	220	30×35	0.15	1.16	ELXM401VSN221MR35S
	270	25.4×50	0.15	1.32	ELXM401VSN271MQ50S
	270	30×40	0.15	1.33	ELXM401VSN271MR40S
	270	35×30	0.15	1.31	ELXM401VSN271MA30S
	330	30×45	0.15	1.52	ELXM401VSN331MR45S
	330	35×35	0.15	1.48	ELXM401VSN331MA35S
	390	30×50	0.15	1.69	ELXM401VSN391MR50S
	390	35×40	0.15	1.68	ELXM401VSN391MA40S
	470	35×45	0.15	1.91	ELXM401VSN471MA45S
	560	35×50	0.15	2.14	ELXM401VSN561MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
420	56	22×25	0.20	0.50	ELXM421VSN560MP25S
	68	22×30	0.20	0.58	ELXM421VSN680MP30S
	82	22×30	0.20	0.63	ELXM421VSN820MP30S
	82	25.4×25	0.20	0.63	ELXM421VSN820MQ25S
	100	22×35	0.20	0.72	ELXM421VSN101MP35S
	100	25.4×30	0.20	0.72	ELXM421VSN101MQ30S
	120	22×40	0.20	0.81	ELXM421VSN121MP40S
	120	25.4×30	0.20	0.79	ELXM421VSN121MQ30S
	120	30×25	0.20	0.80	ELXM421VSN121MR25S
	150	22×45	0.20	0.92	ELXM421VSN151MP45S
	150	25.4×35	0.20	0.92	ELXM421VSN151MQ35S
	150	30×30	0.20	0.92	ELXM421VSN151MR30S
	180	25.4×40	0.20	1.03	ELXM421VSN181MQ40S
	180	30×35	0.20	1.05	ELXM421VSN181MR35S
	220	25.4×50	0.20	1.19	ELXM421VSN221MQ50S
	220	30×35	0.20	1.16	ELXM421VSN221MR35S
	220	35×30	0.20	1.18	ELXM421VSN221MA30S
	270	30×45	0.20	1.38	ELXM421VSN271MR45S
	270	35×35	0.20	1.34	ELXM421VSN271MA35S
	330	30×50	0.20	1.56	ELXM421VSN331MR50S
	330	35×40	0.20	1.55	ELXM421VSN331MA40S
	390	35×45	0.20	1.74	ELXM421VSN391MA45S
	470	35×50	0.20	1.96	ELXM421VSN471MA50S
450	47	22×25	0.20	0.46	ELXM451VSN470MP25S
	56	22×30	0.20	0.52	ELXM451VSN560MP30S
	68	22×30	0.20	0.58	ELXM451VSN680MP30S
	68	25.4×25	0.20	0.58	ELXM451VSN680MQ25S
	82	22×35	0.20	0.65	ELXM451VSN820MP35S
	82	25.4×30	0.20	0.65	ELXM451VSN820MQ30S
	100	22×40	0.20	0.74	ELXM451VSN101MP40S
	100	25.4×30	0.20	0.72	ELXM451VSN101MQ30S
	100	30×25	0.20	0.73	ELXM451VSN101MR25S
	120	22×45	0.20	0.83	ELXM451VSN121MP45S
	120	25.4×35	0.20	0.82	ELXM451VSN121MQ35S
	120	30×30	0.20	0.82	ELXM451VSN121MR30S
	150	25.4×40	0.20	0.94	ELXM451VSN151MQ40S
	150	30×35	0.20	0.96	ELXM451VSN151MR35S
	180	25.4×45	0.20	1.06	ELXM451VSN181MQ45S
	180	30×35	0.20	1.05	ELXM451VSN181MR35S
	180	35×30	0.20	1.07	ELXM451VSN181MA30S
	220	30×40	0.20	1.20	ELXM451VSN221MR40S
	220	35×35	0.20	1.21	ELXM451VSN221MA35S
	270	30×50	0.20	1.41	ELXM451VSN271MR50S
	270	35×40	0.20	1.40	ELXM451VSN271MA40S
	330	35×45	0.20	1.60	ELXM451VSN331MA45S
	390	35×50	0.20	1.79	ELXM451VSN391MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

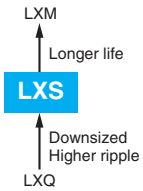
LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

Upgrude!

LXS Series

- ●For solar power generation
- ●Endurance with ripple current : 5,000 hours at 105℃
- ●Rated voltage range : 160 to 500V
- ●Downsized from LXQ series
- ●Non solvent resistant type
- ●**RoHS Compliant**

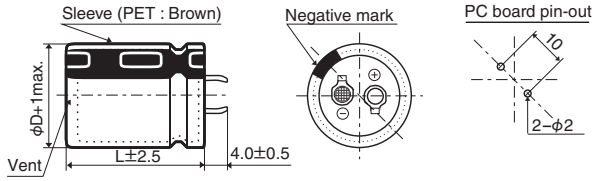


◆SPECIFICATIONS

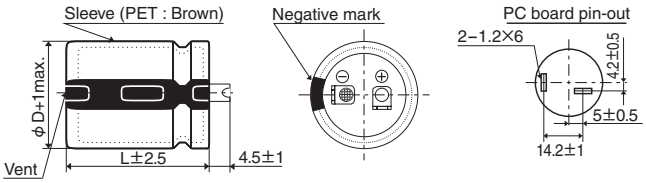
Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 500Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 to 500V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 to 500V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value (500Vdc : ≦250%)		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

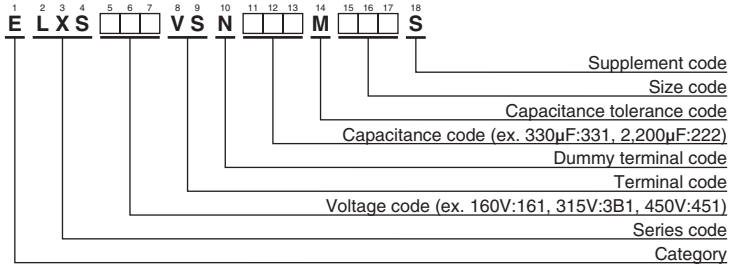


●Terminal Code : LI (φ30, φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

Upgrude!

LXS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	470	22×25	0.15	1.47	ELXS161VSN471MP25S
	680	22×30	0.15	1.86	ELXS161VSN681MP30S
	680	25.4×25	0.15	1.84	ELXS161VSN681MQ25S
	820	22×35	0.15	2.09	ELXS161VSN821MP35S
	820	25.4×30	0.15	2.08	ELXS161VSN821MQ30S
	1,000	22×40	0.15	2.35	ELXS161VSN102MP40S
	1,000	22×45	0.15	2.40	ELXS161VSN102MP45S
	1,000	25.4×35	0.15	2.40	ELXS161VSN102MQ35S
	1,000	30×25	0.15	2.50	ELXS161VSN102MR25S
	1,200	22×50	0.15	2.69	ELXS161VSN122MP50S
	1,200	25.4×40	0.15	2.68	ELXS161VSN122MQ40S
	1,200	30×30	0.15	2.77	ELXS161VSN122MR30S
	1,200	35×25	0.15	2.91	ELXS161VSN122MA25S
	1,500	25.4×45	0.15	3.05	ELXS161VSN152MQ45S
	1,500	30×35	0.15	3.17	ELXS161VSN152MR35S
	1,800	25.4×50	0.15	3.40	ELXS161VSN182MQ50S
	1,800	30×40	0.15	3.57	ELXS161VSN182MR40S
	1,800	35×30	0.15	3.62	ELXS161VSN182MA30S
	2,200	30×45	0.15	4.05	ELXS161VSN222MR45S
	2,200	30×50	0.15	4.11	ELXS161VSN222MR50S
	2,200	35×35	0.15	4.07	ELXS161VSN222MA35S
	2,700	35×40	0.15	4.67	ELXS161VSN272MA40S
	2,700	35×45	0.15	4.78	ELXS161VSN272MA45S
	3,300	35×50	0.15	5.40	ELXS161VSN332MA50S
180	390	22×25	0.15	1.34	ELXS181VSN391MP25S
	560	22×30	0.15	1.68	ELXS181VSN561MP30S
	560	25.4×25	0.15	1.67	ELXS181VSN561MQ25S
	680	22×35	0.15	1.90	ELXS181VSN681MP35S
	820	22×40	0.15	2.13	ELXS181VSN821MP40S
	820	25.4×30	0.15	2.08	ELXS181VSN821MQ30S
	820	25.4×35	0.15	2.17	ELXS181VSN821MQ35S
	820	30×25	0.15	2.26	ELXS181VSN821MR25S
	1,000	22×45	0.15	2.40	ELXS181VSN102MP45S
	1,000	22×50	0.15	2.45	ELXS181VSN102MP50S
	1,000	25.4×40	0.15	2.45	ELXS181VSN102MQ40S
	1,000	30×30	0.15	2.52	ELXS181VSN102MR30S
	1,000	35×25	0.15	2.66	ELXS181VSN102MA25S
	1,200	25.4×45	0.15	2.73	ELXS181VSN122MQ45S
	1,200	30×35	0.15	2.83	ELXS181VSN122MR35S
	1,500	25.4×50	0.15	3.10	ELXS181VSN152MQ50S
	1,500	30×40	0.15	3.26	ELXS181VSN152MR40S
	1,500	35×30	0.15	3.31	ELXS181VSN152MA30S
	1,800	30×45	0.15	3.66	ELXS181VSN182MR45S
	1,800	35×35	0.15	3.68	ELXS181VSN182MA35S
	2,200	30×50	0.15	4.11	ELXS181VSN222MR50S
	2,200	35×40	0.15	4.22	ELXS181VSN222MA40S
	2,200	35×45	0.15	4.32	ELXS181VSN222MA45S
	2,700	35×50	0.15	4.88	ELXS181VSN272MA50S
200	390	22×25	0.15	1.34	ELXS201VSN391MP25S
	470	22×30	0.15	1.54	ELXS201VSN471MP30S
	560	22×35	0.15	1.72	ELXS201VSN561MP35S
	560	25.4×25	0.15	1.67	ELXS201VSN561MQ25S
	680	22×40	0.15	1.94	ELXS201VSN681MP40S
	680	25.4×30	0.15	1.89	ELXS201VSN681MQ30S
	680	30×25	0.15	2.06	ELXS201VSN681MR25S
	820	22×45	0.15	2.17	ELXS201VSN821MP45S
	820	25.4×35	0.15	2.17	ELXS201VSN821MQ35S
	1,000	22×50	0.15	2.45	ELXS201VSN102MP50S
	1,000	25.4×40	0.15	2.45	ELXS201VSN102MQ40S
	1,000	30×30	0.15	2.52	ELXS201VSN102MR30S
	1,000	35×25	0.15	2.66	ELXS201VSN102MA25S
	1,200	25.4×45	0.15	2.73	ELXS201VSN122MQ45S
	1,200	25.4×50	0.15	2.78	ELXS201VSN122MQ50S
	1,200	30×35	0.15	2.83	ELXS201VSN122MR35S
	1,200	35×30	0.15	2.96	ELXS201VSN122MA30S
	1,500	30×40	0.15	3.26	ELXS201VSN152MR40S
	1,500	30×45	0.15	3.34	ELXS201VSN152MR45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	1,500	35×35	0.15	3.36	ELXS201VSN152MA35S
	1,800	30×50	0.15	3.72	ELXS201VSN182MR50S
	1,800	35×40	0.15	3.81	ELXS201VSN182MA40S
	2,200	35×45	0.15	4.32	ELXS201VSN222MA45S
	2,700	35×50	0.15	4.88	ELXS201VSN272MA50S
250	270	22×25	0.15	1.11	ELXS251VSN271MP25S
	330	22×30	0.15	1.29	ELXS251VSN331MP30S
	390	22×35	0.15	1.44	ELXS251VSN391MP35S
	390	25.4×25	0.15	1.40	ELXS251VSN391MQ25S
	470	22×40	0.15	1.61	ELXS251VSN471MP40S
	470	25.4×30	0.15	1.57	ELXS251VSN471MQ30S
	560	22×45	0.15	1.79	ELXS251VSN561MP45S
	560	25.4×35	0.15	1.79	ELXS251VSN561MQ35S
	560	30×25	0.15	1.87	ELXS251VSN561MR25S
	680	22×50	0.15	2.02	ELXS251VSN681MP50S
	680	25.4×40	0.15	2.02	ELXS251VSN681MQ40S
	680	30×30	0.15	2.08	ELXS251VSN681MR30S
	680	35×25	0.15	2.19	ELXS251VSN681MA25S
	820	25.4×45	0.15	2.26	ELXS251VSN821MQ45S
	820	25.4×50	0.15	2.29	ELXS251VSN821MQ50S
	820	30×35	0.15	2.34	ELXS251VSN821MR35S
	820	35×30	0.15	2.45	ELXS251VSN821MA30S
	1,000	30×40	0.15	2.66	ELXS251VSN102MR40S
	1,200	30×45	0.15	2.99	ELXS251VSN122MR45S
	1,200	30×50	0.15	3.04	ELXS251VSN122MR50S
	1,200	35×35	0.15	3.00	ELXS251VSN122MA35S
	1,200	35×40	0.15	3.11	ELXS251VSN122MA40S
	1,500	35×45	0.15	3.56	ELXS251VSN152MA45S
	1,800	35×50	0.15	3.98	ELXS251VSN182MA50S
315	180	22×25	0.15	0.95	ELXS3B1VSN181MP25S
	220	22×30	0.15	1.10	ELXS3B1VSN221MP30S
	220	25.4×25	0.15	1.10	ELXS3B1VSN221MQ25S
	270	22×35	0.15	1.24	ELXS3B1VSN271MP35S
	270	25.4×30	0.15	1.25	ELXS3B1VSN271MQ30S
	330	22×40	0.15	1.40	ELXS3B1VSN331MP40S
	330	30×25	0.15	1.43	ELXS3B1VSN331MR25S
	390	22×45	0.15	1.56	ELXS3B1VSN391MP45S
	390	22×50	0.15	1.59	ELXS3B1VSN391MP50S
	390	25.4×35	0.15	1.57	ELXS3B1VSN391MQ35S
	470	25.4×40	0.15	1.76	ELXS3B1VSN471MQ40S
	470	25.4×45	0.15	1.79	ELXS3B1VSN471MQ45S
	470	30×30	0.15	1.73	ELXS3B1VSN471MR30S
	470	35×25	0.15	1.82	ELXS3B1VSN471MA25S
	560	25.4×50	0.15	1.99	ELXS3B1VSN561MQ50S
	560	30×35	0.15	1.93	ELXS3B1VSN561MR35S
	560	35×30	0.15	2.02	ELXS3B1VSN561MA30S
	680	30×40	0.15	2.19	ELXS3B1VSN681MR40S
	680	30×45	0.15	2.25	ELXS3B1VSN681MR45S
	680	35×35	0.15	2.26	ELXS3B1VSN681MA35S
	820	30×50	0.15	2.51	ELXS3B1VSN821MR50S
	820	35×40	0.15	2.57	ELXS3B1VSN821MA40S
	1,000	35×45	0.15	2.91	ELXS3B1VSN102MA45S
	1,200	35×50	0.15	3.25	ELXS3B1VSN122MA50S
400	120	22×25	0.15	0.77	ELXS401VSN121MP25S
	150	22×30	0.15	0.90	ELXS401VSN151MP30S
	180	22×35	0.15	1.02	ELXS401VSN181MP35S
	180	25.4×25	0.15	0.99	ELXS401VSN181MQ25S
	220	22×40	0.15	1.15	ELXS401VSN221MP40S
	220	25.4×30	0.15	1.13	ELXS401VSN221MQ30S
	220	30×25	0.15	1.17	ELXS401VSN221MR25S
	270	22×45	0.15	1.29	ELXS401VSN271MP45S
	270	22×50	0.15	1.32	ELXS401VSN271MP50S
	270	25.4×35	0.15	1.30	ELXS401VSN271MQ35S
	330	25.4×40	0.15	1.47	ELXS401VSN331MQ40S
	330	30×30	0.15	1.45	ELXS401VSN331MR30S
	330	35×25	0.15	1.52	ELXS401VSN331MA25S
	390	25.4×45	0.15	1.63	ELXS401VSN391MQ45S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

Upgrude!

LXS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	390	25.4×50	0.15	1.66	ELXS401VSN391MQ50S
	390	30×35	0.15	1.61	ELXS401VSN391MR35S
	390	35×30	0.15	1.68	ELXS401VSN391MA30S
	470	30×40	0.15	1.82	ELXS401VSN471MR40S
	470	35×35	0.15	1.88	ELXS401VSN471MA35S
	560	30×45	0.15	2.04	ELXS401VSN561MR45S
	560	30×50	0.15	2.07	ELXS401VSN561MR50S
	560	35×40	0.15	2.13	ELXS401VSN561MA40S
	680	35×45	0.15	2.40	ELXS401VSN681MA45S
	820	35×50	0.15	2.69	ELXS401VSN821MA50S
420	100	22×25	0.20	0.70	ELXS421VSN101MP25S
	120	22×30	0.20	0.81	ELXS421VSN121MP30S
	120	25.4×25	0.20	0.81	ELXS421VSN121MQ25S
	150	22×35	0.20	0.93	ELXS421VSN151MP35S
	180	22×40	0.20	1.04	ELXS421VSN181MP40S
	180	25.4×30	0.20	1.02	ELXS421VSN181MQ30S
	180	30×25	0.20	1.06	ELXS421VSN181MR25S
	220	22×45	0.20	1.17	ELXS421VSN221MP45S
	220	22×50	0.20	1.20	ELXS421VSN221MP50S
	220	25.4×35	0.20	1.18	ELXS421VSN221MQ35S
	270	25.4×40	0.20	1.33	ELXS421VSN271MQ40S
	270	25.4×45	0.20	1.36	ELXS421VSN271MQ45S
	270	30×30	0.20	1.31	ELXS421VSN271MR30S
	270	35×25	0.20	1.38	ELXS421VSN271MA25S
	330	25.4×50	0.20	1.52	ELXS421VSN331MQ50S
	330	30×35	0.20	1.48	ELXS421VSN331MR35S
	330	35×30	0.20	1.55	ELXS421VSN331MA30S
	390	30×40	0.20	1.66	ELXS421VSN391MR40S
	390	30×45	0.20	1.70	ELXS421VSN391MR45S
	390	35×35	0.20	1.71	ELXS421VSN391MA35S
	470	30×50	0.20	1.90	ELXS421VSN471MR50S
	470	35×40	0.20	1.95	ELXS421VSN471MA40S
	560	35×45	0.20	2.17	ELXS421VSN561MA45S
	680	35×50	0.20	2.45	ELXS421VSN681MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
450	82	22×25	0.20	0.64	ELXS451VSN820MP25S
	120	22×30	0.20	0.81	ELXS451VSN121MP30S
	120	22×35	0.20	0.83	ELXS451VSN121MP35S
	120	25.4×25	0.20	0.81	ELXS451VSN121MQ25S
	150	22×40	0.20	0.94	ELXS451VSN151MP40S
	150	25.4×30	0.20	0.93	ELXS451VSN151MQ30S
	180	22×45	0.20	1.06	ELXS451VSN181MP45S
	180	25.4×35	0.20	1.06	ELXS451VSN181MQ35S
	180	30×25	0.20	1.06	ELXS451VSN181MR25S
	220	22×50	0.20	1.20	ELXS451VSN221MP50S
	220	25.4×40	0.20	1.20	ELXS451VSN221MQ40S
	220	30×30	0.20	1.18	ELXS451VSN221MR30S
	220	35×25	0.20	1.24	ELXS451VSN221MA25S
	270	25.4×45	0.20	1.36	ELXS451VSN271MQ45S
	270	25.4×50	0.20	1.38	ELXS451VSN271MQ50S
	270	30×35	0.20	1.34	ELXS451VSN271MR35S
	270	35×30	0.20	1.40	ELXS451VSN271MA30S
	330	30×40	0.20	1.52	ELXS451VSN331MR40S
	390	30×45	0.20	1.70	ELXS451VSN391MR45S
	390	30×50	0.20	1.73	ELXS451VSN391MR50S
	390	35×35	0.20	1.71	ELXS451VSN391MA35S
	470	35×40	0.20	1.95	ELXS451VSN471MA40S
	470	35×45	0.20	1.99	ELXS451VSN471MA45S
	560	35×50	0.20	2.22	ELXS451VSN561MA50S
500	100	30×25	0.20	0.82	ELXS501VSN101MR25S
	120	30×30	0.20	0.91	ELXS501VSN121MR30S
	120	35×25	0.20	0.88	ELXS501VSN121MA25S
	150	30×35	0.20	1.04	ELXS501VSN151MR35S
	180	30×40	0.20	1.17	ELXS501VSN181MR40S
	180	35×30	0.20	1.10	ELXS501VSN181MA30S
	220	30×45	0.20	1.33	ELXS501VSN221MR45S
	220	35×35	0.20	1.23	ELXS501VSN221MA35S
	270	30×50	0.20	1.50	ELXS501VSN271MR50S
	270	35×40	0.20	1.42	ELXS501VSN271MA40S
	330	35×45	0.20	1.60	ELXS501VSN331MA45S
	390	35×50	0.20	1.78	ELXS501VSN391MA50S
	470	35×60	0.20	2.03	ELXS501VSN471MA60S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43
500Vdc	0.70	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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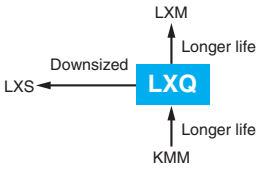
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXQ Series

- ●Endurance with ripple current : 5,000 hours at 105℃
- ●Downsized and higher ripple version of LXG series
- ●Non solvent resistant type
- ●**RoHS Compliant**

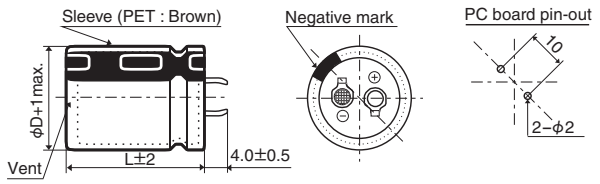


◆SPECIFICATIONS

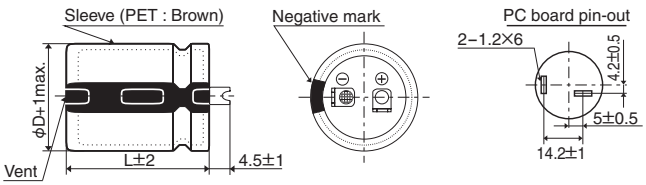
Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3$\sqrt{CV}$ Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

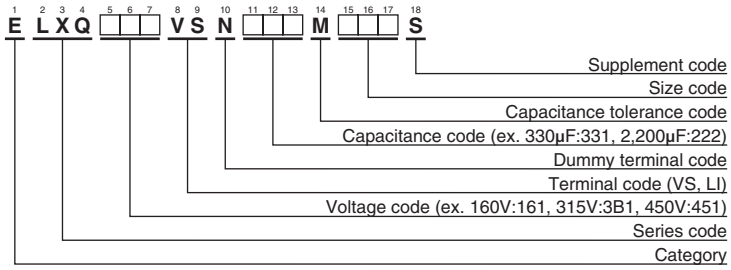


●Terminal Code : LI (φ30, φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	390	22×25	0.15	1.32	ELXQ161VSN391MP25S
	560	22×30	0.15	1.66	ELXQ161VSN561MP30S
	560	25.4×25	0.15	1.68	ELXQ161VSN561MQ25S
	680	22×35	0.15	1.87	ELXQ161VSN681MP35S
	680	25.4×30	0.15	1.88	ELXQ161VSN681MQ30S
	680	30×25	0.15	1.96	ELXQ161VSN681MR25S
	820	22×40	0.15	2.09	ELXQ161VSN821MP40S
	1,000	22×45	0.15	2.36	ELXQ161VSN102MP45S
	1,000	22×50	0.15	2.41	ELXQ161VSN102MP50S
	1,000	25.4×35	0.15	2.38	ELXQ161VSN102MQ35S
	1,000	30×30	0.15	2.40	ELXQ161VSN102MR30S
	1,000	35×25	0.15	2.55	ELXQ161VSN102MA25S
	1,200	25.4×40	0.15	2.66	ELXQ161VSN122MQ40S
	1,200	25.4×45	0.15	2.71	ELXQ161VSN122MQ45S
	1,200	30×35	0.15	2.69	ELXQ161VSN122MR35S
	1,200	30×40	0.15	2.77	ELXQ161VSN122MR40S
	1,200	35×30	0.15	2.86	ELXQ161VSN122MA30S
	1,500	25.4×50	0.15	3.08	ELXQ161VSN152MQ50S
	1,500	30×45	0.15	3.17	ELXQ161VSN152MR45S
	1,500	35×35	0.15	3.22	ELXQ161VSN152MA35S
	1,800	30×50	0.15	3.53	ELXQ161VSN182MR50S
	1,800	35×40	0.15	3.66	ELXQ161VSN182MA40S
	2,200	35×45	0.15	4.14	ELXQ161VSN222MA45S
	2,700	35×50	0.15	4.68	ELXQ161VSN272MA50S
180	330	22×25	0.15	1.21	ELXQ181VSN331MP25S
	470	22×30	0.15	1.52	ELXQ181VSN471MP30S
	470	25.4×25	0.15	1.52	ELXQ181VSN471MQ25S
	560	22×35	0.15	1.70	ELXQ181VSN561MP35S
	560	30×25	0.15	1.78	ELXQ181VSN561MR25S
	680	22×40	0.15	1.91	ELXQ181VSN681MP40S
	680	25.4×30	0.15	1.88	ELXQ181VSN681MQ30S
	820	22×45	0.15	1.99	ELXQ181VSN821MP45S
	820	25.4×35	0.15	2.16	ELXQ181VSN821MQ35S
	820	30×30	0.15	2.17	ELXQ181VSN821MR30S
	820	35×25	0.15	2.31	ELXQ181VSN821MA25S
	1,000	22×50	0.15	2.25	ELXQ181VSN102MP50S
	1,000	25.4×40	0.15	2.43	ELXQ181VSN102MQ40S
	1,000	25.4×45	0.15	2.47	ELXQ181VSN102MQ45S
	1,000	30×35	0.15	2.46	ELXQ181VSN102MR35S
	1,200	25.4×50	0.15	2.75	ELXQ181VSN122MQ50S
	1,200	30×40	0.15	2.77	ELXQ181VSN122MR40S
	1,200	35×30	0.15	2.86	ELXQ181VSN122MA30S
	1,500	30×45	0.15	3.17	ELXQ181VSN152MR45S
	1,500	30×50	0.15	3.22	ELXQ181VSN152MR50S
	1,500	35×35	0.15	3.22	ELXQ181VSN152MA35S
	1,800	35×40	0.15	3.66	ELXQ181VSN182MA40S
	1,800	35×45	0.15	3.74	ELXQ181VSN182MA45S
	2,200	35×50	0.15	4.22	ELXQ181VSN222MA50S
200	270	22×25	0.15	1.10	ELXQ201VSN271MP25S
	390	22×30	0.15	1.38	ELXQ201VSN391MP30S
	390	25.4×25	0.15	1.39	ELXQ201VSN391MQ25S
	470	22×35	0.15	1.55	ELXQ201VSN471MP35S
	560	22×40	0.15	1.73	ELXQ201VSN561MP40S
	560	25.4×30	0.15	1.71	ELXQ201VSN561MQ30S
	560	30×25	0.15	1.78	ELXQ201VSN561MR25S
	680	22×45	0.15	1.81	ELXQ201VSN681MP45S
	680	25.4×35	0.15	1.87	ELXQ201VSN681MQ35S
	680	30×30	0.15	1.98	ELXQ201VSN681MR30S
	680	35×25	0.15	2.10	ELXQ201VSN681MA25S
	820	22×50	0.15	2.18	ELXQ201VSN821MP50S
	820	25.4×40	0.15	2.09	ELXQ201VSN821MQ40S
	820	30×35	0.15	2.22	ELXQ201VSN821MR35S
	1,000	25.4×45	0.15	2.35	ELXQ201VSN102MQ45S
	1,000	25.4×50	0.15	2.39	ELXQ201VSN102MQ50S
	1,000	30×40	0.15	2.53	ELXQ201VSN102MR40S
	1,000	35×30	0.15	2.61	ELXQ201VSN102MA30S
	1,200	30×45	0.15	2.84	ELXQ201VSN122MR45S
200	1,200	30×50	0.15	2.88	ELXQ201VSN122MR50S
	1,200	35×35	0.15	2.88	ELXQ201VSN122MA35S
	1,500	35×40	0.15	3.34	ELXQ201VSN152MA40S
	1,800	35×45	0.15	3.74	ELXQ201VSN182MA45S
	1,800	35×50	0.15	3.82	ELXQ201VSN182MA50S
220	270	22×25	0.15	1.10	ELXQ221VSN271MP25S
	330	22×30	0.15	1.19	ELXQ221VSN331MP30S
	390	25.4×25	0.15	1.39	ELXQ221VSN391MQ25S
	470	22×35	0.15	1.55	ELXQ221VSN471MP35S
	470	25.4×30	0.15	1.56	ELXQ221VSN471MQ30S
	470	30×25	0.15	1.63	ELXQ221VSN471MR25S
	560	22×40	0.15	1.73	ELXQ221VSN561MP40S
	560	30×30	0.15	1.79	ELXQ221VSN561MR30S
	680	22×45	0.15	1.94	ELXQ221VSN681MP45S
	680	22×50	0.15	1.99	ELXQ221VSN681MP50S
	680	25.4×35	0.15	1.96	ELXQ221VSN681MQ35S
	680	30×35	0.15	2.02	ELXQ221VSN681MR35S
	680	35×25	0.15	2.10	ELXQ221VSN681MA25S
	820	25.4×40	0.15	2.20	ELXQ221VSN821MQ40S
	820	25.4×45	0.15	2.24	ELXQ221VSN821MQ45S
	820	30×40	0.15	2.29	ELXQ221VSN821MR40S
	820	35×30	0.15	2.36	ELXQ221VSN821MA30S
	1,000	25.4×50	0.15	2.51	ELXQ221VSN102MQ50S
	1,000	30×45	0.15	2.59	ELXQ221VSN102MR45S
	1,000	35×35	0.15	2.63	ELXQ221VSN102MA35S
	1,200	30×50	0.15	2.88	ELXQ221VSN122MR50S
	1,200	35×40	0.15	2.98	ELXQ221VSN122MA40S
	1,500	35×45	0.15	3.41	ELXQ221VSN152MA45S
	1,800	35×50	0.15	3.82	ELXQ221VSN182MA50S
250	220	22×25	0.15	1.01	ELXQ251VSN221MP25S
	270	22×30	0.15	1.20	ELXQ251VSN271MP30S
	330	25.4×25	0.15	1.32	ELXQ251VSN331MQ25S
	390	22×35	0.15	1.44	ELXQ251VSN391MP35S
	390	25.4×30	0.15	1.43	ELXQ251VSN391MQ30S
	390	30×25	0.15	1.51	ELXQ251VSN391MR25S
	470	22×40	0.15	1.62	ELXQ251VSN471MP40S
	560	22×45	0.15	1.80	ELXQ251VSN561MP45S
	560	22×50	0.15	1.84	ELXQ251VSN561MP50S
	560	25.4×35	0.15	1.78	ELXQ251VSN561MQ35S
	560	30×30	0.15	1.83	ELXQ251VSN561MR30S
	560	35×25	0.15	1.91	ELXQ251VSN561MA25S
	680	25.4×40	0.15	2.00	ELXQ251VSN681MQ40S
	680	25.4×45	0.15	2.04	ELXQ251VSN681MQ45S
	680	30×35	0.15	2.06	ELXQ251VSN681MR35S
	680	35×30	0.15	2.15	ELXQ251VSN681MA30S
	820	25.4×50	0.15	2.28	ELXQ251VSN821MQ50S
	820	30×40	0.15	2.33	ELXQ251VSN821MR40S
	820	30×45	0.15	2.39	ELXQ251VSN821MR45S
	820	35×35	0.15	2.38	ELXQ251VSN821MA35S
	1,000	30×50	0.15	2.68	ELXQ251VSN102MR50S
	1,000	35×40	0.15	2.72	ELXQ251VSN102MA40S
	1,200	35×45	0.15	3.05	ELXQ251VSN122MA45S
	1,500	35×50	0.15	3.49	ELXQ251VSN152MA50S
315	150	22×25	0.15	0.80	ELXQ3B1VSN151MP25S
	180	22×30	0.15	0.92	ELXQ3B1VSN181MP30S
	180	25.4×25	0.15	0.94	ELXQ3B1VSN181MQ25S
	220	22×35	0.15	1.04	ELXQ3B1VSN221MP35S
	220	30×25	0.15	1.17	ELXQ3B1VSN221MR25S
	270	22×40	0.15	1.18	ELXQ3B1VSN271MP40S
	270	25.4×30	0.15	1.19	ELXQ3B1VSN271MQ30S
	330	22×45	0.15	1.33	ELXQ3B1VSN331MP45S
	330	25.4×35	0.15	1.37	ELXQ3B1VSN331MQ35S
	330	30×30	0.15	1.40	ELXQ3B1VSN331MR30S
	330	35×25	0.15	1.49	ELXQ3B1VSN331MA25S
	390	22×50	0.15	1.48	ELXQ3B1VSN391MP50S
	390	25.4×40	0.15	1.52	ELXQ3B1VSN391MQ40S
	470	25.4×45	0.15	1.70	ELXQ3B1VSN471MQ45S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
315	470	30×35	0.15	1.71	ELXQ3B1VSN471MR35S
	470	35×30	0.15	1.82	ELXQ3B1VSN471MA30S
	560	25.4×50	0.15	1.88	ELXQ3B1VSN561MQ50S
	560	30×40	0.15	1.92	ELXQ3B1VSN561MR40S
	560	30×45	0.15	1.97	ELXQ3B1VSN561MR45S
	560	35×35	0.15	2.00	ELXQ3B1VSN561MA35S
	680	30×50	0.15	2.21	ELXQ3B1VSN681MR50S
	680	35×40	0.15	2.29	ELXQ3B1VSN681MA40S
	820	35×45	0.15	2.57	ELXQ3B1VSN821MA45S
	1,000	35×50	0.15	2.89	ELXQ3B1VSN102MA50S
350	120	22×25	0.15	0.72	ELXQ351VSN121MP25S
	150	22×30	0.15	0.84	ELXQ351VSN151MP30S
	180	25.4×25	0.15	0.94	ELXQ351VSN181MQ25S
	220	22×35	0.15	1.04	ELXQ351VSN221MP35S
	220	22×40	0.15	1.06	ELXQ351VSN221MP40S
	220	25.4×30	0.15	1.07	ELXQ351VSN221MQ30S
	220	30×25	0.15	1.13	ELXQ351VSN221MR25S
	270	22×45	0.15	1.20	ELXQ351VSN271MP45S
	270	25.4×35	0.15	1.24	ELXQ351VSN271MQ35S
	270	30×30	0.15	1.27	ELXQ351VSN271MR30S
	270	35×25	0.15	1.35	ELXQ351VSN271MA25S
	330	22×50	0.15	1.36	ELXQ351VSN331MP50S
	330	25.4×40	0.15	1.39	ELXQ351VSN331MQ40S
	330	30×35	0.15	1.43	ELXQ351VSN331MR35S
	390	25.4×45	0.15	1.55	ELXQ351VSN391MQ45S
	390	30×40	0.15	1.60	ELXQ351VSN391MR40S
	390	35×30	0.15	1.66	ELXQ351VSN391MA30S
	470	25.4×50	0.15	1.72	ELXQ351VSN471MQ50S
	470	30×45	0.15	1.81	ELXQ351VSN471MR45S
	470	35×35	0.15	1.83	ELXQ351VSN471MA35S
	560	30×50	0.15	2.00	ELXQ351VSN561MR50S
	560	35×40	0.15	2.07	ELXQ351VSN561MA40S
	680	35×45	0.15	2.34	ELXQ351VSN681MA45S
	820	35×50	0.15	2.62	ELXQ351VSN821MA50S
400	100	22×25	0.15	0.66	ELXQ401VSN101MP25S
	120	22×30	0.15	0.75	ELXQ401VSN121MP30S
	150	22×35	0.15	0.86	ELXQ401VSN151MP35S
	150	25.4×25	0.15	0.86	ELXQ401VSN151MQ25S
	180	22×40	0.15	0.96	ELXQ401VSN181MP40S
	180	25.4×30	0.15	0.97	ELXQ401VSN181MQ30S
	180	30×25	0.15	1.02	ELXQ401VSN181MR25S
	220	22×45	0.15	1.09	ELXQ401VSN221MP45S
	220	25.4×35	0.15	1.12	ELXQ401VSN221MQ35S
	220	35×25	0.15	1.22	ELXQ401VSN221MA25S
	270	22×50	0.15	1.23	ELXQ401VSN271MP50S
	270	25.4×40	0.15	1.26	ELXQ401VSN271MQ40S
	270	25.4×45	0.15	1.29	ELXQ401VSN271MQ45S
	270	30×30	0.15	1.27	ELXQ401VSN271MR30S
	330	25.4×50	0.15	1.44	ELXQ401VSN331MQ50S
	330	30×35	0.15	1.43	ELXQ401VSN331MR35S
	330	35×30	0.15	1.52	ELXQ401VSN331MA30S
	390	30×40	0.15	1.60	ELXQ401VSN391MR40S
	390	35×35	0.15	1.67	ELXQ401VSN391MA35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	470	30×45	0.15	1.81	ELXQ401VSN471MR45S
	470	30×50	0.15	1.84	ELXQ401VSN471MR50S
	470	35×40	0.15	1.90	ELXQ401VSN471MA40S
	560	35×45	0.15	2.12	ELXQ401VSN561MA45S
	680	35×50	0.15	2.39	ELXQ401VSN681MA50S
420	100	22×25	0.20	0.66	ELXQ421VSN101MP25S
	120	22×30	0.20	0.75	ELXQ421VSN121MP30S
	120	25.4×25	0.20	0.77	ELXQ421VSN121MQ25S
	150	22×35	0.20	0.86	ELXQ421VSN151MP35S
	180	22×40	0.20	0.96	ELXQ421VSN181MP40S
	180	22×45	0.20	0.98	ELXQ421VSN181MP45S
	180	25.4×30	0.20	0.97	ELXQ421VSN181MQ30S
	180	25.4×35	0.20	1.01	ELXQ421VSN181MQ35S
	180	30×25	0.20	1.02	ELXQ421VSN181MR25S
	220	22×50	0.20	1.11	ELXQ421VSN221MP50S
	220	25.4×40	0.20	1.14	ELXQ421VSN221MQ40S
	220	30×30	0.20	1.14	ELXQ421VSN221MR30S
	220	35×25	0.20	1.22	ELXQ421VSN221MA25S
	270	25.4×45	0.20	1.29	ELXQ421VSN271MQ45S
	270	30×35	0.20	1.30	ELXQ421VSN271MR35S
	270	35×30	0.20	1.38	ELXQ421VSN271MA30S
	330	25.4×50	0.20	1.44	ELXQ421VSN331MQ50S
	330	30×40	0.20	1.48	ELXQ421VSN331MR40S
	330	35×35	0.20	1.54	ELXQ421VSN331MA35S
	390	30×45	0.20	1.64	ELXQ421VSN391MR45S
	390	35×40	0.20	1.73	ELXQ421VSN391MA40S
	470	30×50	0.20	1.84	ELXQ421VSN471MR50S
	470	35×45	0.20	1.94	ELXQ421VSN471MA45S
	560	35×50	0.20	2.17	ELXQ421VSN561MA50S
450	82	22×25	0.20	0.59	ELXQ451VSN820MP25S
	100	22×30	0.20	0.69	ELXQ451VSN101MP30S
	100	25.4×25	0.20	0.70	ELXQ451VSN101MQ25S
	120	22×35	0.20	0.77	ELXQ451VSN121MP35S
	150	22×40	0.20	0.88	ELXQ451VSN151MP40S
	150	22×45	0.20	0.90	ELXQ451VSN151MP45S
	150	25.4×30	0.20	0.88	ELXQ451VSN151MQ30S
	150	25.4×35	0.20	0.92	ELXQ451VSN151MQ35S
	150	30×25	0.20	0.93	ELXQ451VSN151MR25S
	180	22×50	0.20	1.01	ELXQ451VSN181MP50S
	180	25.4×40	0.20	1.03	ELXQ451VSN181MQ40S
	180	30×30	0.20	1.03	ELXQ451VSN181MR30S
	180	35×25	0.20	1.10	ELXQ451VSN181MA25S
	220	25.4×45	0.20	1.16	ELXQ451VSN221MQ45S
	220	30×35	0.20	1.17	ELXQ451VSN221MR35S
	220	35×30	0.20	1.24	ELXQ451VSN221MA30S
	270	25.4×50	0.20	1.31	ELXQ451VSN271MQ50S
	270	30×40	0.20	1.33	ELXQ451VSN271MR40S
	270	35×35	0.20	1.39	ELXQ451VSN271MA35S
	330	30×45	0.20	1.51	ELXQ451VSN331MR45S
	390	30×50	0.20	1.67	ELXQ451VSN391MR50S
	390	35×40	0.20	1.73	ELXQ451VSN391MA40S
	390	35×45	0.20	1.77	ELXQ451VSN391MA45S
	470	35×50	0.20	1.98	ELXQ451VSN471MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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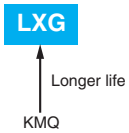
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXG Series

●Endurance with ripple current : 5,000 hours at 105℃
●Non solvent resistant type
●RoHS Compliant

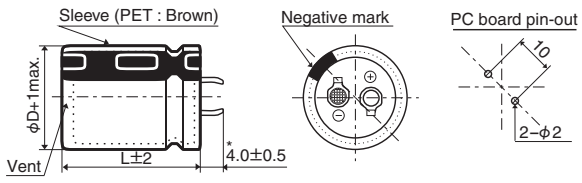


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	10 to 100Vdc (at 20℃, 120Hz)
Capacitance Tolerance	±20% (M)
Leakage Current	I=0.02CV or 3mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 10V, 16V, 25V, 35V, 50V, 63V, 80 & 100V tanδ (Max.): 0.60, 0.45, 0.30, 0.25, 0.20, 0.15, 0.15 (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Capacitance change : Capacitance at the lowest operating temperature shall not be less than 70% of the 20℃ value. Rated voltage (Vdc): 10V, 16V, 25V, 35V, 50V, 63V, 80 & 100V Z(−25℃)/Z(+20℃): 4, 4, 3, 3, 2, 2, 2 Z(−40℃)/Z(+20℃): 15, 15, 10, 8, 6, 6, 5 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃. Capacitance change: ≦±25% of the initial value D.F. (tanδ): ≦250% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

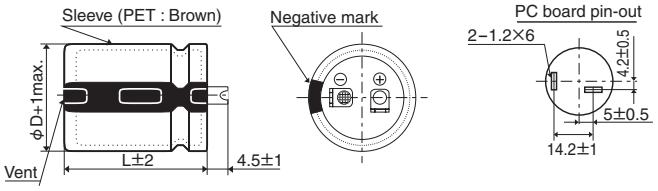
●Terminal Code : VS (φ22 to φ35) : Standard



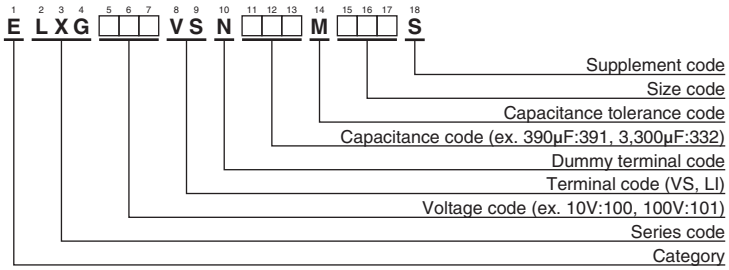
*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
10 to 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100Vdc	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105°C

LXG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
10	6,800	22×25	0.60	1.30	ELXG100VSN682MP25S
	10,000	22×30	0.60	1.65	ELXG100VSN103MP30S
	10,000	25.4×25	0.60	1.64	ELXG100VSN103MQ25S
	12,000	22×35	0.60	1.85	ELXG100VSN123MP35S
	12,000	25.4×30	0.60	1.85	ELXG100VSN123MQ30S
	12,000	30×25	0.60	1.89	ELXG100VSN123MR25S
	15,000	22×40	0.60	2.12	ELXG100VSN153MP40S
	15,000	25.4×35	0.60	2.16	ELXG100VSN153MQ35S
	18,000	22×50	0.60	2.45	ELXG100VSN183MP50S
	18,000	25.4×40	0.60	2.43	ELXG100VSN183MQ40S
	18,000	30×30	0.60	2.37	ELXG100VSN183MR30S
	18,000	35×25	0.60	2.42	ELXG100VSN183MA25S
	22,000	30×35	0.60	2.73	ELXG100VSN223MR35S
	22,000	35×30	0.60	2.79	ELXG100VSN223MA30S
	27,000	25.4×50	0.60	3.11	ELXG100VSN273MQ50S
	27,000	30×40	0.60	3.13	ELXG100VSN273MR40S
	33,000	35×35	0.60	3.49	ELXG100VSN333MA35S
	39,000	30×50	0.60	3.99	ELXG100VSN393MR50S
	39,000	35×40	0.60	3.96	ELXG100VSN393MA40S
	47,000	35×50	0.60	4.62	ELXG100VSN473MA50S
16	5,600	22×25	0.45	1.44	ELXG160VSN562MP25S
	6,800	22×30	0.45	1.66	ELXG160VSN682MP30S
	6,800	25.4×25	0.45	1.66	ELXG160VSN682MQ25S
	8,200	22×35	0.45	1.87	ELXG160VSN822MP35S
	10,000	22×40	0.45	2.12	ELXG160VSN103MP40S
	10,000	25.4×30	0.45	2.07	ELXG160VSN103MQ30S
	10,000	30×25	0.45	2.11	ELXG160VSN103MR25S
	12,000	25.4×35	0.45	2.37	ELXG160VSN123MQ35S
	12,000	30×30	0.45	2.37	ELXG160VSN123MR30S
	12,000	35×25	0.45	2.42	ELXG160VSN123MA25S
	15,000	22×50	0.45	2.74	ELXG160VSN153MP50S
	15,000	25.4×40	0.45	2.71	ELXG160VSN153MQ40S
	18,000	25.4×50	0.45	3.11	ELXG160VSN183MQ50S
	18,000	30×35	0.45	3.02	ELXG160VSN183MR35S
	18,000	35×30	0.45	3.09	ELXG160VSN183MA30S
	22,000	30×40	0.45	3.46	ELXG160VSN223MR40S
	22,000	35×35	0.45	3.49	ELXG160VSN223MA35S
	27,000	30×50	0.45	4.07	ELXG160VSN273MR50S
	27,000	35×40	0.45	4.04	ELXG160VSN273MA40S
	39,000	35×50	0.45	5.16	ELXG160VSN393MA50S
25	3,900	22×25	0.30	1.31	ELXG250VSN392MP25S
	4,700	22×30	0.30	1.51	ELXG250VSN472MP30S
	4,700	25.4×25	0.30	1.51	ELXG250VSN472MQ25S
	5,600	22×35	0.30	1.70	ELXG250VSN562MP35S
	6,800	22×40	0.30	1.92	ELXG250VSN682MP40S
	6,800	25.4×30	0.30	1.87	ELXG250VSN682MQ30S
	6,800	30×25	0.30	1.90	ELXG250VSN682MR25S
	8,200	25.4×35	0.30	2.14	ELXG250VSN822MQ35S
	8,200	30×30	0.30	2.15	ELXG250VSN822MR30S
	8,200	35×25	0.30	2.19	ELXG250VSN822MA25S
	10,000	22×50	0.30	2.45	ELXG250VSN103MP50S
	10,000	25.4×40	0.30	2.43	ELXG250VSN103MQ40S
	12,000	25.4×50	0.30	2.78	ELXG250VSN123MQ50S
	12,000	30×35	0.30	2.70	ELXG250VSN123MR35S
	12,000	35×30	0.30	2.76	ELXG250VSN123MA30S
	15,000	30×40	0.30	3.13	ELXG250VSN153MR40S
	15,000	35×35	0.30	3.16	ELXG250VSN153MA35S
	18,000	30×50	0.30	3.64	ELXG250VSN183MR50S
	18,000	35×40	0.30	3.61	ELXG250VSN183MA40S
	27,000	35×50	0.30	4.70	ELXG250VSN273MA50S
35	2,200	22×25	0.25	1.10	ELXG350VSN222MP25S
	3,300	22×30	0.25	1.42	ELXG350VSN332MP30S
	3,300	25.4×25	0.25	1.41	ELXG350VSN332MQ25S
	3,900	22×35	0.25	1.58	ELXG350VSN392MP35S
	3,900	25.4×30	0.25	1.58	ELXG350VSN392MQ30S
	4,700	22×40	0.25	1.78	ELXG350VSN472MP40S
	4,700	30×25	0.25	1.77	ELXG350VSN472MR25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
35	5,600	25.4×35	0.25	1.98	ELXG350VSN562MQ35S
	5,600	30×30	0.25	1.98	ELXG350VSN562MR30S
	5,600	35×25	0.25	2.03	ELXG350VSN562MA25S
	6,800	22×50	0.25	2.26	ELXG350VSN682MP50S
	6,800	25.4×40	0.25	2.24	ELXG350VSN682MQ40S
	8,200	25.4×50	0.25	2.57	ELXG350VSN822MQ50S
	8,200	30×35	0.25	2.50	ELXG350VSN822MR35S
	8,200	35×30	0.25	2.55	ELXG350VSN822MA30S
	10,000	30×40	0.25	2.86	ELXG350VSN103MR40S
	10,000	35×35	0.25	2.88	ELXG350VSN103MA35S
	12,000	30×50	0.25	3.32	ELXG350VSN123MR50S
	12,000	35×40	0.25	3.30	ELXG350VSN123MA40S
	18,000	35×50	0.25	4.29	ELXG350VSN183MA50S
50	1,500	22×25	0.20	1.02	ELXG500VSN152MP25S
	1,800	22×30	0.20	1.17	ELXG500VSN182MP30S
	1,800	25.4×25	0.20	1.17	ELXG500VSN182MQ25S
	2,200	22×35	0.20	1.33	ELXG500VSN222MP35S
	2,700	22×40	0.20	1.51	ELXG500VSN272MP40S
	2,700	25.4×30	0.20	1.47	ELXG500VSN272MQ30S
	2,700	30×25	0.20	1.50	ELXG500VSN272MR25S
	3,300	25.4×35	0.20	1.70	ELXG500VSN332MQ35S
	3,300	30×30	0.20	1.70	ELXG500VSN332MR30S
	3,300	35×25	0.20	1.74	ELXG500VSN332MA25S
	3,900	22×50	0.20	1.91	ELXG500VSN392MP50S
	3,900	25.4×40	0.20	1.89	ELXG500VSN392MQ40S
	4,700	30×35	0.20	2.11	ELXG500VSN472MR35S
	4,700	35×30	0.20	2.16	ELXG500VSN472MA30S
	5,600	25.4×50	0.20	2.38	ELXG500VSN562MQ50S
	5,600	30×40	0.20	2.39	ELXG500VSN562MR40S
	5,600	35×35	0.20	2.41	ELXG500VSN562MA35S
	6,800	30×50	0.20	2.79	ELXG500VSN682MR50S
	6,800	35×40	0.20	2.78	ELXG500VSN682MA40S
	10,000	35×50	0.20	3.57	ELXG500VSN103MA50S
63	1,000	22×25	0.15	1.00	ELXG630VSN102MP25S
	1,200	22×30	0.15	1.15	ELXG630VSN122MP30S
	1,200	25.4×25	0.15	1.15	ELXG630VSN122MQ25S
	1,500	22×35	0.15	1.32	ELXG630VSN152MP35S
	1,800	22×40	0.15	1.49	ELXG630VSN182MP40S
	1,800	25.4×30	0.15	1.45	ELXG630VSN182MQ30S
	1,800	30×25	0.15	1.48	ELXG630VSN182MR25S
	2,200	25.4×35	0.15	1.67	ELXG630VSN222MQ35S
	2,200	30×30	0.15	1.68	ELXG630VSN222MR30S
	2,200	35×25	0.15	1.71	ELXG630VSN222MA25S
	2,700	22×50	0.15	1.92	ELXG630VSN272MP50S
	2,700	25.4×40	0.15	1.90	ELXG630VSN272MQ40S
	2,700	30×35	0.15	1.93	ELXG630VSN272MR35S
	3,300	25.4×50	0.15	2.20	ELXG630VSN332MQ50S
	3,300	35×30	0.15	2.18	ELXG630VSN332MA30S
	3,900	30×40	0.15	2.41	ELXG630VSN392MR40S
	3,900	35×35	0.15	2.43	ELXG630VSN392MA35S
	4,700	30×50	0.15	2.80	ELXG630VSN472MR50S
	4,700	35×40	0.15	2.78	ELXG630VSN472MA40S
	6,800	35×50	0.15	3.55	ELXG630VSN682MA50S
80	680	22×25	0.15	0.97	ELXG800VSN681MP25S
	820	22×30	0.15	1.12	ELXG800VSN821MP30S
	1,000	22×35	0.15	1.27	ELXG800VSN102MP35S
	1,000	25.4×25	0.15	1.23	ELXG800VSN102MQ25S
	1,200	22×40	0.15	1.42	ELXG800VSN122MP40S
	1,200	25.4×30	0.15	1.39	ELXG800VSN122MQ30S
	1,200	30×25	0.15	1.41	ELXG800VSN122MR25S
	1,500	25.4×35	0.15	1.62	ELXG800VSN152MQ35S
	1,800	22×50	0.15	1.84	ELXG800VSN182MP50S
	1,800	25.4×40	0.15	1.82	ELXG800VSN182MQ40S
	1,800	30×30	0.15	1.78	ELXG800VSN182MR30S
	1,800	35×25	0.15	1.82	ELXG800VSN182MA25S
	2,200	25.4×50	0.15	2.11	ELXG800VSN222MQ50S
	2,200	30×35	0.15	2.05	ELXG800VSN222MR35S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
80	2,200	35 × 30	0.15	2.09	ELXG800VSN222MA30S
	2,700	30 × 40	0.15	2.35	ELXG800VSN272MR40S
	2,700	35 × 35	0.15	2.37	ELXG800VSN272MA35S
	3,300	30 × 50	0.15	2.75	ELXG800VSN332MR50S
	3,300	35 × 40	0.15	2.73	ELXG800VSN332MA40S
	4,700	35 × 50	0.15	3.46	ELXG800VSN472MA50S
100	390	22 × 25	0.15	0.78	ELXG101VSN391MP25S
	560	22 × 30	0.15	0.99	ELXG101VSN561MP30S
	560	25.4 × 25	0.15	0.98	ELXG101VSN561MQ25S
	680	22 × 35	0.15	1.12	ELXG101VSN681MP35S
	820	22 × 40	0.15	1.26	ELXG101VSN821MP40S
	820	25.4 × 30	0.15	1.23	ELXG101VSN821MQ30S
	820	30 × 25	0.15	1.25	ELXG101VSN821MR25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
100	1,000	25.4 × 35	0.15	1.41	ELXG101VSN102MQ35S
	1,000	30 × 30	0.15	1.42	ELXG101VSN102MR30S
	1,000	35 × 25	0.15	1.45	ELXG101VSN102MA25S
	1,200	22 × 50	0.15	1.60	ELXG101VSN122MP50S
	1,200	25.4 × 40	0.15	1.59	ELXG101VSN122MQ40S
	1,200	30 × 35	0.15	1.61	ELXG101VSN122MR35S
	1,500	25.4 × 50	0.15	1.86	ELXG101VSN152MQ50S
	1,500	30 × 40	0.15	1.87	ELXG101VSN152MR40S
	1,500	35 × 30	0.15	1.85	ELXG101VSN152MA30S
	1,800	35 × 35	0.15	2.07	ELXG101VSN182MA35S
	2,200	30 × 50	0.15	2.40	ELXG101VSN222MR50S
	2,200	35 × 40	0.15	2.39	ELXG101VSN222MA40S
	2,700	35 × 50	0.15	2.81	ELXG101VSN272MA50S

◆MAXIMUM IMPEDANCE [mΩ/20℃, 30kHz]

Case size φD×L(mm) \ Vdc	10 to 63	80	100
22×25	120	150	
22×30	100	120	
22×35	80	95	
22×40	70	80	
22×50	50	60	
25.4×25	90	110	
25.4×30	70	85	
25.4×35	60	70	
25.4×40	50	60	
25.4×50	40	45	
30×25	70	80	
30×30	50	60	
30×35	40	50	
30×40	35	40	
30×50	25	30	
35×25	65	70	
35×30	45	50	
35×35	38	40	
35×40	30	30	
35×50	23	25	

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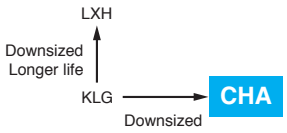
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105℃

CHA Series

- Doesn't spark with DC over voltage
- Downsized from current KLG series
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

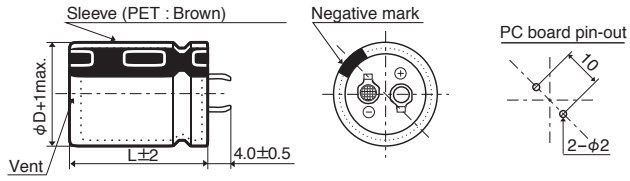


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	200 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	200Vdc : 0.15 max. (0.20 max. for φD=35mm) 400Vdc : 0.15 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Rated Voltage (Vdc): 200 to 450V Z(-25℃) / Z(+20℃): 4 (at 120Hz)
ESL	50nH max. (at 20℃, 1MHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±15% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

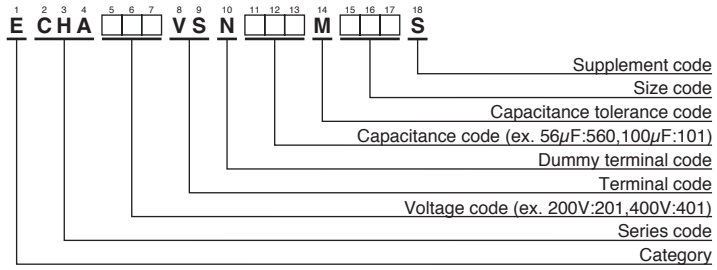
◆DIMENSIONS [mm]

- Terminal Code : VS (φ22 to φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
200 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105℃

CHA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	180	22×20	0.15	0.82	ECHA201VSN181MP20S
	220	22×20	0.15	0.90	ECHA201VSN221MP20S
	270	22×25	0.15	1.02	ECHA201VSN271MP25S
	330	22×30	0.15	1.20	ECHA201VSN331MP30S
	330	25.4×25	0.15	1.20	ECHA201VSN331MQ25S
	390	22×30	0.15	1.35	ECHA201VSN391MP30S
	390	25.4×25	0.15	1.35	ECHA201VSN391MQ25S
	470	22×35	0.15	1.45	ECHA201VSN471MP35S
	470	25.4×30	0.15	1.45	ECHA201VSN471MQ30S
	470	30×25	0.15	1.47	ECHA201VSN471MR25S
	560	22×40	0.15	1.62	ECHA201VSN561MP40S
	560	25.4×30	0.15	1.60	ECHA201VSN561MQ30S
	560	30×25	0.15	1.60	ECHA201VSN561MR25S
	680	25.4×35	0.15	1.82	ECHA201VSN681MQ35S
	680	30×30	0.15	1.81	ECHA201VSN681MR30S
	680	35×25	0.20	1.86	ECHA201VSN681MA25S
	820	25.4×45	0.15	2.11	ECHA201VSN821MQ45S
	820	30×35	0.15	2.11	ECHA201VSN821MR35S
	820	35×25	0.20	2.11	ECHA201VSN821MA25S
	1,000	30×35	0.15	2.40	ECHA201VSN102MR35S
	1,000	35×30	0.20	2.40	ECHA201VSN102MA30S
	1,200	30×45	0.15	2.69	ECHA201VSN122MR45S
	1,200	35×35	0.20	2.65	ECHA201VSN122MA35S
250	120	22×20	0.15	0.68	ECHA251VSN121MP20S
	180	22×25	0.15	0.87	ECHA251VSN181MP25S
	180	25.4×20	0.15	0.93	ECHA251VSN181MQ20S
	220	22×30	0.15	1.00	ECHA251VSN221MP30S
	270	22×35	0.15	1.14	ECHA251VSN271MP35S
	270	25.4×25	0.15	1.13	ECHA251VSN271MQ25S
	270	30×20	0.15	1.25	ECHA251VSN271MR20S
	330	22×40	0.15	1.28	ECHA251VSN331MP40S
	330	25.4×30	0.15	1.29	ECHA251VSN331MQ30S
	390	22×45	0.15	1.42	ECHA251VSN391MP45S
	390	25.4×35	0.15	1.46	ECHA251VSN391MQ35S
	390	30×25	0.15	1.52	ECHA251VSN391MR25S
	390	35×20	0.20	1.62	ECHA251VSN391MA20S
	470	25.4×40	0.15	1.64	ECHA251VSN471MQ40S
	470	30×30	0.15	1.67	ECHA251VSN471MR30S
	560	25.4×45	0.15	1.82	ECHA251VSN561MQ45S
	560	30×35	0.15	1.87	ECHA251VSN561MR35S
	560	35×25	0.20	1.99	ECHA251VSN561MA25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
250	680	30×40	0.15	2.12	ECHA251VSN681MR40S
	680	35×30	0.20	2.19	ECHA251VSN681MA30S
	820	30×45	0.15	2.39	ECHA251VSN821MR45S
	820	35×35	0.20	2.42	ECHA251VSN821MA35S
400	56	22×20	0.15	0.45	ECHA401VSN560MP20S
	68	22×20	0.15	0.51	ECHA401VSN680MP20S
	82	22×25	0.15	0.58	ECHA401VSN820MP25S
	100	22×25	0.15	0.66	ECHA401VSN101MP25S
	100	25.4×25	0.15	0.66	ECHA401VSN101MQ25S
	120	22×30	0.15	0.76	ECHA401VSN121MP30S
	120	25.4×25	0.15	0.76	ECHA401VSN121MQ25S
	150	22×35	0.15	0.85	ECHA401VSN151MP35S
	150	25.4×30	0.15	0.85	ECHA401VSN151MQ30S
	150	30×25	0.15	0.85	ECHA401VSN151MR25S
	180	22×40	0.15	0.94	ECHA401VSN181MP40S
	180	25.4×35	0.15	0.95	ECHA401VSN181MQ35S
	180	30×25	0.15	0.95	ECHA401VSN181MR25S
	220	25.4×35	0.15	1.24	ECHA401VSN221MQ35S
	220	30×30	0.15	1.24	ECHA401VSN221MR30S
	220	35×25	0.15	1.24	ECHA401VSN221MA25S
	270	25.4×45	0.15	1.30	ECHA401VSN271MQ45S
	270	30×35	0.15	1.30	ECHA401VSN271MR35S
	270	35×25	0.15	1.30	ECHA401VSN271MA25S
	330	30×35	0.15	1.45	ECHA401VSN331MR35S
	330	30×40	0.15	1.47	ECHA401VSN331MR40S
	330	35×30	0.15	1.47	ECHA401VSN331MA30S
450	82	25.4×25	0.20	0.61	ECHA451VSN820MQ25S
	120	25.4×30	0.20	0.76	ECHA451VSN121MQ30S
	120	30×25	0.20	0.77	ECHA451VSN121MR25S
	150	25.4×35	0.20	0.88	ECHA451VSN151MQ35S
	180	25.4×40	0.20	0.99	ECHA451VSN181MQ40S
	180	30×30	0.20	0.97	ECHA451VSN181MR30S
	180	30×35	0.20	1.00	ECHA451VSN181MR35S
	220	30×35	0.20	1.30	ECHA451VSN221MR35S
	220	35×25	0.20	1.20	ECHA451VSN221MA25S
	270	30×40	0.20	1.28	ECHA451VSN271MR40S
	270	35×30	0.20	1.30	ECHA451VSN271MA30S
	330	35×35	0.20	1.40	ECHA451VSN331MA35S
	390	35×40	0.20	1.60	ECHA451VSN391MA40S
	420	35×50	0.20	1.56	ECHA451VSN421MA50S

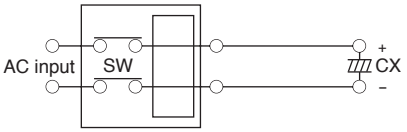
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

●Test DC voltage

Rated Voltage	Nominal Capacitance	Current Limit	Test Voltage
200Vdc	<330	4A	300/375Vdc
	330μF≦C<470μF	5A	
	≧470μF	7A	
250Vdc	<330μF	4A	350/450Vdc
	330μF≦C<470μF	5A	
	≧470μF	7A	
400Vdc	<100μF	2A	500/600Vdc
	100μF≦C<220μF	4A	
	≧220μF	7A	
450Vdc	<100μF	2A	550/675Vdc
	100μF≦C<220μF	4A	
	≧220μF	7A	

●Test Circuit



Constant DC voltage/current power supply

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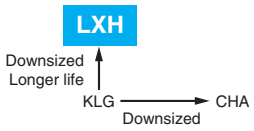
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Long life, Overvoltage resistant design, 105℃

LXH Series

- Doesn't spark with DC over voltage
- Same case sizes of KMH
- Endurance with ripple current : 5,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

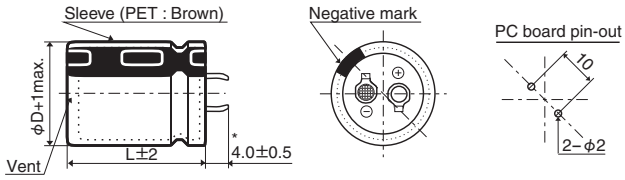


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage	200 & 400Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 3mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.15 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Z(−25℃) /Z(+20℃)≦4 (at 120Hz)
ESL	50nH max. (at 20℃, 1MHz)
DC Overvoltage Test	When an excessive DC voltage is applied to the capacitors under the test conditions on next page, the vent shall operate and then the capacitors shall become open-circuit without burning materials.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 or 3,000 hours at 105℃ Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±15% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

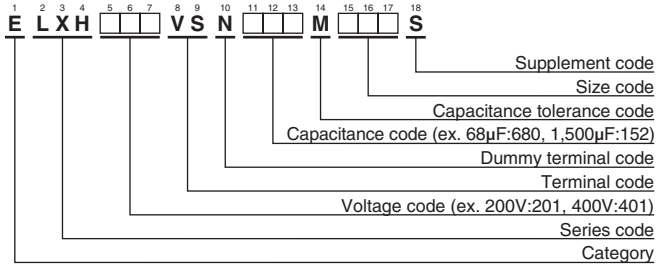
- Terminal Code : VS (φ22 to φ35)



*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
200Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Long life, Overvoltage resistant design, 105℃

LXH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/105℃,120Hz) 5,000 hours	Rated ripple current (Arms/105℃,120Hz) 3,000 hours	Part No.
200	270	22×25	0.15	0.45	0.87	ELXH201VSN271MP25S
	330	22×30	0.15	0.62	1.20	ELXH201VSN331MP30S
	330	25.4×25	0.15	0.62	1.21	ELXH201VSN331MQ25S
	390	22×35	0.15	0.67	1.31	ELXH201VSN391MP35S
	390	25.4×30	0.15	0.66	1.28	ELXH201VSN391MQ30S
	470	22×40	0.15	0.72	1.40	ELXH201VSN471MP40S
	470	25.4×30	0.15	0.72	1.41	ELXH201VSN471MQ30S
	470	30×25	0.15	0.77	1.50	ELXH201VSN471MR25S
	560	22×45	0.15	0.80	1.56	ELXH201VSN561MP45S
	560	25.4×35	0.15	0.78	1.53	ELXH201VSN561MQ35S
	560	30×30	0.15	0.81	1.57	ELXH201VSN561MR30S
	680	22×50	0.15	0.89	1.74	ELXH201VSN681MP50S
	680	25.4×40	0.15	0.89	1.74	ELXH201VSN681MQ40S
	680	30×30	0.15	0.89	1.74	ELXH201VSN681MR30S
	680	35×25	0.15	0.88	1.72	ELXH201VSN681MA25S
	820	25.4×50	0.15	1.05	2.04	ELXH201VSN821MQ50S
	820	30×35	0.15	1.03	2.00	ELXH201VSN821MR35S
	820	35×30	0.15	1.05	2.04	ELXH201VSN821MA30S
	1,000	30×45	0.15	1.18	2.30	ELXH201VSN102MR45S
	1,000	35×35	0.15	1.18	2.30	ELXH201VSN102MA35S
	1,200	30×50	0.15	1.33	2.60	ELXH201VSN122MR50S
	1,200	35×40	0.15	1.36	2.65	ELXH201VSN122MA40S
	1,500	35×45	0.15	1.57	3.08	ELXH201VSN152MA45S
400	68	22×25	0.15	0.26	0.51	ELXH401VSN680MP25S
	68	25.4×20	0.15	0.24	0.46	ELXH401VSN680MQ20S
	82	22×30	0.15	0.30	0.58	ELXH401VSN820MP30S
	82	25.4×25	0.15	0.30	0.58	ELXH401VSN820MQ25S
	100	22×35	0.15	0.34	0.66	ELXH401VSN101MP35S
	100	25.4×30	0.15	0.34	0.66	ELXH401VSN101MQ30S
	120	22×40	0.15	0.37	0.72	ELXH401VSN121MP40S
	120	25.4×30	0.15	0.37	0.72	ELXH401VSN121MQ30S
	120	30×25	0.15	0.39	0.76	ELXH401VSN121MR25S
	150	22×45	0.15	0.42	0.82	ELXH401VSN151MP45S
	150	25.4×35	0.15	0.43	0.84	ELXH401VSN151MQ35S
	150	30×30	0.15	0.43	0.84	ELXH401VSN151MR30S
	180	22×50	0.15	0.49	0.95	ELXH401VSN181MP50S
	180	25.4×40	0.15	0.48	0.94	ELXH401VSN181MQ40S
	180	30×30	0.15	0.47	0.92	ELXH401VSN181MR30S
	180	35×25	0.15	0.48	0.94	ELXH401VSN181MA25S
	220	25.4×45	0.15	0.55	1.07	ELXH401VSN221MQ45S
	220	30×35	0.15	0.54	1.06	ELXH401VSN221MR35S
	220	35×30	0.15	0.55	1.08	ELXH401VSN221MA30S
	270	25.4×50	0.15	0.62	1.21	ELXH401VSN271MQ50S
	270	30×40	0.15	0.62	1.21	ELXH401VSN271MR40S
	270	35×30	0.15	0.59	1.15	ELXH401VSN271MA30S
	330	30×45	0.15	0.71	1.39	ELXH401VSN331MR45S
	330	35×35	0.15	0.69	1.35	ELXH401VSN331MA35S
	390	30×50	0.15	0.80	1.55	ELXH401VSN391MR50S
	390	35×40	0.15	0.79	1.54	ELXH401VSN391MA40S
	470	35×45	0.15	0.89	1.74	ELXH401VSN471MA45S

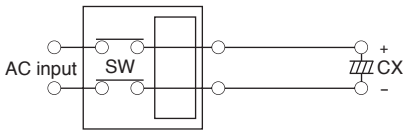
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

●Test DC voltage

Rated Voltage	Capacitance	Current limit	Test DC voltage
200Vdc	<330μF	4A	300/375Vdc
	330≦C<470μF	5A	
	≧470μF	7A	
400Vdc	<100μF	2A	500/600Vdc
	100≦C<220μF	4A	
	≧220μF	7A	

●Test Circuit



Constant DC voltage/current power supply

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NIPPON CHEMI-CON

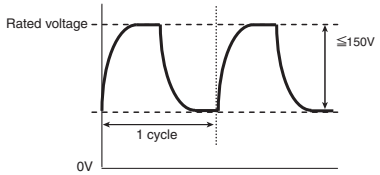
LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Snap-ins, 105℃

KMV Series

- For frequently change of regenerative voltage from AC servo amplifier and inverter control
- Ideal use to power supply, specially power source with turn on and off frequently and highly voltage fluctuation
- Improved the resistance for charge and discharge from same dimension of KMQ series
- Endurance with ripple current : 3,000 hours at 105℃
- Rated voltage range : 350 to 450Vdc, Capacitance 82 to 1,200μF
- Non Solvent resistant type
- **RoHS Compliant**

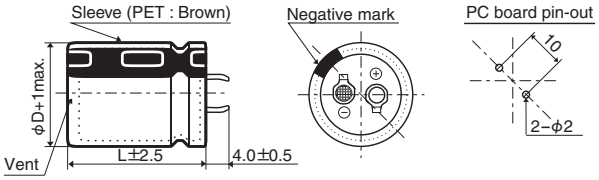
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I≦3$\sqrt{CV}$ Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 350 & 400V — 420 & 450V tanδ (Max.): 0.15 — 0.20 (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 350 to 450V Z(−25℃)/Z(+20℃): 8 (at 120Hz)
Charge and Discharge	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to charge and discharge test with the voltage waveform shown below at room temperature (15 to 35℃). Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value Frequency: 6Hz Number of cycles: 50 million times Voltage waveform: 
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±15% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

*Please consult with us about charge and discharge conditions.

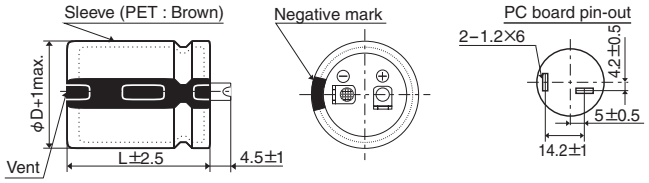
◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard



No plastic disk is the standard design.

●Terminal Code : LI (φ35)



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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Snap-ins, 105℃

KMV Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E KMV □□□ VS N □□□ M □□□ S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 270μF:271, 1,200μF:122)
- Dummy terminal code
- Terminal code (VS, LI)
- Voltage code (ex. 350V:351, 400V:401)
- Series code
- Category

Please refer to "Product code guide (snap-in type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/ 105℃,120Hz)	Max. charge current and Max.discharge current (Arms/ 6Hz)	Part No.
350	120	22×25	0.74	0.42	EKMV351VSN121MP25S
	150	22×30	0.87	0.49	EKMV351VSN151MP30S
	180	25.4×25	0.92	0.54	EKMV351VSN181MQ25S
	220	22×35	1.08	0.60	EKMV351VSN221MP35S
	220	22×40	1.10	0.62	EKMV351VSN221MP40S
	220	25.4×30	1.05	0.61	EKMV351VSN221MQ30S
	270	22×45	1.24	0.71	EKMV351VSN271MP45S
	270	25.4×35	1.21	0.70	EKMV351VSN271MQ35S
	270	30×25	1.15	0.68	EKMV351VSN271MR25S
	330	22×50	1.41	0.80	EKMV351VSN331MP50S
	330	25.4×40	1.37	0.80	EKMV351VSN331MQ40S
	330	30×30	1.29	0.77	EKMV351VSN331MR30S
	330	35×25	1.31	0.78	EKMV351VSN331MA25S
	390	25.4×45	1.51	0.89	EKMV351VSN391MQ45S
	390	30×35	1.44	0.88	EKMV351VSN391MR35S
	470	25.4×50	1.69	0.99	EKMV351VSN471MQ50S
	470	30×40	1.62	1.00	EKMV351VSN471MR40S
	470	35×30	1.61	0.97	EKMV351VSN471MA30S
	560	30×45	1.82	1.12	EKMV351VSN561MR45S
	560	35×35	1.77	1.08	EKMV351VSN561MA35S
	680	30×50	2.04	1.27	EKMV351VSN681MR50S
	680	35×40	2.02	1.25	EKMV351VSN681MA40S
	820	35×45	2.27	1.41	EKMV351VSN821MA45S
	820	35×50	2.32	1.46	EKMV351VSN821MA50S
	1,200	35×60	2.88	1.84	EKMV351VSN122MA60S
400	100	22×25	0.69	0.38	EKMV401VSN101MP25S
	120	22×30	0.79	0.44	EKMV401VSN121MP30S
	150	25.4×25	0.87	0.49	EKMV401VSN151MQ25S
	180	22×35	0.99	0.55	EKMV401VSN181MP35S
	180	22×40	1.01	0.56	EKMV401VSN181MP40S
	180	25.4×30	0.98	0.55	EKMV401VSN181MQ30S
	220	22×45	1.14	0.64	EKMV401VSN221MP45S
	220	25.4×35	1.13	0.63	EKMV401VSN221MQ35S
	220	30×25	1.10	0.61	EKMV401VSN221MR25S
	270	22×50	1.30	0.73	EKMV401VSN271MP50S
	270	25.4×40	1.28	0.72	EKMV401VSN271MQ40S
	270	30×30	1.22	0.70	EKMV401VSN271MR30S
	270	35×25	1.26	0.71	EKMV401VSN271MA25S
	330	25.4×45	1.44	0.82	EKMV401VSN331MQ45S
	330	30×35	1.38	0.81	EKMV401VSN331MR35S
	390	25.4×50	1.59	0.91	EKMV401VSN391MQ50S
	390	30×40	1.55	0.91	EKMV401VSN391MR40S
	390	35×30	1.55	0.89	EKMV401VSN391MA30S
	470	30×45	1.74	1.03	EKMV401VSN471MR45S
	470	35×35	1.71	1.00	EKMV401VSN471MA35S
	560	30×50	1.93	1.15	EKMV401VSN561MR50S
	560	35×40	1.94	1.14	EKMV401VSN561MA40S
	680	35×45	2.19	1.29	EKMV401VSN681MA45S
	820	35×50	2.45	1.44	EKMV401VSN821MA50S
	1,000	35×60	2.79	1.70	EKMV401VSN102MA60S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/ 105℃,120Hz)	Max. charge current and Max.discharge current (Arms/ 6Hz)	Part No.
420	82	22×25	0.64	0.34	EKMV421VSN820MP25S
	120	22×30	0.81	0.44	EKMV421VSN121MP30S
	120	25.4×25	0.81	0.44	EKMV421VSN121MQ25S
	150	22×35	0.93	0.50	EKMV421VSN151MP35S
	150	25.4×30	0.93	0.50	EKMV421VSN151MQ30S
	180	22×40	1.04	0.56	EKMV421VSN181MP40S
	180	22×45	1.06	0.58	EKMV421VSN181MP45S
	180	25.4×35	1.06	0.58	EKMV421VSN181MQ35S
	180	30×25	1.02	0.56	EKMV421VSN181MR25S
	220	22×50	1.20	0.66	EKMV421VSN221MP50S
	220	25.4×40	1.20	0.65	EKMV421VSN221MQ40S
	220	30×30	1.14	0.63	EKMV421VSN221MR30S
	270	25.4×45	1.36	0.74	EKMV421VSN271MQ45S
	270	30×35	1.29	0.73	EKMV421VSN271MR35S
	270	35×25	1.26	0.71	EKMV421VSN271MA25S
	330	25.4×50	1.52	0.83	EKMV421VSN331MQ50S
	330	30×40	1.47	0.84	EKMV421VSN331MR40S
	330	35×30	1.42	0.82	EKMV421VSN331MA30S
	390	30×45	1.64	0.94	EKMV421VSN391MR45S
	390	35×35	1.56	0.91	EKMV421VSN391MA35S
	470	30×50	1.83	1.06	EKMV421VSN471MR50S
	470	35×40	1.78	1.05	EKMV421VSN471MA40S
	560	35×45	1.98	1.18	EKMV421VSN561MA45S
	680	35×50	2.23	1.34	EKMV421VSN681MA50S
	820	35×60	2.52	1.55	EKMV421VSN821MA60S
450	82	22×25	0.64	0.34	EKMV451VSN820MP25S
	100	22×30	0.72	0.40	EKMV451VSN101MP30S
	100	25.4×25	0.72	0.40	EKMV451VSN101MQ25S
	120	22×35	0.81	0.45	EKMV451VSN121MP35S
	150	22×40	0.93	0.51	EKMV451VSN151MP40S
	150	25.4×30	0.91	0.50	EKMV451VSN151MQ30S
	150	30×25	0.90	0.51	EKMV451VSN151MR25S
	180	22×45	1.03	0.58	EKMV451VSN181MP45S
	180	22×50	1.06	0.59	EKMV451VSN181MP50S
	180	25.4×35	1.04	0.57	EKMV451VSN181MQ35S
	220	25.4×40	1.18	0.65	EKMV451VSN221MQ40S
	220	25.4×45	1.20	0.67	EKMV451VSN221MQ45S
	220	30×30	1.10	0.63	EKMV451VSN221MR30S
	220	35×25	1.12	0.64	EKMV451VSN221MA25S
	270	25.4×50	1.35	0.75	EKMV451VSN271MQ50S
	270	30×35	1.25	0.73	EKMV451VSN271MR35S
	270	35×30	1.27	0.74	EKMV451VSN271MA30S
	330	30×40	1.42	0.84	EKMV451VSN331MR40S
	330	30×45	1.46	0.87	EKMV451VSN331MR45S
	330	35×35	1.41	0.84	EKMV451VSN331MA35S
	390	30×50	1.61	0.97	EKMV451VSN391MR50S
	390	35×40	1.59	0.96	EKMV451VSN391MA40S
	470	35×45	1.79	1.08	EKMV451VSN471MA45S
	560	35×50	2.00	1.22	EKMV451VSN561MA50S
	680	35×60	2.26	1.42	EKMV451VSN681MA60S

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Snap-ins, 105℃

KMV Series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
Coefficient	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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Screw Terminal Aluminum Electrolytic Capacitors

(Large Capacitors)

PART NUMBERING SYSTEM

Product code guide (Screw mount terminal type)

(Example : KMH series, 400V-3,300μF, φ63.5×120L, Without mounting clamp)

Please refer to the following table

Contents	Code
Polar	E

Series	Code
KMH	KMH

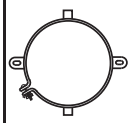
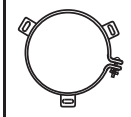
Type	Code
Screw terminal	LG

Tol.(%)	Code
±20	M

Sleeve Material	Code
Pb-free PVC	M

1	2 3 4	5 6 7	8 9	10	11 12 13	14	15 16 17	18
E	KMH	401	LG	N	332	M	DC0	M
Category	Series code	Voltage code	Terminal code	Mounting clamp code	Capacitance code	Capacitance tolerance	Size code	Supplement code

Voltage(V)	Code
10	100
25	250
100	101
250	251
315	3B1
525	5C1
⋮	⋮

Type	Code
	B
	C
Without clamp	N

Cap.(μF)	Code
100	101
470	471
1,000	102
4,700	472
10,000	103
47,000	473
100,000	104
⋮	⋮

φD(mm)	Code
35	A
50	C
63.5	D
76.2	E
89	F
100	G

L(mm)	Code
50	50
55	55
60	60
65	65
75	75
80	80
85	85
90	90
96	96
100	A0
105	A5
110	B0
115	B5
120	C0
125	C5
130	D0
140	E0
145	E5
155	F5
170	H0
190	K0
220	N0
250	R0
270	T0

*Refer to the appendix (Part number) for codes not listed here.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 85℃

SME Series

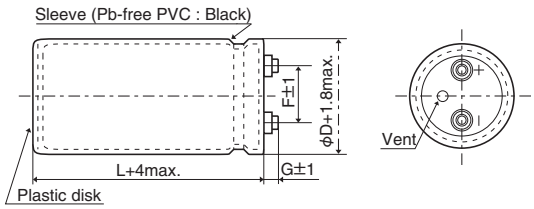
●Endurance with ripple current : 2,000 hours at 85℃
●**RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃ (10 to 100Vdc)
Rated Voltage Range	10 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Shall not exceed the values shown in the STANDARD RATINGS (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

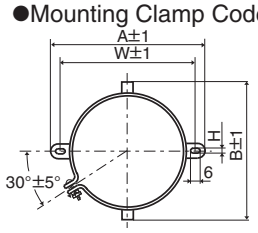
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



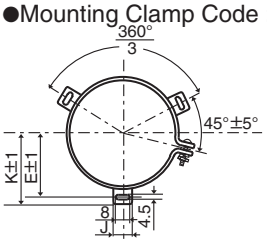
φ35 to φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B



φD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76.2	104.5	90.0	93.5	4.5	31.5

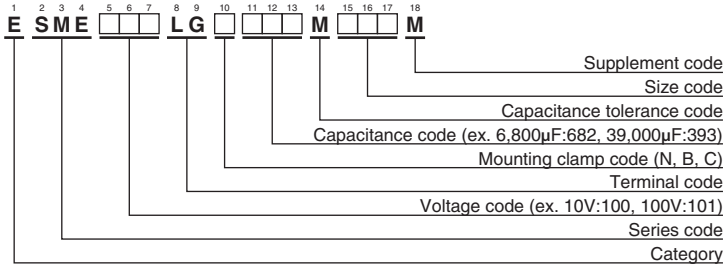
●Mounting Clamp Code : C



φD	E	K	J	F
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	14.0	28.0
76.2	44.5	50.0	14.0	31.5
89	50.8	56.5	16.0	31.5

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 85℃

SME Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
10	39,000	35×50	0.60	4.70	ESME100LGB393MA50M
	82,000	35×80	0.60	7.40	ESME100LGB823MA80M
	100,000	35×100	0.70	8.00	ESME100LGB104MAA0M
	120,000	35×120	0.70	9.40	ESME100LGB124MAC0M
	150,000	50×80	0.90	9.80	ESME100LGC154MC80M
	220,000	50×100	1.00	12.1	ESME100LGC224MCA0M
	270,000	50×120	1.20	13.6	ESME100LGC274MCC0M
	390,000	63.5×100	1.50	15.3	ESME100LGC394MDA0M
	470,000	63.5×120	2.00	16.0	ESME100LGC474MDC0M
	560,000	76.2×100	2.50	17.3	ESME100LGC564MEA0M
	680,000	76.2×120	3.00	18.7	ESME100LGC684MEC0M
16	27,000	35×50	0.45	4.20	ESME160LGB273MA50M
	56,000	35×80	0.60	6.50	ESME160LGB563MA80M
	82,000	35×100	0.70	8.00	ESME160LGB823MAA0M
	100,000	35×120	0.70	9.60	ESME160LGB104MAC0M
	120,000	50×80	0.80	9.60	ESME160LGC124MC80M
	150,000	50×100	0.90	11.2	ESME160LGC154MCA0M
	220,000	50×120	1.00	14.2	ESME160LGC224MCC0M
	270,000	63.5×100	1.20	15.3	ESME160LGC274MDA0M
	330,000	63.5×120	1.30	17.1	ESME160LGC334MDC0M
	390,000	76.2×100	1.60	18.0	ESME160LGC394MEA0M
	470,000	76.2×120	1.80	19.3	ESME160LGC474MEC0M
	560,000	76.2×140	2.00	20.7	ESME160LGC564MEE0M
25	18,000	35×50	0.35	4.00	ESME250LGB183MA50M
	39,000	35×80	0.40	6.20	ESME250LGB393MA80M
	47,000	35×100	0.40	7.40	ESME250LGB473MAA0M
	56,000	35×120	0.45	8.30	ESME250LGB563MAC0M
	82,000	50×80	0.50	9.70	ESME250LGC823MC80M
	100,000	50×100	0.60	10.8	ESME250LGC104MCA0M
	120,000	50×120	0.60	12.8	ESME250LGC124MCC0M
	180,000	63.5×100	0.75	14.7	ESME250LGC184MDA0M
	220,000	63.5×120	0.80	16.8	ESME250LGC224MDC0M
	270,000	76.2×100	0.90	18.3	ESME250LGC274MEA0M
	330,000	76.2×120	1.00	20.7	ESME250LGC334MEC0M
	390,000	76.2×140	1.20	22.1	ESME250LGC394MEE0M
	560,000	89×140	1.50	25.8	ESME250LGC564MFE0M
35	15,000	35×50	0.30	3.90	ESME350LGB153MA50M
	33,000	35×80	0.40	6.00	ESME350LGB333MA80M
	39,000	35×100	0.40	7.00	ESME350LGB393MAA0M
	47,000	35×120	0.45	8.00	ESME350LGB473MAC0M
	68,000	50×80	0.50	9.00	ESME350LGC683MC80M
	82,000	50×100	0.55	10.3	ESME350LGC823MCA0M
	120,000	50×120	0.60	12.8	ESME350LGC124MCC0M
	150,000	63.5×100	0.70	14.0	ESME350LGC154MDA0M
	180,000	63.5×120	0.70	16.6	ESME350LGC184MDC0M
	220,000	76.2×100	0.75	17.3	ESME350LGC224MEA0M
	270,000	76.2×120	0.80	19.8	ESME350LGC274MEC0M
	330,000	76.2×140	0.90	22.5	ESME350LGC334MEE0M
	470,000	89×140	1.00	28.3	ESME350LGC474MFE0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
50	10,000	35×50	0.25	4.10	ESME500LGB103MA50M
	18,000	35×80	0.25	5.20	ESME500LGB183MA80M
	22,000	35×100	0.30	5.90	ESME500LGB223MAA0M
	27,000	35×120	0.35	6.60	ESME500LGB273MAC0M
	39,000	50×80	0.40	7.40	ESME500LGC393MC80M
	56,000	50×100	0.40	9.80	ESME500LGC563MCA0M
	68,000	50×120	0.45	11.1	ESME500LGC683MCC0M
	82,000	63.5×100	0.50	12.2	ESME500LGC823MDA0M
	120,000	63.5×120	0.50	16.0	ESME500LGC124MDC0M
	150,000	76.2×120	0.60	18.1	ESME500LGC154MEC0M
	180,000	76.2×140	0.70	19.5	ESME500LGC184MEE0M
	270,000	89×140	0.80	24.6	ESME500LGC274MFE0M
63	5,600	35×50	0.20	3.00	ESME630LGB562MA50M
	10,000	35×80	0.25	4.00	ESME630LGB103MA80M
	15,000	35×100	0.25	5.30	ESME630LGB153MAA0M
	18,000	35×120	0.25	6.20	ESME630LGB183MAC0M
	22,000	50×80	0.30	6.50	ESME630LGC223MC80M
	33,000	50×100	0.35	8.10	ESME630LGC333MCA0M
	39,000	50×120	0.35	9.60	ESME630LGC393MCC0M
	47,000	63.5×100	0.40	10.2	ESME630LGC473MDA0M
	68,000	63.5×120	0.40	13.3	ESME630LGC683MDC0M
	100,000	76.2×120	0.45	17.1	ESME630LGC104MEC0M
	120,000	76.2×140	0.50	19.0	ESME630LGC124MEE0M
	150,000	89×140	0.55	22.0	ESME630LGC154MFE0M
80	3,300	35×50	0.15	2.50	ESME800LGB332MA50M
	6,800	35×80	0.20	3.70	ESME800LGB682MA80M
	10,000	35×100	0.20	4.90	ESME800LGB103MAA0M
	12,000	35×120	0.20	5.40	ESME800LGB123MAC0M
	15,000	50×80	0.25	6.00	ESME800LGC153MC80M
	22,000	50×100	0.30	7.10	ESME800LGC223MCA0M
	27,000	50×120	0.30	8.60	ESME800LGC273MCC0M
	33,000	63.5×100	0.35	9.30	ESME800LGC333MDA0M
	47,000	63.5×120	0.35	12.0	ESME800LGC473MDC0M
	68,000	76.2×120	0.35	15.4	ESME800LGC683MEC0M
	82,000	76.2×140	0.35	18.1	ESME800LGC823MEE0M
	100,000	89×140	0.40	21.0	ESME800LGC104MFE0M
100	2,200	35×50	0.10	2.50	ESME101LGB222MA50M
	4,700	35×80	0.15	3.40	ESME101LGB472MA80M
	6,800	35×100	0.15	4.20	ESME101LGB682MAA0M
	8,200	35×120	0.15	5.00	ESME101LGB822MAC0M
	10,000	50×80	0.20	5.20	ESME101LGC103MC80M
	18,000	50×120	0.20	8.10	ESME101LGC183MCC0M
	22,000	63.5×100	0.25	8.60	ESME101LGC223MDA0M
	27,000	63.5×120	0.25	10.3	ESME101LGC273MDC0M
	33,000	76.2×100	0.25	11.1	ESME101LGC333MEA0M
	39,000	76.2×120	0.25	12.4	ESME101LGC393MEC0M
	47,000	76.2×140	0.25	14.3	ESME101LGC473MEE0M
	68,000	89×140	0.30	18.0	ESME101LGC683MFE0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Rated voltage (Vdc)	Case diameter (mm)	Frequency (Hz)					
		50	120	300	1k	10k	50k
10 to 50	φ35 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
63 & 80	φ35	0.90	1.00	1.06	1.10	1.18	1.22
	φ50 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
100	φ35	0.82	1.00	1.12	1.22	1.30	1.33
	φ50	0.90	1.00	1.06	1.10	1.18	1.22
	φ63.5 to φ89	0.95	1.00	1.03	1.05	1.09	1.12

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

New!

KMQ Series

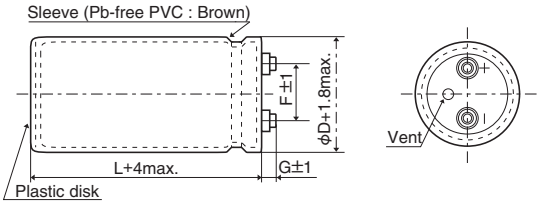
●Endurance with ripple current : 2,000 hours at 105℃
●Downsized and high ripple current from KMH series
●**RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	315 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Shall not exceed the values shown in the STANDARD RATINGS (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

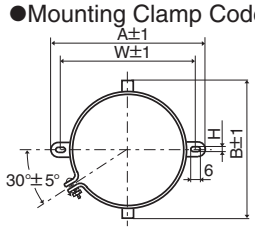
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



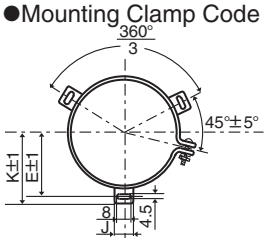
φ35 to φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B



φD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76.2	104.5	90.0	93.5	4.5	31.5

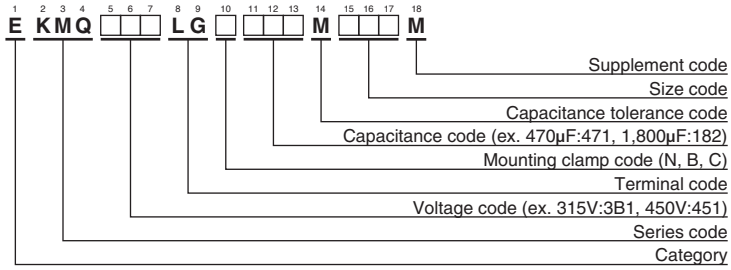
●Mounting Clamp Code : C



φD	E	K	J	F
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	14.0	28.0
76.2	44.5	50.0	14.0	31.5
89	50.8	56.5	16.0	31.5

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

New!

KMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
315	560	35×55	0.10	2.4	EKMQ3B1LGB561MA55M
	680	35×65	0.15	2.9	EKMQ3B1LGB681MA65M
	820	35×75	0.15	3.3	EKMQ3B1LGB821MA75M
	1,000	35×80	0.15	3.8	EKMQ3B1LGB102MA80M
	1,200	35×100	0.15	4.5	EKMQ3B1LGB122MAA0M
	1,500	50×70	0.15	5.4	EKMQ3B1LGC152MC70M
	1,800	50×75	0.15	6.0	EKMQ3B1LGC182MC75M
	2,200	50×90	0.15	7.2	EKMQ3B1LGC222MC90M
	2,700	50×100	0.15	8.4	EKMQ3B1LGC272MCA0M
	3,300	63.5×85	0.15	9.9	EKMQ3B1LGC332MD85M
	3,900	63.5×96	0.15	11.3	EKMQ3B1LGC392MD96M
	4,700	76.2×85	0.15	13.1	EKMQ3B1LGC472ME85M
	5,600	76.2×96	0.15	15.0	EKMQ3B1LGC562ME96M
	6,800	76.2×110	0.15	17.6	EKMQ3B1LGC682MEB0M
	8,200	89×100	0.15	17.2	EKMQ3B1LGC822MFA0M
	10,000	89×115	0.15	20.1	EKMQ3B1LGC103MFB5M
350	470	35×55	0.10	2.2	EKMQ351LGB471MA55M
	560	35×60	0.10	2.5	EKMQ351LGB561MA60M
	680	35×70	0.15	2.9	EKMQ351LGB681MA70M
	820	35×80	0.15	3.4	EKMQ351LGB821MA80M
	1,000	35×90	0.15	4.0	EKMQ351LGB102MA90M
	1,200	50×65	0.15	4.6	EKMQ351LGC122MC65M
	1,500	50×75	0.15	5.5	EKMQ351LGC152MC75M
	1,800	50×85	0.15	6.4	EKMQ351LGC182MC85M
	2,200	50×100	0.15	7.6	EKMQ351LGC222MCA0M
	2,700	63.5×85	0.15	9.0	EKMQ351LGC272MD85M
	3,900	76.2×80	0.15	11.7	EKMQ351LGC392ME80M
	5,600	76.2×105	0.15	15.6	EKMQ351LGC562MEA5M
	6,800	76.2×125	0.15	18.6	EKMQ351LGC682MEC5M
	8,200	89×115	0.15	18.2	EKMQ351LGC822MFB5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105℃,120Hz)	Part No.
400	390	35×55	0.10	2.0	EKMQ401LGB391MA55M
	470	35×60	0.10	2.3	EKMQ401LGB471MA60M
	560	35×70	0.15	2.7	EKMQ401LGB561MA70M
	680	35×80	0.15	3.1	EKMQ401LGB681MA80M
	820	35×90	0.15	3.6	EKMQ401LGB821MA90M
	1,000	50×65	0.15	4.2	EKMQ401LGC102MC65M
	1,200	50×75	0.15	4.9	EKMQ401LGC122MC75M
	1,500	50×85	0.15	5.8	EKMQ401LGC152MC85M
	2,200	63.5×85	0.15	8.1	EKMQ401LGC222MD85M
	3,300	63.5×105	0.15	10.8	EKMQ401LGC332MDA5M
	4,700	76.2×105	0.15	14.3	EKMQ401LGC472MEA5M
	5,600	89×96	0.15	13.9	EKMQ401LGC562MF96M
	6,800	89×115	0.15	16.6	EKMQ401LGC682MFB5M
	8,200	89×130	0.15	19.2	EKMQ401LGC822MFD0M
450	330	35×55	0.10	1.8	EKMQ451LGB331MA55M
	390	35×65	0.10	2.2	EKMQ451LGB391MA65M
	470	35×75	0.10	2.5	EKMQ451LGB471MA75M
	560	35×80	0.15	2.8	EKMQ451LGB561MA80M
	680	35×100	0.15	3.5	EKMQ451LGB681MAA0M
	820	35×110	0.15	4.1	EKMQ451LGB821MAB0M
	1,000	50×80	0.15	4.6	EKMQ451LGC102MC80M
	1,200	50×90	0.15	5.3	EKMQ451LGC122MC90M
	1,500	50×105	0.15	6.4	EKMQ451LGC152MCA5M
	2,200	63.5×96	0.15	8.5	EKMQ451LGC222MD96M
	3,300	63.5×130	0.15	11.9	EKMQ451LGC332MDD0M
	4,700	76.2×130	0.15	15.7	EKMQ451LGC472MED0M
	5,600	76.2×155	0.15	18.5	EKMQ451LGC562MEF5M
	5,600	89×120	0.15	15.3	EKMQ451LGC562MFC0M
	6,800	89×140	0.15	18.0	EKMQ451LGC682MFE0M
	8,200	89×170	0.15	21.6	EKMQ451LGC822MFH0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50Hz	120Hz	300Hz	1kHz	3kHz
φ35, 50	0.70	1.00	1.30	1.70	1.80
φ63.5 to 89	0.80	1.00	1.10	1.15	1.15

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

●Endurance with ripple current : 2,000 hours at 105℃
●**RoHS Compliant**

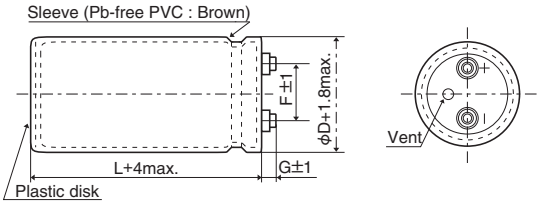
KMH
105℃
SME

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃ (10 to 100Vdc) −25 to +105℃ (160 to 400Vdc)
Rated Voltage Range	10 to 400Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Shall not exceed the values shown in the STANDARD RATINGS (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change 10 to 100Vdc : C(−40℃)/C(+20℃)≧0.6 160 to 400Vdc : C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

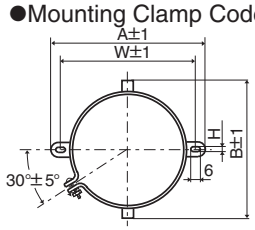
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



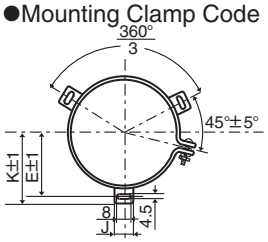
φ35 to φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B



φD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76.2	104.5	90.0	93.5	4.5	31.5

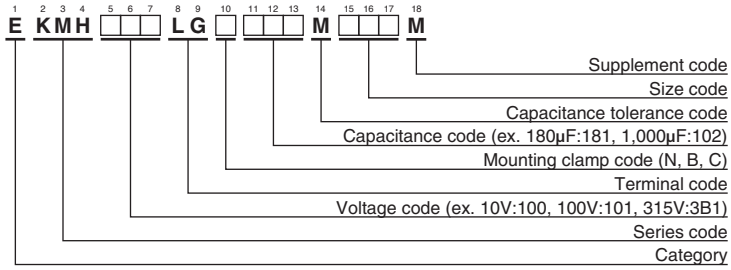
●Mounting Clamp Code : C



φD	E	K	J	F
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	14.0	28.0
76.2	44.5	50.0	14.0	31.5
89	50.8	56.5	16.0	31.5

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
10	27,000	35×50	0.45	4.90	EKMH100LGB273MA50M
	33,000	35×50	0.50	5.10	EKMH100LGB333MA50M
	39,000	35×60	0.50	5.90	EKMH100LGB393MA60M
	47,000	35×80	0.50	7.10	EKMH100LGB473MA80M
	56,000	35×80	0.60	7.10	EKMH100LGB563MA80M
	68,000	35×100	0.60	8.50	EKMH100LGB683MAA0M
	82,000	35×100	0.65	8.90	EKMH100LGB823MAA0M
	100,000	35×120	0.65	10.7	EKMH100LGB104MAC0M
	120,000	50×80	0.75	11.0	EKMH100LGC124MC80M
	150,000	50×100	0.80	13.2	EKMH100LGC154MCA0M
	180,000	50×120	0.80	15.7	EKMH100LGC184MCC0M
	220,000	50×120	0.85	16.8	EKMH100LGC224MCC0M
	270,000	63.5×120	1.00	19.6	EKMH100LGC274MDC0M
	330,000	63.5×120	1.20	19.7	EKMH100LGC334MDC0M
	390,000	76.2×120	1.50	21.3	EKMH100LGC394MEC0M
	470,000	76.2×120	1.80	21.4	EKMH100LGC474MEC0M
	560,000	76.2×140	2.00	23.6	EKMH100LGC564MEE0M
	680,000	89×140	2.40	26.0	EKMH100LGC684MFE0M
16	18,000	35×50	0.40	4.20	EKMH160LGB183MA50M
	22,000	35×50	0.40	4.70	EKMH160LGB223MA50M
	27,000	35×60	0.40	5.50	EKMH160LGB273MA60M
	33,000	35×60	0.45	5.70	EKMH160LGB333MA60M
	39,000	35×80	0.45	6.80	EKMH160LGB393MA80M
	47,000	35×80	0.50	7.10	EKMH160LGB473MA80M
	56,000	35×100	0.50	8.40	EKMH160LGB563MAA0M
	68,000	35×100	0.55	8.80	EKMH160LGB683MAA0M
	82,000	50×80	0.55	10.7	EKMH160LGC823MC80M
	100,000	50×80	0.65	10.8	EKMH160LGC104MC80M
	120,000	50×100	0.65	13.1	EKMH160LGC124MCA0M
	150,000	50×120	0.70	15.3	EKMH160LGC154MCC0M
	180,000	50×120	0.80	15.7	EKMH160LGC184MCC0M
	220,000	63.5×120	0.85	19.2	EKMH160LGC224MDC0M
	270,000	63.5×120	1.00	19.6	EKMH160LGC274MDC0M
	330,000	76.2×120	1.30	21.1	EKMH160LGC334MEC0M
	390,000	76.2×120	1.50	21.3	EKMH160LGC394MEC0M
	470,000	76.2×140	1.60	24.2	EKMH160LGC474MEE0M
	560,000	89×140	2.00	28.1	EKMH160LGC564MFE0M
	680,000	89×140	2.40	28.5	EKMH160LGC684MFE0M
25	12,000	35×50	0.35	3.70	EKMH250LGB123MA50M
	15,000	35×50	0.35	4.10	EKMH250LGB153MA50M
	18,000	35×60	0.35	4.80	EKMH250LGB183MA60M
	22,000	35×60	0.35	5.30	EKMH250LGB223MA60M
	27,000	35×80	0.35	6.40	EKMH250LGB273MA80M
	33,000	35×80	0.40	6.70	EKMH250LGB333MA80M
	39,000	35×100	0.40	7.80	EKMH250LGB393MAA0M
	47,000	35×120	0.40	9.30	EKMH250LGB473MAC0M
	56,000	50×80	0.45	9.70	EKMH250LGC563MC80M
	68,000	50×100	0.45	11.2	EKMH250LGC683MCA0M
	82,000	50×100	0.50	11.2	EKMH250LGC823MCA0M
	100,000	50×120	0.50	14.8	EKMH250LGC104MCC0M
	120,000	63.5×100	0.65	14.9	EKMH250LGC124MDA0M
	150,000	63.5×120	0.65	17.9	EKMH250LGC154MDC0M
	180,000	63.5×120	0.80	17.9	EKMH250LGC184MDC0M
	220,000	76.2×120	0.85	21.3	EKMH250LGC224MEC0M
	270,000	76.2×120	1.00	21.7	EKMH250LGC274MEC0M
	330,000	76.2×140	1.20	23.4	EKMH250LGC334MEE0M
	390,000	89×140	1.50	24.9	EKMH250LGC394MFE0M
35	8,200	35×50	0.30	3.30	EKMH350LGB822MA50M
	10,000	35×50	0.30	3.60	EKMH350LGB103MA50M
	12,000	35×60	0.30	4.20	EKMH350LGB123MA60M
	15,000	35×60	0.30	4.70	EKMH350LGB153MA60M
	18,000	35×80	0.30	5.70	EKMH350LGB183MA80M
	22,000	35×80	0.30	6.30	EKMH350LGB223MA80M
	27,000	35×100	0.30	7.50	EKMH350LGB273MAA0M
	33,000	35×120	0.30	9.00	EKMH350LGB333MAC0M
	39,000	50×80	0.35	9.20	EKMH350LGC393MC80M
	47,000	50×100	0.35	11.2	EKMH350LGC473MCA0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
35	56,000	50×100	0.40	11.4	EKMH350LGC563MCA0M
	68,000	50×120	0.40	13.6	EKMH350LGC683MCC0M
	82,000	63.5×100	0.45	14.8	EKMH350LGC823MDA0M
	100,000	63.5×120	0.45	17.6	EKMH350LGC104MDC0M
	120,000	63.5×120	0.55	17.6	EKMH350LGC124MDC0M
	150,000	76.2×120	0.65	19.8	EKMH350LGC154MEC0M
	180,000	76.2×120	0.80	19.8	EKMH350LGC184MEC0M
	220,000	76.2×140	0.80	23.4	EKMH350LGC224MEE0M
	270,000	89×140	1.00	25.5	EKMH350LGC274MFE0M
50	3,900	35×50	0.20	2.80	EKMH500LGB392MA50M
	4,700	35×50	0.20	3.10	EKMH500LGB472MA50M
	5,600	35×50	0.20	3.30	EKMH500LGB562MA50M
	6,800	35×50	0.25	3.30	EKMH500LGB682MA50M
	8,200	35×60	0.25	3.80	EKMH500LGB822MA60M
	10,000	35×80	0.25	4.60	EKMH500LGB103MA80M
	12,000	35×80	0.25	5.10	EKMH500LGB123MA80M
	15,000	35×80	0.25	5.70	EKMH500LGB153MA80M
	18,000	35×100	0.25	6.70	EKMH500LGB183MAA0M
	22,000	35×120	0.25	8.10	EKMH500LGB223MAC0M
	27,000	50×80	0.25	9.10	EKMH500LGC273MC80M
	33,000	50×100	0.25	11.1	EKMH500LGC333MCA0M
	39,000	50×120	0.25	13.1	EKMH500LGC393MCC0M
	47,000	50×120	0.30	13.9	EKMH500LGC473MCC0M
	56,000	63.5×100	0.35	13.9	EKMH500LGC563MDA0M
	68,000	63.5×120	0.35	16.6	EKMH500LGC683MDC0M
	82,000	76.2×120	0.40	18.9	EKMH500LGC823MEC0M
	100,000	76.2×120	0.45	19.5	EKMH500LGC104MEC0M
	120,000	76.2×120	0.55	19.5	EKMH500LGC124MEC0M
	150,000	89×140	0.60	23.9	EKMH500LGC154MFE0M
	180,000	89×140	0.75	23.9	EKMH500LGC184MFE0M
63	2,700	35×50	0.20	2.30	EKMH630LGB272MA50M
	3,300	35×50	0.20	2.50	EKMH630LGB332MA50M
	3,900	35×50	0.20	2.80	EKMH630LGB392MA50M
	4,700	35×50	0.20	3.10	EKMH630LGB472MA50M
	5,600	35×60	0.20	3.50	EKMH630LGB562MA60M
	6,800	35×60	0.20	3.90	EKMH630LGB682MA60M
	8,200	35×80	0.20	4.70	EKMH630LGB822MA80M
	10,000	35×80	0.25	4.70	EKMH630LGB103MA80M
	12,000	35×100	0.25	5.50	EKMH630LGB123MAA0M
	15,000	35×120	0.25	6.60	EKMH630LGB153MAC0M
	18,000	50×80	0.25	7.40	EKMH630LGC183MC80M
	22,000	50×100	0.25	9.00	EKMH630LGC223MCA0M
	27,000	50×120	0.25	10.9	EKMH630LGC273MCC0M
	33,000	50×120	0.25	12.0	EKMH630LGC333MCC0M
	39,000	63.5×100	0.30	12.5	EKMH630LGC393MDA0M
	47,000	63.5×120	0.30	14.9	EKMH630LGC473MDC0M
	56,000	63.5×120	0.30	16.3	EKMH630LGC563MDC0M
	68,000	76.2×120	0.35	18.4	EKMH630LGC683MEC0M
	82,000	76.2×140	0.40	20.0	EKMH630LGC823MEE0M
	100,000	76.2×140	0.50	20.0	EKMH630LGC104MEE0M
	120,000	89×140	0.60	21.8	EKMH630LGC124MFE0M
80	2,200	35×50	0.15	2.40	EKMH800LGB222MA50M
	2,700	35×50	0.15	2.70	EKMH800LGB272MA50M
	3,300	35×50	0.15	3.00	EKMH800LGB332MA50M
	3,900	35×60	0.15	3.40	EKMH800LGB392MA60M
	4,700	35×60	0.15	3.70	EKMH800LGB472MA60M
	5,600	35×80	0.15	4.50	EKMH800LGB562MA80M
	6,800	35×80	0.15	4.90	EKMH800LGB682MA80M
	8,200	35×100	0.20	5.10	EKMH800LGB822MAA0M
	10,000	35×120	0.20	6.10	EKMH800LGB103MAC0M
	12,000	50×80	0.20	6.70	EKMH800LGC123MC80M
	15,000	50×100	0.20	8.30	EKMH800LGC153MCA0M
	18,000	50×120	0.20	9.90	EKMH800LGC183MCC0M
	22,000	50×120	0.20	11.0	EKMH800LGC223MCC0M
	27,000	63.5×100	0.25	11.4	EKMH800LGC273MDA0M
	33,000	76.2×100	0.25	13.9	EKMH800LGC333MEA0M
	39,000	76.2×100	0.30	13.9	EKMH800LGC393MEA0M

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
80	47,000	76.2×120	0.30	16.5	EKMH800LGC473MEC0M
	56,000	76.2×120	0.30	18.1	EKMH800LGC563MEC0M
	68,000	76.2×140	0.35	19.7	EKMH800LGC683MEE0M
	82,000	89×140	0.40	22.1	EKMH800LGC823MFE0M
100	1,800	35×50	0.10	2.70	EKMH101LGB182MA50M
	2,200	35×50	0.10	3.00	EKMH101LGB222MA50M
	2,700	35×60	0.10	3.50	EKMH101LGB272MA60M
	3,300	35×80	0.10	4.20	EKMH101LGB332MA80M
	3,900	35×80	0.12	4.20	EKMH101LGB392MA80M
	4,700	35×100	0.12	5.00	EKMH101LGB472MAA0M
	5,600	35×100	0.12	5.40	EKMH101LGB562MAA0M
	6,800	35×120	0.15	5.80	EKMH101LGB682MAC0M
	8,200	50×80	0.15	6.40	EKMH101LGC822MC80M
	10,000	50×100	0.15	7.80	EKMH101LGC103MCA0M
	12,000	50×120	0.15	9.30	EKMH101LGC123MCC0M
	15,000	50×120	0.15	10.4	EKMH101LGC153MCC0M
	18,000	63.5×100	0.20	10.4	EKMH101LGC183MDA0M
	22,000	63.5×120	0.20	12.5	EKMH101LGC223MDC0M
	27,000	76.2×120	0.25	13.7	EKMH101LGC273MEC0M
	33,000	76.2×120	0.25	15.2	EKMH101LGC333MEC0M
	39,000	76.2×140	0.30	16.1	EKMH101LGC393MEE0M
	47,000	89×140	0.30	19.3	EKMH101LGC473MFE0M
	56,000	89×140	0.30	21.1	EKMH101LGC563MFE0M
160	560	35×50	0.15	1.20	EKMH161LGB561MA50M
	680	35×50	0.15	1.30	EKMH161LGB681MA50M
	820	35×50	0.15	1.40	EKMH161LGB821MA50M
	1,000	35×50	0.15	1.60	EKMH161LGB102MA50M
	1,200	35×60	0.15	1.90	EKMH161LGB122MA60M
	1,500	35×60	0.15	2.10	EKMH161LGB152MA60M
	1,800	35×80	0.15	2.50	EKMH161LGB182MA80M
	2,200	35×80	0.15	2.80	EKMH161LGB222MA80M
	2,700	35×100	0.15	3.30	EKMH161LGB272MAA0M
	3,300	35×120	0.15	3.80	EKMH161LGB332MAC0M
	3,900	50×80	0.20	3.80	EKMH161LGC392MC80M
	4,700	50×100	0.20	4.60	EKMH161LGC472MCA0M
	5,600	50×100	0.20	5.10	EKMH161LGC562MCA0M
	6,800	50×120	0.20	6.10	EKMH161LGC682MCC0M
	8,200	63.5×100	0.20	7.00	EKMH161LGC822MDA0M
	10,000	63.5×120	0.20	8.40	EKMH161LGC103MDC0M
	12,000	76.2×100	0.20	9.40	EKMH161LGC123MEA0M
	15,000	76.2×120	0.20	11.4	EKMH161LGC153MEC0M
	18,000	76.2×140	0.20	13.4	EKMH161LGC183MEE0M
	22,000	89×140	0.25	14.5	EKMH161LGC223MFE0M
	27,000	89×140	0.25	16.0	EKMH161LGC273MFE0M
200	330	35×50	0.15	0.90	EKMH201LGB331MA50M
	390	35×50	0.15	1.00	EKMH201LGB391MA50M
	470	35×50	0.15	1.10	EKMH201LGB471MA50M
	560	35×50	0.15	1.20	EKMH201LGB561MA50M
	680	35×50	0.15	1.30	EKMH201LGB681MA50M
	820	35×50	0.15	1.40	EKMH201LGB821MA50M
	1,000	35×60	0.15	1.70	EKMH201LGB102MA60M
	1,200	35×60	0.15	1.90	EKMH201LGB122MA60M
	1,500	35×80	0.15	2.30	EKMH201LGB152MA80M
	1,800	35×80	0.15	2.50	EKMH201LGB182MA80M
	2,200	35×100	0.15	3.00	EKMH201LGB222MAA0M
	2,700	35×120	0.15	3.60	EKMH201LGB272MAC0M
	3,300	50×80	0.15	4.10	EKMH201LGC332MC80M
	3,900	50×100	0.15	4.90	EKMH201LGC392MCA0M
	4,700	63.5×100	0.20	5.30	EKMH201LGC472MDA0M
	5,600	63.5×100	0.20	5.80	EKMH201LGC562MDA0M
	6,800	63.5×120	0.20	6.90	EKMH201LGC682MDC0M
	8,200	63.5×120	0.20	7.60	EKMH201LGC822MDC0M
	10,000	76.2×120	0.20	9.30	EKMH201LGC103MEC0M
	12,000	76.2×120	0.20	10.2	EKMH201LGC123MEC0M
	15,000	76.2×140	0.20	12.2	EKMH201LGC153MEE0M
	18,000	89×140	0.25	13.1	EKMH201LGC183MFE0M
250	270	35×50	0.15	0.80	EKMH251LGB271MA50M
250	330	35×50	0.15	0.90	EKMH251LGB331MA50M
	390	35×50	0.15	1.00	EKMH251LGB391MA50M
	470	35×50	0.15	1.10	EKMH251LGB471MA50M
	560	35×50	0.15	1.20	EKMH251LGB561MA50M
	680	35×60	0.15	1.40	EKMH251LGB681MA60M
	820	35×80	0.15	1.60	EKMH251LGB821MA80M
	1,000	35×80	0.20	1.60	EKMH251LGB102MA80M
	1,200	35×80	0.20	1.80	EKMH251LGB122MA80M
	1,500	35×100	0.20	2.10	EKMH251LGB152MAA0M
	1,800	35×120	0.20	2.50	EKMH251LGB182MAC0M
	2,200	50×80	0.20	2.90	EKMH251LGC222MC80M
	2,700	50×100	0.20	3.50	EKMH251LGC272MCA0M
	3,300	50×120	0.20	4.20	EKMH251LGC332MCC0M
	3,900	50×120	0.20	4.60	EKMH251LGC392MCC0M
	4,700	63.5×120	0.20	5.70	EKMH251LGC472MDC0M
	5,600	63.5×120	0.20	6.30	EKMH251LGC562MDC0M
	6,800	76.2×120	0.20	7.70	EKMH251LGC682MEC0M
	8,200	76.2×120	0.20	8.40	EKMH251LGC822MEC0M
	10,000	76.2×140	0.20	10.0	EKMH251LGC103MEE0M
	12,000	89×140	0.20	11.9	EKMH251LGC123MFE0M
315	180	35×50	0.10	0.80	EKMH3B1LGB181MA50M
	220	35×50	0.10	0.90	EKMH3B1LGB221MA50M
	270	35×50	0.10	1.00	EKMH3B1LGB271MA50M
	330	35×50	0.10	1.10	EKMH3B1LGB331MA50M
	390	35×50	0.10	1.20	EKMH3B1LGB391MA50M
	470	35×60	0.10	1.40	EKMH3B1LGB471MA60M
	560	35×60	0.10	1.50	EKMH3B1LGB561MA60M
	680	35×80	0.10	1.70	EKMH3B1LGB681MA80M
	820	35×80	0.15	1.70	EKMH3B1LGB821MA80M
	1,000	35×100	0.15	2.00	EKMH3B1LGB102MAA0M
	1,200	35×120	0.15	2.40	EKMH3B1LGB122MAC0M
	1,500	50×80	0.15	2.70	EKMH3B1LGC152MC80M
	1,800	50×100	0.15	3.30	EKMH3B1LGC182MCA0M
	2,200	50×120	0.15	4.00	EKMH3B1LGC222MCC0M
	2,700	50×120	0.15	4.40	EKMH3B1LGC272MCC0M
	3,300	63.5×100	0.15	5.10	EKMH3B1LGC332MDA0M
	3,900	63.5×120	0.15	6.00	EKMH3B1LGC392MDC0M
	4,700	76.2×100	0.15	6.80	EKMH3B1LGC472MEA0M
	5,600	76.2×120	0.15	8.00	EKMH3B1LGC562MEC0M
	6,800	76.2×130	0.15	9.20	EKMH3B1LGC682MED0M
	8,200	89×140	0.15	11.4	EKMH3B1LGC822MFE0M
	10,000	89×140	0.15	12.6	EKMH3B1LGC103MFE0M
350	180	35×50	0.10	0.80	EKMH351LGB181MA50M
	220	35×50	0.10	0.90	EKMH351LGB221MA50M
	270	35×50	0.10	1.00	EKMH351LGB271MA50M
	330	35×50	0.10	1.10	EKMH351LGB331MA50M
	390	35×60	0.10	1.30	EKMH351LGB391MA60M
	470	35×60	0.10	1.40	EKMH351LGB471MA60M
	560	35×80	0.10	1.60	EKMH351LGB561MA80M
	680	35×80	0.15	1.60	EKMH351LGB681MA80M
	820	35×100	0.15	1.80	EKMH351LGB821MAA0M
	1,000	35×120	0.15	2.20	EKMH351LGB102MAC0M
	1,200	50×80	0.15	2.40	EKMH351LGC122MC80M
	1,500	50×100	0.15	3.00	EKMH351LGC152MCA0M
	1,800	50×120	0.15	3.60	EKMH351LGC182MCC0M
	2,200	50×120	0.15	4.00	EKMH351LGC222MCC0M
	2,700	63.5×100	0.15	4.60	EKMH351LGC272MDA0M
	3,900	76.2×120	0.15	6.70	EKMH351LGC392MEC0M
	5,600	76.2×130	0.15	8.30	EKMH351LGC562MED0M
	6,800	76.2×140	0.15	9.50	EKMH351LGC682MEE0M
	8,200	89×140	0.15	11.4	EKMH351LGC822MFE0M
400	180	35×50	0.10	0.80	EKMH401LGB181MA50M
	220	35×50	0.10	0.90	EKMH401LGB221MA50M
	270	35×50	0.10	1.00	EKMH401LGB271MA50M
	330	35×60	0.10	1.20	EKMH401LGB331MA60M
	390	35×60	0.10	1.30	EKMH401LGB391MA60M
	470	35×80	0.10	1.40	EKMH401LGB471MA80M

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	560	35×80	0.15	1.40	EKMH401LGB561MA80M
	680	35×100	0.15	1.70	EKMH401LGB681MAA0M
	820	35×120	0.15	2.00	EKMH401LGB821MAC0M
	1,000	50×80	0.15	2.20	EKMH401LGC102MC80M
	1,200	50×100	0.15	2.70	EKMH401LGC122MCA0M
	1,500	50×120	0.15	3.30	EKMH401LGC152MCC0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	2,200	63.5×100	0.15	4.20	EKMH401LGC222MDA0M
	3,300	63.5×120	0.15	5.50	EKMH401LGC332MDC0M
	4,700	76.2×130	0.15	7.60	EKMH401LGC472MED0M
	5,600	89×140	0.15	9.40	EKMH401LGC562MFE0M
	6,800	89×140	0.15	10.4	EKMH401LGC682MFE0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Rated voltage (Vdc)	Case diameter (mm)	Frequency (Hz)					
		50	120	300	1k	10k	50k
10 to 50	φ35 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
63 & 80	φ35	0.90	1.00	1.06	1.10	1.18	1.22
	φ50 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
100	φ35	0.82	1.00	1.12	1.22	1.30	1.33
	φ50	0.90	1.00	1.06	1.10	1.18	1.22
	φ63.5 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
160 to 250	φ35	0.80	1.00	1.19	1.34	1.46	1.52
	φ50 & φ63.5	0.81	1.00	1.14	1.26	1.36	1.41
	φ76.2 & φ89	0.82	1.00	1.12	1.22	1.30	1.33
315 to 400	φ35 to φ89	0.80	1.00	1.19	1.34	1.46	1.52

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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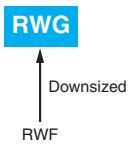
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWG Series

- ●Downsized, high ripple version of RWF series
- ●20% better ripple current at 300Hz than RWF series
- ●Endurance with ripple current : 5,000 hours at 85℃
- ●**RoHS Compliant**

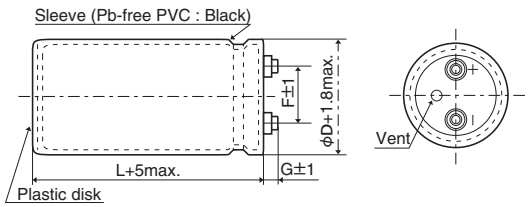


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for (the peak voltage shall not exceed the rated voltage) 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

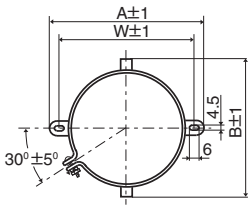
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



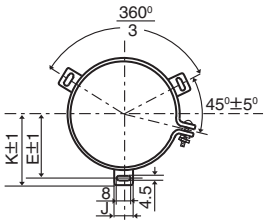
φ50 : G=6
φ63.5, φ76.2 : G=5
φ89 : G=4

●Mounting Clamp Code : B



φD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76.2	104.5	90.0	93.5	31.5

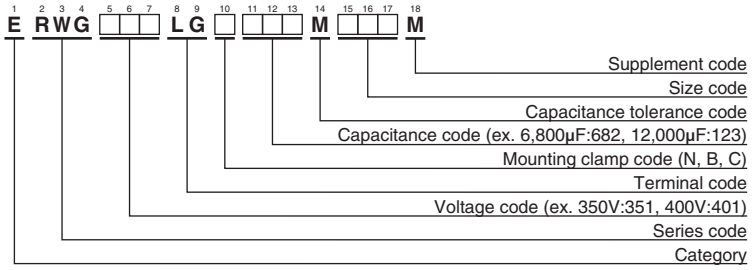
●Mounting Clamp Code : C



φD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/85℃) 120Hz	300Hz	Part No.
350	2,200	50×96	0.25	7.70	9.20	ERWG351LGC222MC96M
	2,700	50×105	0.25	8.90	10.6	ERWG351LGC272MCA5M
	3,300	50×115	0.25	10.3	12.3	ERWG351LGC332MCB5M
	3,900	50×130	0.25	11.8	14.1	ERWG351LGC392MCD0M
	4,700	63.5×115	0.25	13.6	16.3	ERWG351LGC472MDB5M
	5,600	63.5×130	0.25	15.7	18.8	ERWG351LGC562MDD0M
	6,800	63.5×155	0.25	18.8	22.5	ERWG351LGC682MDF5M
	6,800	76.2×115	0.25	18.2	21.8	ERWG351LGC682MEB5M
	8,200	63.5×190	0.25	22.6	27.1	ERWG351LGC822MDK0M
	8,200	76.2×130	0.25	21.0	25.2	ERWG351LGC822MED0M
	10,000	76.2×155	0.25	25.1	30.1	ERWG351LGC103MEF5M
	12,000	76.2×170	0.25	28.7	34.4	ERWG351LGC123MEH0M
	15,000	89×155	0.25	33.6	40.3	ERWG351LGC153MFF5M
	15,000	89×170	0.25	35.0	42.0	ERWG351LGC153MFH0M
	18,000	89×190	0.25	40.3	48.3	ERWG351LGC183MFK0M
400	1,800	50×96	0.25	7.00	8.40	ERWG401LGC182MC96M
	2,200	50×105	0.25	8.10	9.70	ERWG401LGC222MCA5M
	2,700	50×115	0.25	9.30	11.1	ERWG401LGC272MCB5M
	3,300	50×130	0.25	10.9	13.0	ERWG401LGC332MCD0M
	3,900	63.5×115	0.25	12.4	14.8	ERWG401LGC392MDB5M
	4,700	63.5×130	0.25	14.4	17.2	ERWG401LGC472MDD0M
	5,600	63.5×155	0.25	17.0	20.4	ERWG401LGC562MDF5M
	5,600	76.2×115	0.25	16.5	19.8	ERWG401LGC562MEB5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/85℃) 120Hz	300Hz	Part No.
400	6,800	63.5×190	0.25	20.6	24.7	ERWG401LGC682MDK0M
	6,800	76.2×130	0.25	19.2	23.0	ERWG401LGC682MED0M
	8,200	76.2×155	0.25	22.7	27.2	ERWG401LGC822MEF5M
	10,000	76.2×170	0.25	26.2	31.4	ERWG401LGC103MEH0M
	12,000	89×155	0.25	30.0	36.0	ERWG401LGC123MFF5M
	12,000	89×170	0.25	31.3	37.5	ERWG401LGC123MFH0M
	15,000	89×190	0.25	36.7	44.0	ERWG401LGC153MFK0M
450	1,500	50×96	0.25	6.40	7.60	ERWG451LGC152MC96M
	1,800	50×105	0.25	7.30	8.70	ERWG451LGC182MCA5M
	2,200	50×115	0.25	8.40	10.0	ERWG451LGC222MCB5M
	2,700	50×130	0.25	9.80	11.7	ERWG451LGC272MCD0M
	3,300	63.5×115	0.25	11.4	13.6	ERWG451LGC332MDB5M
	3,900	63.5×130	0.25	13.1	15.7	ERWG451LGC392MDD0M
	4,700	63.5×155	0.25	15.6	18.7	ERWG451LGC472MDF5M
	4,700	76.2×115	0.25	15.1	18.1	ERWG451LGC472MEB5M
	5,600	63.5×190	0.25	18.7	22.4	ERWG451LGC562MDK0M
	5,600	76.2×130	0.25	17.4	20.8	ERWG451LGC562MED0M
	6,800	76.2×155	0.25	20.7	24.8	ERWG451LGC682MEF5M
	8,200	76.2×170	0.25	23.7	28.4	ERWG451LGC822MEH0M
	10,000	89×155	0.25	27.4	32.8	ERWG451LGC103MFF5M
	10,000	89×170	0.25	28.6	34.3	ERWG451LGC103MFH0M
	12,000	89×190	0.25	32.9	39.4	ERWG451LGC123MFK0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.2	1.4	1.5

Note : The endurancce of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWG series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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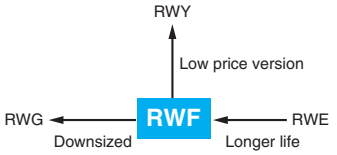
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWF Series

- High ripple capability
- Endurance with ripple current : 5,000 hours at 85℃
- Wide range of case sizes from φ50 to φ100
- **RoHS Compliant**

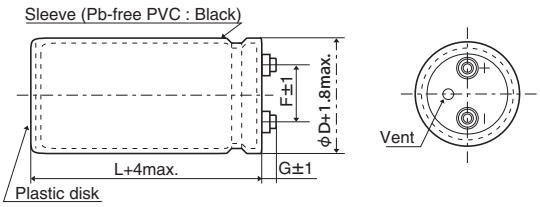


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

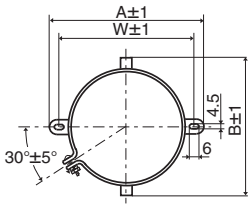
◆DIMENSIONS (Screw-Mount) [mm]

- Terminal Code : LG



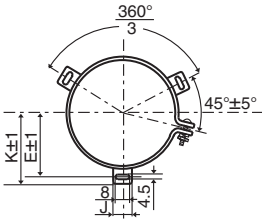
φ50 & φ63.5 : G=6
φ76.2 & φ89 : G=5
φ100 : G=10

- Mounting Clamp Code : B



φD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76.2	104.5	90.0	93.5	31.5

- Mounting Clamp Code : C



φD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0
100	56.5	63.4	41.5	18.0

<Screw specifications>

to φ89 Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm

φ100 Cross-recessed head (phillips) screw : M8×1.25×16
Spring washer,Washer
Maximum screw tightening torque :6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E RWF □□□ LG □ □□□ M □□□ M

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 6,800μF:682, 12,000μF:123)
- Mounting clamp code (N, B, C)
- Terminal code
- Voltage code (ex. 350V:351, 400V:401)
- Series code
- Category

Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWF Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	1,200	50×60	0.25	4.90	ERWF351LGC122MC60M
	1,800	50×75	0.25	6.50	ERWF351LGC182MC75M
	2,200	50×85	0.25	7.50	ERWF351LGC222MC85M
	2,200	50×96	0.25	7.70	ERWF351LGC222MC96M
	2,700	50×115	0.25	9.30	ERWF351LGC272MCB5M
	3,300	50×130	0.25	10.8	ERWF351LGC332MCD0M
	3,900	63.5×115	0.25	12.1	ERWF351LGC392MDB5M
	4,700	63.5×130	0.25	14.0	ERWF351LGC472MDD0M
	5,600	63.5×155	0.25	16.6	ERWF351LGC562MDF5M
	5,600	76.2×115	0.25	16.1	ERWF351LGC562MEB5M
	6,800	63.5×190	0.25	20.0	ERWF351LGC682MDK0M
	6,800	76.2×130	0.25	18.6	ERWF351LGC682MED0M
	8,200	76.2×155	0.25	22.2	ERWF351LGC822MEF5M
	10,000	76.2×170	0.25	25.2	ERWF351LGC103MEH0M
	12,000	89×155	0.25	29.1	ERWF351LGC123MFF5M
	15,000	89×190	0.25	35.7	ERWF351LGC153MFK0M
	18,000	100×190	0.25	36.9	ERWF351LGC183MGK0M
	22,000	100×250	0.25	46.1	ERWF351LGC223MGR0M
400	1,000	50×60	0.25	4.40	ERWF401LGC102MC60M
	1,500	50×75	0.25	5.90	ERWF401LGC152MC75M
	1,800	50×85	0.25	6.80	ERWF401LGC182MC85M
	1,800	50×96	0.25	7.00	ERWF401LGC182MC96M
	2,200	50×105	0.25	8.00	ERWF401LGC222MCA5M
	2,700	50×130	0.25	9.80	ERWF401LGC272MCD0M
	3,300	63.5×115	0.25	11.1	ERWF401LGC332MDB5M
	3,900	63.5×130	0.25	12.7	ERWF401LGC392MDD0M
	4,700	63.5×155	0.25	15.2	ERWF401LGC472MDF5M
	4,700	76.2×115	0.25	14.7	ERWF401LGC472MEB5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
400	5,600	63.5×190	0.25	18.2	ERWF401LGC562MDK0M
	5,600	76.2×130	0.25	16.9	ERWF401LGC562MED0M
	6,800	76.2×155	0.25	20.2	ERWF401LGC682MEF5M
	8,200	76.2×170	0.25	22.8	ERWF401LGC822MEH0M
	10,000	89×155	0.25	26.6	ERWF401LGC103MFF5M
	12,000	89×170	0.25	30.0	ERWF401LGC123MFH0M
	15,000	100×190	0.25	33.7	ERWF401LGC153MGK0M
	18,000	100×220	0.25	37.4	ERWF401LGC183MGN0M
450	820	50×60	0.25	4.00	ERWF451LGC821MC60M
	1,000	50×75	0.25	4.80	ERWF451LGC102MC75M
	1,200	50×85	0.25	5.60	ERWF451LGC122MC85M
	1,200	50×96	0.25	5.70	ERWF451LGC122MC96M
	1,500	50×96	0.25	6.30	ERWF451LGC152MC96M
	1,800	50×115	0.25	7.60	ERWF451LGC182MCB5M
	2,200	50×130	0.25	8.80	ERWF451LGC222MCD0M
	2,700	63.5×115	0.25	10.1	ERWF451LGC272MDB5M
	3,300	63.5×130	0.25	11.7	ERWF451LGC332MDD0M
	3,900	63.5×155	0.25	13.8	ERWF451LGC392MDF5M
	3,900	76.2×115	0.25	13.4	ERWF451LGC392MEB5M
	4,700	63.5×190	0.25	16.7	ERWF451LGC472MDK0M
	4,700	76.2×130	0.25	15.5	ERWF451LGC472MED0M
	5,600	76.2×155	0.25	18.3	ERWF451LGC562MEF5M
	6,800	76.2×170	0.25	20.7	ERWF451LGC682MEH0M
	8,200	89×155	0.25	24.1	ERWF451LGC822MFF5M
	10,000	89×170	0.25	27.8	ERWF451LGC103MFH0M
	12,000	100×190	0.25	29.3	ERWF451LGC123MGK0M
	15,000	100×250	0.25	37.0	ERWF451LGC153MGR0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurancce of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWF series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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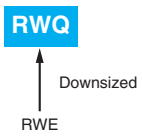
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWQ Series

●Downsized and high ripple current from RWE series
●Endurance with ripple current : 2,000 hours at 85℃
●**RoHS Compliant**

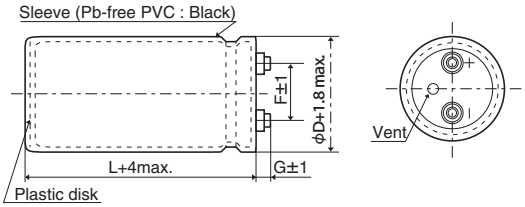


◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +85℃			
Rated Voltage Range	350 to 550Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max.			(at 20℃, 120Hz)
Low Temperature Characteristics	Rated voltage (Vdc)	350 to 450V	500 to 550V	
	C(-25℃) / C(+20℃)	≧0.7	≧0.6	(at 120Hz)
Insulation Resistance	When measured between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.			
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.			
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦300% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied.Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JISC 5101-4.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦300% of the initial specified value		
	Leakage current	≦The initial specified value		

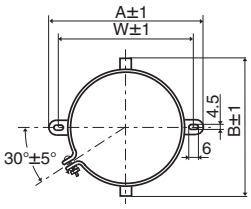
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



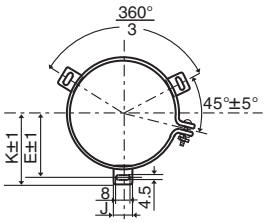
φ50 & φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B



φD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76.2	104.5	90.0	93.5	31.5

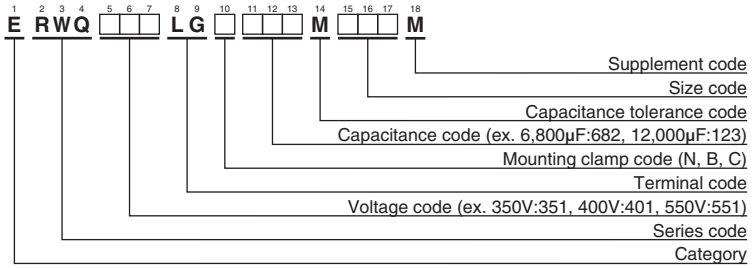
●Mounting Clamp Code : C



φD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	1,500	50×65	0.25	5.09	ERWQ351LGC152MC65M
	1,800	50×75	0.25	5.93	ERWQ351LGC182MC75M
	2,200	50×96	0.25	7.30	ERWQ351LGC222MC96M
	2,700	50×115	0.25	8.76	ERWQ351LGC272MCB5M
	3,300	63.5×85	0.25	9.71	ERWQ351LGC332MD85M
	3,900	50×130	0.25	11.1	ERWQ351LGC392MCD0M
	3,900	63.5×96	0.25	11.1	ERWQ351LGC392MD96M
	4,700	63.5×115	0.25	13.2	ERWQ351LGC472MDB5M
	5,600	63.5×130	0.25	15.2	ERWQ351LGC562MDD0M
	5,600	76.2×96	0.25	14.3	ERWQ351LGC562ME96M
	6,800	76.2×115	0.25	17.0	ERWQ351LGC682MEB5M
	8,200	76.2×130	0.25	19.6	ERWQ351LGC822MED0M
	10,000	76.2×155	0.25	23.4	ERWQ351LGC103MEF5M
	12,000	89×130	0.25	24.1	ERWQ351LGC123MFD0M
	15,000	89×155	0.25	29.1	ERWQ351LGC153MFF5M
400	1,200	50×65	0.25	4.55	ERWQ401LGC122MC65M
	1,500	50×75	0.25	5.41	ERWQ401LGC152MC75M
	1,800	50×85	0.25	6.26	ERWQ401LGC182MC85M
	2,200	50×96	0.25	7.30	ERWQ401LGC222MC96M
	2,700	50×115	0.25	8.76	ERWQ401LGC272MCB5M
	3,300	63.5×96	0.25	10.2	ERWQ401LGC332MD96M
	3,900	63.5×115	0.25	12.0	ERWQ401LGC392MDB5M
	4,700	63.5×130	0.25	13.9	ERWQ401LGC472MDD0M
	4,700	76.2×96	0.25	13.1	ERWQ401LGC472ME96M
	5,600	63.5×155	0.25	16.5	ERWQ401LGC562MDF5M
	6,800	76.2×115	0.25	17.0	ERWQ401LGC682MEB5M
	8,200	76.2×155	0.25	21.2	ERWQ401LGC822MEF5M
	10,000	89×130	0.25	22.0	ERWQ401LGC103MFD0M
	12,000	89×155	0.25	26.0	ERWQ401LGC123MFF5M
450	1,000	50×70	0.25	3.87	ERWQ451LGC102MC70M
	1,200	50×75	0.25	4.36	ERWQ451LGC122MC75M
	1,500	50×90	0.25	5.28	ERWQ451LGC152MC90M
	1,800	50×96	0.25	5.95	ERWQ451LGC182MC96M
	2,200	50×130	0.25	7.54	ERWQ451LGC222MCD0M
	2,700	63.5×96	0.25	8.34	ERWQ451LGC272MD96M
	3,300	63.5×115	0.25	9.97	ERWQ451LGC332MDB5M
	3,900	63.5×130	0.25	11.4	ERWQ451LGC392MDD0M
	3,900	76.2×96	0.25	11.1	ERWQ451LGC392ME96M
	4,700	63.5×155	0.25	13.6	ERWQ451LGC472MDF5M
	4,700	76.2×115	0.25	13.2	ERWQ451LGC472MEB5M
	5,600	76.2×130	0.25	15.2	ERWQ451LGC562MED0M
	6,800	76.2×155	0.25	18.1	ERWQ451LGC682MEF5M
	8,200	89×130	0.25	19.2	ERWQ451LGC822MFD0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
500	470	50×60	0.25	2.17	ERWQ501LGC471MC60M
	680	50×65	0.25	2.70	ERWQ501LGC681MC65M
	820	50×75	0.25	3.15	ERWQ501LGC821MC75M
	1,000	50×85	0.25	3.67	ERWQ501LGC102MC85M
	1,200	50×96	0.25	4.22	ERWQ501LGC122MC96M
	1,500	50×115	0.25	5.14	ERWQ501LGC152MCB5M
	1,500	63.5×96	0.25	5.42	ERWQ501LGC152MD96M
	1,800	50×130	0.25	5.95	ERWQ501LGC182MCD0M
	1,800	63.5×96	0.25	5.94	ERWQ501LGC182MD96M
	2,200	63.5×115	0.25	7.10	ERWQ501LGC222MDB5M
	2,200	76.2×96	0.25	7.30	ERWQ501LGC222ME96M
	2,700	63.5×130	0.25	8.31	ERWQ501LGC272MDD0M
	3,300	76.2×115	0.25	9.65	ERWQ501LGC332MEB5M
	3,900	76.2×130	0.25	11.1	ERWQ501LGC392MED0M
	4,700	76.2×155	0.25	13.1	ERWQ501LGC472MEF5M
	6,800	89×155	0.25	15.9	ERWQ501LGC682MFF5M
550	390	50×60	0.25	1.98	ERWQ551LGC391MC60M
	560	50×65	0.25	2.45	ERWQ551LGC561MC65M
	680	50×75	0.25	2.87	ERWQ551LGC681MC75M
	820	50×85	0.25	3.32	ERWQ551LGC821MC85M
	1,200	50×115	0.25	4.60	ERWQ551LGC122MCB5M
	1,500	63.5×96	0.25	5.42	ERWQ551LGC152MD96M
	1,800	76.2×80	0.25	6.12	ERWQ551LGC182ME80M
	2,200	76.2×96	0.25	7.30	ERWQ551LGC222ME96M
	2,700	76.2×115	0.25	8.73	ERWQ551LGC272MEB5M
	3,300	76.2×130	0.25	10.2	ERWQ551LGC332MED0M
	5,600	89×155	0.25	14.5	ERWQ551LGC562MFF5M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurancce of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWQ series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For the details, please contact a representative of Nippon Chemi-Con.

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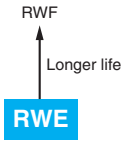
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWE Series

●Rated voltage range : 350 to 550Vdc
●Endurance with ripple current : 85℃ 2,000 hours
●**RoHS Compliant**

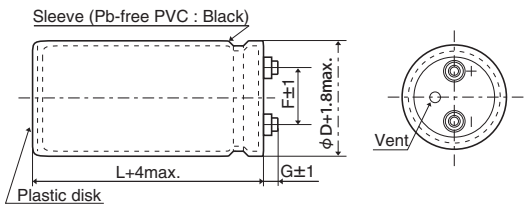


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 550Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change: Rated Voltage (Vdc) — 350 to 450V: C(−25℃)/C(+20℃) ≧0.7; 500 & 550V: ≧0.6 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

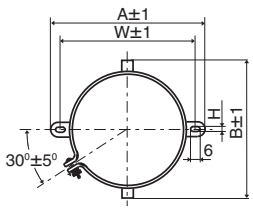
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



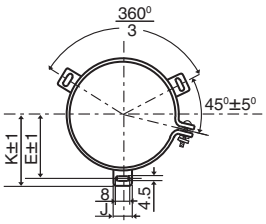
φ35 to φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B



φD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76.2	104.5	90.0	93.5	4.5	31.5

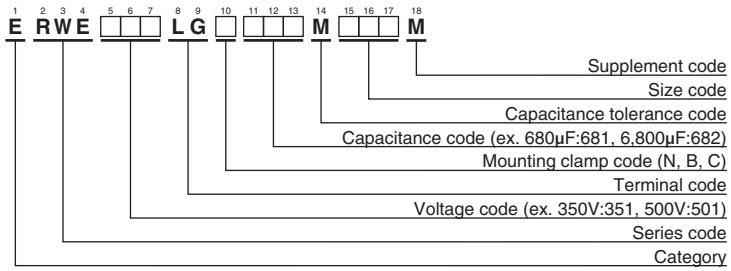
●Mounting Clamp Code : C



φD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	390	35×50	0.25	1.90	ERWE351LGB391MA50M
	680	35×80	0.25	2.90	ERWE351LGB681MA80M
	1,000	35×100	0.25	3.80	ERWE351LGB102MAA0M
	1,200	35×120	0.25	4.20	ERWE351LGB122MAC0M
	1,500	50×75	0.25	4.70	ERWE351LGC152MC75M
	2,200	50×96	0.25	6.30	ERWE351LGC222MC96M
	3,300	50×130	0.25	8.80	ERWE351LGC332MCD0M
	3,300	63.5×96	0.25	8.80	ERWE351LGC332MD96M
	3,900	63.5×115	0.25	10.3	ERWE351LGC392MDB5M
	4,700	63.5×130	0.25	12.0	ERWE351LGC472MDD0M
	4,700	76.2×96	0.25	11.7	ERWE351LGC472ME96M
	5,600	76.2×115	0.25	12.6	ERWE351LGC562MEB5M
	6,800	76.2×130	0.25	15.9	ERWE351LGC682MED0M
	8,200	76.2×155	0.25	19.0	ERWE351LGC822MEF5M
	12,000	89×155	0.25	22.5	ERWE351LGC123MFF5M
400	330	35×50	0.25	1.70	ERWE401LGB331MA50M
	560	35×80	0.25	2.70	ERWE401LGB561MA80M
	820	35×100	0.25	3.40	ERWE401LGB821MAA0M
	1,000	35×120	0.25	3.90	ERWE401LGB102MAC0M
	1,200	50×75	0.25	4.20	ERWE401LGC122MC75M
	1,800	50×96	0.25	5.70	ERWE401LGC182MC96M
	2,200	50×130	0.25	7.20	ERWE401LGC222MCD0M
	2,700	63.5×96	0.25	7.90	ERWE401LGC272MD96M
	3,300	63.5×115	0.25	9.50	ERWE401LGC332MDB5M
	3,900	63.5×130	0.25	10.9	ERWE401LGC392MDD0M
	3,900	76.2×96	0.25	10.6	ERWE401LGC392ME96M
	4,700	76.2×115	0.25	12.6	ERWE401LGC472MEB5M
	5,600	76.2×130	0.25	14.5	ERWE401LGC562MED0M
	6,800	76.2×155	0.25	17.3	ERWE401LGC682MEF5M
	10,000	89×155	0.25	20.5	ERWE401LGC103MFF5M
450	270	35×50	0.25	1.60	ERWE451LGB271MA50M
	470	35×80	0.25	2.40	ERWE451LGB471MA80M
	680	35×100	0.25	3.10	ERWE451LGB681MAA0M
	820	35×120	0.25	3.50	ERWE451LGB821MAC0M
	1,000	50×75	0.25	3.90	ERWE451LGC102MC75M
	1,200	50×96	0.25	4.70	ERWE451LGC122MC96M
	1,500	50×115	0.25	5.60	ERWE451LGC152MCB5M
	1,800	50×130	0.25	6.50	ERWE451LGC182MCD0M
	2,200	63.5×96	0.25	7.20	ERWE451LGC222MD96M
450	2,700	63.5×115	0.25	8.60	ERWE451LGC272MDB5M
	3,300	63.5×130	0.25	10.0	ERWE451LGC332MDD0M
	3,300	76.2×96	0.25	9.80	ERWE451LGC332ME96M
	3,900	76.2×115	0.25	11.5	ERWE451LGC392MEB5M
	4,700	76.2×130	0.25	13.3	ERWE451LGC472MED0M
	5,600	76.2×155	0.25	15.7	ERWE451LGC562MEF5M
	8,200	89×155	0.25	18.6	ERWE451LGC822MFF5M
500	120	35×50	0.25	0.70	ERWE501LGB121MA50M
	270	35×80	0.25	1.20	ERWE501LGB271MA80M
	330	35×100	0.25	1.40	ERWE501LGB331MAA0M
	390	35×120	0.25	1.70	ERWE501LGB391MAC0M
	470	50×75	0.25	1.80	ERWE501LGC471MC75M
	680	50×96	0.25	2.50	ERWE501LGC681MC96M
	820	50×115	0.25	2.90	ERWE501LGC821MCB5M
	1,000	50×130	0.25	3.40	ERWE501LGC102MCD0M
	1,000	63.5×96	0.25	3.40	ERWE501LGC102MD96M
	1,500	63.5×115	0.25	4.50	ERWE501LGC152MDB5M
	1,500	76.2×96	0.25	4.60	ERWE501LGC152ME96M
	1,800	63.5×130	0.25	5.20	ERWE501LGC182MDD0M
	2,200	76.2×115	0.25	6.10	ERWE501LGC222MEB5M
	2,700	76.2×155	0.25	7.70	ERWE501LGC272MEF5M
	3,900	89×155	0.25	10.1	ERWE501LGC392MFF5M
550	100	35×50	0.25	0.60	ERWE551LGB101MA50M
	180	35×80	0.25	1.00	ERWE551LGB181MA80M
	270	35×100	0.25	1.30	ERWE551LGB271MAA0M
	330	35×120	0.25	1.60	ERWE551LGB331MAC0M
	390	50×75	0.25	1.70	ERWE551LGC391MC75M
	560	50×96	0.25	2.10	ERWE551LGC561MC96M
	560	63.5×96	0.25	2.50	ERWE551LGC561MD96M
	680	50×115	0.25	2.70	ERWE551LGC681MCB5M
	680	63.5×115	0.25	3.00	ERWE551LGC681MDB5M
	820	50×130	0.25	3.10	ERWE551LGC821MCD0M
	820	63.5×130	0.25	3.50	ERWE551LGC821MDD0M
	1,200	76.2×96	0.25	4.20	ERWE551LGC122ME96M
	1,500	76.2×115	0.25	5.00	ERWE551LGC152MEB5M
	1,800	76.2×130	0.25	5.80	ERWE551LGC182MED0M
	2,200	76.2×155	0.25	7.00	ERWE551LGC222MEF5M
	3,300	89×155	0.25	9.30	ERWE551LGC332MFF5M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWE series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWY Series

- High ripple capability
- Endurance with ripple current : 5,000 hours at 85℃
- Reduced cost design for three-phase input inverters
- **RoHS Compliant**

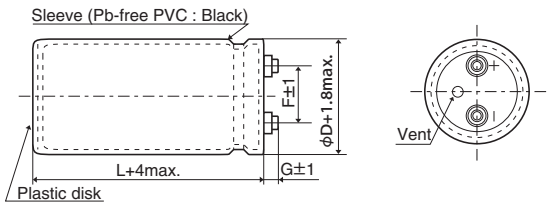
RWY
↑ Low price version
RWF

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When it is measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

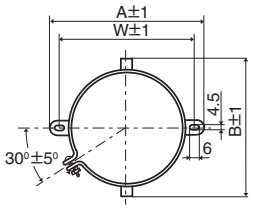
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



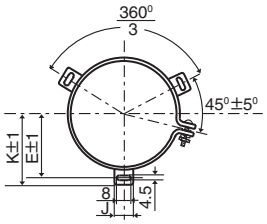
φ50 to φ76.2 : G=6
φ89 : G=4
φ100 : G=10

●Mounting Clamp Code : B



φD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76.2	104.5	90.0	93.5	31.5

●Mounting Clamp Code : C



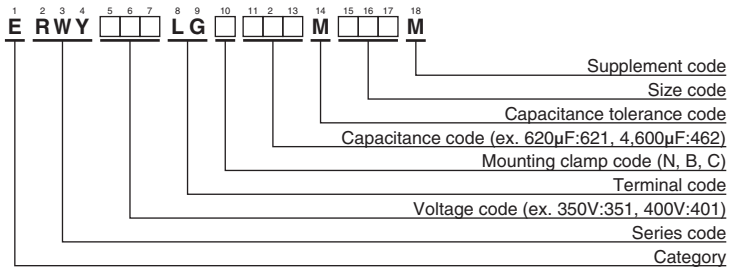
φD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0
100	56.5	63.4	41.5	18.0

<Screw specifications>
to φ89 Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm

φ100 Cross-recessed head (phillips) screw : M8×1.25×16
Spring washer,Washer
Maximum screw tightening torque :6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,300Hz)	Part No.
350	750	50×75	0.12	5.10	ERWY351LGC751MC75M
	1,100	50×96	0.12	6.90	ERWY351LGC112MC96M
	1,300	50×105	0.12	7.80	ERWY351LGC132MCA5M
	1,600	50×130	0.12	9.50	ERWY351LGC162MCD0M
	1,800	63.5×96	0.12	10.0	ERWY351LGC182MD96M
	1,900	50×145	0.12	10.7	ERWY351LGC192MCE5M
	2,400	63.5×115	0.12	12.6	ERWY351LGC242MDB5M
	2,800	63.5×130	0.12	14.3	ERWY351LGC282MDD0M
	3,400	63.5×155	0.12	17.1	ERWY351LGC342MDF5M
	3,500	76.2×115	0.12	16.9	ERWY351LGC352MEB5M
	3,800	63.5×170	0.12	18.8	ERWY351LGC382MDH0M
	4,000	76.2×130	0.12	19.0	ERWY351LGC402MED0M
	5,000	76.2×155	0.12	23.0	ERWY351LGC502MEF5M
	5,600	76.2×170	0.12	25.3	ERWY351LGC562MEH0M
	6,900	89×155	0.12	27.2	ERWY351LGC692MFF5M
	7,700	89×170	0.12	29.6	ERWY351LGC772MFH0M
	8,400	89×190	0.12	32.9	ERWY351LGC842MFK0M
	9,500	100×190	0.12	37.3	ERWY351LGC952MGK0M
	11,000	100×220	0.12	42.9	ERWY351LGC113MGN0M
	14,000	100×270	0.12	53.1	ERWY351LGC143MGT0M
400	620	50×75	0.12	4.60	ERWY401LGC621MC75M
	880	50×96	0.12	6.10	ERWY401LGC881MC96M
	1,000	50×105	0.12	6.80	ERWY401LGC102MCA5M
	1,400	50×130	0.12	8.90	ERWY401LGC142MCD0M
	1,500	63.5×96	0.12	9.10	ERWY401LGC152MD96M
	1,600	50×145	0.12	9.90	ERWY401LGC162MCE5M
	2,000	63.5×115	0.12	11.5	ERWY401LGC202MDB5M
	2,300	63.5×130	0.12	13.0	ERWY401LGC232MDD0M
	2,800	63.5×155	0.12	15.5	ERWY401LGC282MDF5M
	2,900	76.2×115	0.12	15.4	ERWY401LGC292MEB5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,300Hz)	Part No.
400	3,200	63.5×170	0.12	17.3	ERWY401LGC322MDH0M
	3,400	76.2×130	0.12	17.5	ERWY401LGC342MED0M
	4,200	76.2×155	0.12	21.1	ERWY401LGC422MEF5M
	4,600	76.2×170	0.12	23.0	ERWY401LGC462MEH0M
	5,700	89×155	0.12	24.7	ERWY401LGC572MFF5M
	6,400	89×170	0.12	27.0	ERWY401LGC642MFH0M
	7,000	89×190	0.12	30.0	ERWY401LGC702MFK0M
	7,900	100×190	0.12	34.0	ERWY401LGC792MGK0M
	9,400	100×220	0.12	39.6	ERWY401LGC942MGN0M
	12,000	100×270	0.12	49.2	ERWY401LGC123MGT0M
450	500	50×75	0.12	4.00	ERWY451LGC501MC75M
	710	50×96	0.12	5.20	ERWY451LGC711MC96M
	840	50×105	0.12	5.90	ERWY451LGC841MCA5M
	1,100	50×130	0.12	7.50	ERWY451LGC112MCD0M
	1,200	63.5×96	0.12	7.80	ERWY451LGC122MD96M
	1,300	50×145	0.12	8.40	ERWY451LGC132MCE5M
	1,600	63.5×115	0.12	9.80	ERWY451LGC162MDB5M
	1,800	63.5×130	0.12	10.9	ERWY451LGC182MDD0M
	2,300	63.5×155	0.12	13.3	ERWY451LGC232MDF5M
	2,300	76.2×115	0.12	13.0	ERWY451LGC232MEB5M
	2,500	63.5×170	0.12	14.5	ERWY451LGC252MDH0M
	2,700	76.2×130	0.12	14.8	ERWY451LGC272MED0M
	3,300	76.2×155	0.12	17.7	ERWY451LGC332MEF5M
	3,700	76.2×170	0.12	19.5	ERWY451LGC372MEH0M
	4,600	89×155	0.12	22.2	ERWY451LGC462MFF5M
	5,100	89×170	0.12	24.1	ERWY451LGC512MFH0M
	5,700	89×190	0.12	27.1	ERWY451LGC572MFK0M
	6,400	100×190	0.12	30.6	ERWY451LGC642MGK0M
	7,600	100×220	0.12	35.6	ERWY451LGC762MGN0M
	9,500	100×270	0.12	43.7	ERWY451LGC952MGT0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	120	300	1k	3k
Coefficient	0.83	1.00	1.25	1.33

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for RWY series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWL Series

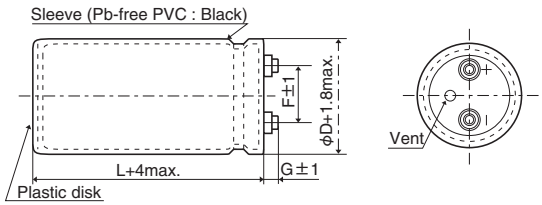
- High ripple capability
- For train systems and high power consuming inverter circuits
- Endurance with ripple current : 20,000 hours at 85℃
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 20,000 hours at 85℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

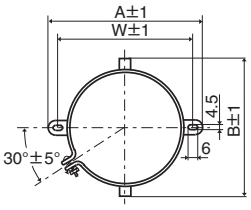
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



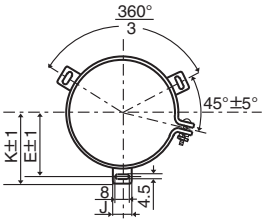
φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B



φD	A	B	W	F
63.5	90.0	76.0	80.0	28.0
76.2	104.5	90.0	93.5	31.5

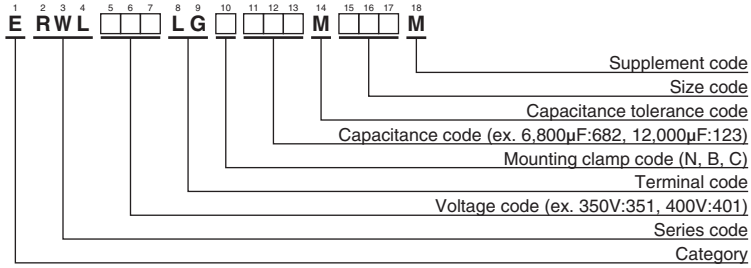
●Mounting Clamp Code : C



φD	E	K	F	J
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWL Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	3,300	63.5× 115	0.25	11.1	ERWL351LGC332MDB5M
	3,900	63.5× 130	0.25	12.8	ERWL351LGC392MDD0M
	4,700	63.5× 155	0.25	15.2	ERWL351LGC472MDF5M
	4,700	76.2× 115	0.25	14.7	ERWL351LGC472MEB5M
	5,600	63.5× 170	0.25	17.3	ERWL351LGC562MDH0M
	5,600	76.2× 130	0.25	16.9	ERWL351LGC562MED0M
	6,800	63.5× 190	0.25	20.0	ERWL351LGC682MDK0M
	6,800	76.2× 155	0.25	20.2	ERWL351LGC682MEF5M
	8,200	76.2× 170	0.25	23.1	ERWL351LGC822MEH0M
	10,000	89× 155	0.25	26.6	ERWL351LGC103MFF5M
	12,000	89× 190	0.25	32.0	ERWL351LGC123MFK0M
400	2,700	63.5× 115	0.25	10.1	ERWL401LGC272MDB5M
	3,300	63.5× 130	0.25	11.7	ERWL401LGC332MDD0M
	3,900	63.5× 155	0.25	13.8	ERWL401LGC392MDF5M
	3,900	76.2× 115	0.25	14.7	ERWL401LGC392MEB5M
	4,700	63.5× 170	0.25	15.8	ERWL401LGC472MDH0M
	4,700	76.2× 130	0.25	15.5	ERWL401LGC472MED0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
400	5,600	63.5× 190	0.25	18.2	ERWL401LGC562MDK0M
	5,600	76.2× 155	0.25	18.3	ERWL401LGC562MEF5M
	6,800	76.2× 170	0.25	21.0	ERWL401LGC682MEH0M
	8,200	89× 155	0.25	24.1	ERWL401LGC822MFF5M
	10,000	89× 190	0.25	29.1	ERWL401LGC103MFK0M
450	2,200	63.5× 115	0.25	9.10	ERWL451LGC222MDB5M
	2,700	63.5× 130	0.25	10.6	ERWL451LGC272MDD0M
	2,700	76.2× 115	0.25	11.2	ERWL451LGC272MEB5M
	3,300	63.5× 155	0.25	12.7	ERWL451LGC332MDF5M
	3,300	76.2× 130	0.25	13.0	ERWL451LGC332MED0M
	3,900	63.5× 170	0.25	14.4	ERWL451LGC392MDH0M
	4,700	76.2× 155	0.25	16.7	ERWL451LGC472MEF5M
	5,600	76.2× 190	0.25	20.1	ERWL451LGC562MEK0M
	5,600	89× 155	0.25	19.9	ERWL451LGC562MFF5M
	6,800	89× 170	0.25	23.0	ERWL451LGC682MFH0M
	8,200	89× 190	0.25	26.4	ERWL451LGC822MFK0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for RWL series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

FTP Series

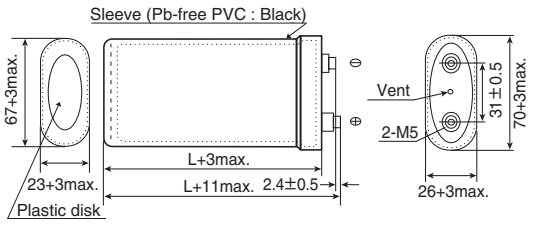
- Ideal for inverter smoothing capacitors such as Electric Vehicles, Hybrid Cars, etc.
- Endurance with ripple current : 5,000 hours at 85℃
- Rated voltage range : 63 to 450Vdc
- Lower profile offers drastic space saving compared with conventional cylindrical type
- Superior heat radiation realizes higher ripple current
- **RoHS Compliant**

◆SPECIFICATIONS

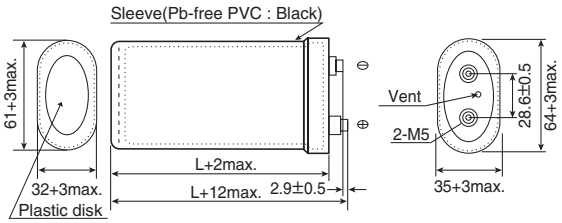
Items	Characteristics
Category Temperature Range	−40 to +85℃ (63～100Vdc), −25 to +85℃ (350～450Vdc)
Rated Voltage Range	63 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change 63 to 100Vdc : C(-40℃)/C(+20℃)≧0.6 350 to 450Vdc : C(-25℃)/C(+20℃)≧0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS (Screw-Mount) [mm]

- Terminal Code : LG
- Size Code : L



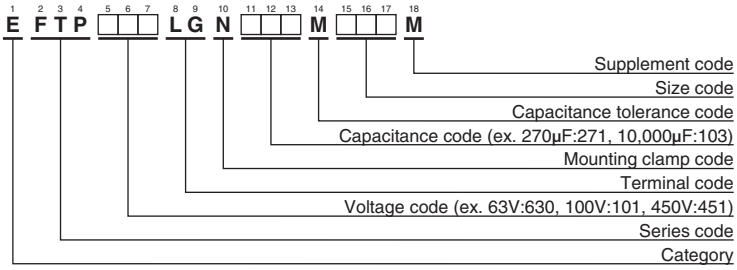
- Size Code : R



* Polyolefin is available upon request.

<Screw specifications>
Plus hexagon-headed screw: M5×0.8
Maximum screw tightening torque: 3.23Nm

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

◆SIZE CODE

Code	Case size H×W×L (mm)
L50	26×70×50
L75	26×70×75
L95	26×70×95
R50	35×64×50
R75	35×64×75
R95	35×64×95

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

FTP Series

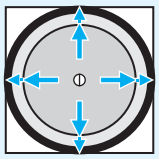
◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size H×W×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,10kHz)	Part No.
63	6,000	26×70×50	0.25	14.0	EFTP630LGN602ML50M
	12,000	26×70×75	0.25	19.0	EFTP630LGN123ML75M
	17,000	26×70×95	0.25	22.0	EFTP630LGN173ML95M
	7,400	35×64×50	0.25	16.1	EFTP630LGN742MR50M
	15,000	35×64×75	0.25	21.7	EFTP630LGN153MR75M
	21,000	35×64×95	0.25	25.3	EFTP630LGN213MR95M
80	4,300	26×70×50	0.25	14.0	EFTP800LGN432ML50M
	8,600	26×70×75	0.25	19.0	EFTP800LGN862ML75M
	12,000	26×70×95	0.25	22.0	EFTP800LGN123ML95M
	5,300	35×64×50	0.25	16.1	EFTP800LGN532MR50M
	10,000	35×64×75	0.25	21.7	EFTP800LGN103MR75M
	15,000	35×64×95	0.25	25.3	EFTP800LGN153MR95M
100	2,900	26×70×50	0.25	14.0	EFTP101LGN292ML50M
	5,700	26×70×75	0.25	19.0	EFTP101LGN572ML75M
	8,100	26×70×95	0.25	22.0	EFTP101LGN812ML95M
	3,600	35×64×50	0.25	16.1	EFTP101LGN362MR50M
	7,100	35×64×75	0.25	21.7	EFTP101LGN712MR75M
	10,000	35×64×95	0.25	25.3	EFTP101LGN103MR95M

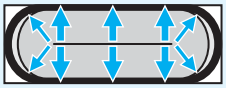
WV (Vdc)	Cap (μF)	Case size H×W×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,10kHz)	Part No.
350	400	26×70×50	0.25	10.6	EFTP351LGN401ML50M
	800	26×70×75	0.25	15.7	EFTP351LGN801ML75M
	1,100	26×70×95	0.25	18.7	EFTP351LGN112ML95M
	490	35×64×50	0.25	11.9	EFTP351LGN491MR50M
	970	35×64×75	0.25	17.6	EFTP351LGN971MR75M
	1,400	35×64×95	0.25	21.0	EFTP351LGN142MR95M
400	330	26×70×50	0.25	10.6	EFTP401LGN331ML50M
	660	26×70×75	0.25	15.7	EFTP401LGN661ML75M
	930	26×70×95	0.25	18.7	EFTP401LGN931ML95M
	400	35×64×50	0.25	11.9	EFTP401LGN401MR50M
	800	35×64×75	0.25	17.6	EFTP401LGN801MR75M
	1,100	35×64×95	0.25	21.0	EFTP401LGN112MR95M
450	270	26×70×50	0.25	10.1	EFTP451LGN271ML50M
	540	26×70×75	0.25	15.0	EFTP451LGN541ML75M
	760	26×70×95	0.25	18.0	EFTP451LGN761ML95M
	330	35×64×50	0.25	11.4	EFTP451LGN331MR50M
	660	35×64×75	0.25	16.7	EFTP451LGN661MR75M
	930	35×64×95	0.25	20.1	EFTP451LGN931MR95M

◆Improvement of space factor and heat radiation

Dead spaces are found in the conventional cylindrial shape. But lower profile offers reduced dead space, and makes the equipment smaller in size. Moreover, the internal element of the lower profile capacitor is in greater contact with the can. This greatly improves the heat dissipation compared with the cylindrical shape.



Cylindrical shape



FTP series

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

- Rated voltage range up to 525Vdc
- Endurance with ripple current : 5,000 hours at 105℃ (2,000 hours for 500Vdc & 525Vdc)
- High reliability products
- **RoHS Compliant**

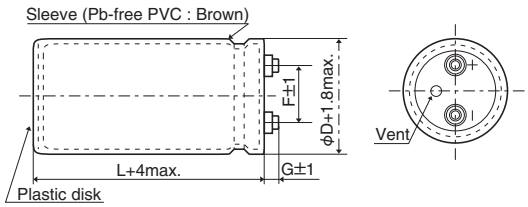
LXA
↑ Long life
KMH

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃ (10 to 100Vdc) −25 to +105℃ (160 to 525Vdc)
Rated Voltage Range	10 to 525Vdc
Capacitance Tolerance	−10 to +50% (T) (10 to 250Vdc) ±20% (M) (350 to 525Vdc) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	See STANDARD RATINGS (10 to 250Vdc) 0.20max (350 to 525Vdc) (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(-40℃)/C(+20℃)≧0.6(10 to 100Vdc) C(-25℃)/C(+20℃)≧0.7(160 to 250Vdc) C(-25℃)/C(+20℃)≧0.65(350 to 525Vdc) (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours (2,000 hours for 500 & 525Vdc products) at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage: 10 to 250Vdc / 350 to 525Vdc Capacitance change: ≦±15% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦The initial specified value

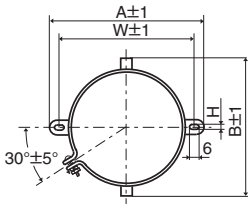
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



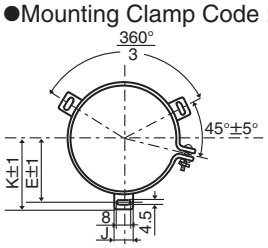
φD	G	
	10 to 250Vdc	350 to 525Vdc
~φ63.5	6	6
φ76.2	5	6
φ89	5	4

●Mounting Clamp Code : B



φD	A	B	W	H	F
35	58	44	48	3.5	12.7
50	78	64	68	4.5	22.4
63.5	90	76	80	4.5	28.0
76.2	104.5	90	93.5	4.5	31.5

●Mounting Clamp Code : C



φD	E	K	J	F
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	14.0	28.0
76.2	44.5	50.0	14.0	31.5
89	50.8	56.5	16.0	31.5

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
E L X A □□□ L G □ □□□ □ □□□ M

- Supplement code
- Size code
- Capacitance tolerance code (ex. M, T)
- Capacitance code (ex. 390μF:391, 3,300μF:332)
- Mounting clamp code (N, B, C)
- Terminal code
- Voltage code (ex. 10V:100, 100V:101, 525V:5C1)
- Series code
- Category

Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
10	27,000	35×80	0.45	4.30	ELXA100LGB273TA80M
	33,000	35×80	0.45	4.70	ELXA100LGB333TA80M
	39,000	35×80	0.45	5.30	ELXA100LGB393TA80M
	47,000	35×100	0.45	6.10	ELXA100LGB473TAA0M
	56,000	35×100	0.50	6.20	ELXA100LGB563TAA0M
	68,000	35×120	0.60	6.80	ELXA100LGB683TAC0M
	82,000	50×80	0.60	7.80	ELXA100LGC823TC80M
	100,000	50×100	0.70	8.50	ELXA100LGC104TCA0M
	120,000	50×100	0.70	9.50	ELXA100LGC124TCA0M
	150,000	63.5×100	0.80	11.0	ELXA100LGC154TDA0M
	180,000	63.5×100	0.80	12.1	ELXA100LGC184TDA0M
	220,000	76.2×100	1.00	13.2	ELXA100LGC224TEA0M
	270,000	76.2×120	1.20	14.4	ELXA100LGC274TEC0M
	330,000	76.2×140	1.20	17.0	ELXA100LGC334TEE0M
	390,000	89×140	1.40	18.6	ELXA100LGC394TFE0M
16	15,000	35×50	0.45	2.90	ELXA160LGB153TA50M
	18,000	35×80	0.45	3.50	ELXA160LGB183TA80M
	22,000	35×80	0.45	3.90	ELXA160LGB223TA80M
	27,000	35×80	0.45	4.30	ELXA160LGB273TA80M
	33,000	35×100	0.50	4.80	ELXA160LGB333TAA0M
	39,000	35×100	0.50	5.30	ELXA160LGB393TAA0M
	47,000	35×120	0.50	6.20	ELXA160LGB473TAC0M
	56,000	50×80	0.60	6.30	ELXA160LGC563TC80M
	68,000	50×100	0.60	7.60	ELXA160LGC683TCA0M
	82,000	50×120	0.70	8.30	ELXA160LGC823TCC0M
	100,000	50×120	0.70	9.20	ELXA160LGC104TCC0M
	120,000	63.5×100	0.80	9.90	ELXA160LGC124TDA0M
	150,000	76.2×100	0.80	12.3	ELXA160LGC154TEA0M
	180,000	76.2×120	0.80	14.5	ELXA160LGC184TEC0M
	220,000	76.2×140	1.00	15.2	ELXA160LGC224TEE0M
	270,000	89×140	1.20	16.8	ELXA160LGC274TFE0M
25	12,000	35×80	0.35	3.30	ELXA250LGB123TA80M
	15,000	35×80	0.35	3.70	ELXA250LGB153TA80M
	18,000	35×80	0.35	4.00	ELXA250LGB183TA80M
	22,000	35×80	0.35	4.50	ELXA250LGB223TA80M
	27,000	35×100	0.40	5.00	ELXA250LGB273TAA0M
	33,000	35×120	0.40	5.90	ELXA250LGB333TAC0M
	39,000	50×80	0.40	6.50	ELXA250LGC393TC80M
	47,000	50×100	0.40	7.90	ELXA250LGC473TCA0M
	56,000	50×120	0.40	8.80	ELXA250LGC563TCC0M
	68,000	50×120	0.50	9.10	ELXA250LGC683TCC0M
	82,000	63.5×100	0.50	10.6	ELXA250LGC823TDA0M
	100,000	63.5×120	0.60	11.4	ELXA250LGC104TDC0M
	120,000	76.2×100	0.60	12.8	ELXA250LGC124TEA0M
	150,000	76.2×120	0.75	13.7	ELXA250LGC154TEC0M
	180,000	76.2×140	0.75	16.1	ELXA250LGC184TEE0M
	220,000	89×140	1.00	16.6	ELXA250LGC224TFE0M
35	8,200	35×80	0.30	3.00	ELXA350LGB822TA80M
	10,000	35×80	0.30	3.30	ELXA350LGB103TA80M
	12,000	35×80	0.30	3.60	ELXA350LGB123TA80M
	15,000	35×80	0.30	4.10	ELXA350LGB153TA80M
	18,000	35×100	0.30	4.80	ELXA350LGB183TAA0M
	22,000	35×120	0.35	5.20	ELXA350LGB223TAC0M
	27,000	50×80	0.40	5.90	ELXA350LGC273TC80M
	33,000	50×100	0.40	6.60	ELXA350LGC333TCA0M
	39,000	50×120	0.40	7.80	ELXA350LGC393TCC0M
	47,000	50×120	0.45	8.00	ELXA350LGC473TCC0M
	56,000	63.5×100	0.45	9.20	ELXA350LGC563TDA0M
	68,000	63.5×120	0.45	11.0	ELXA350LGC683TDC0M
	82,000	76.2×120	0.50	12.7	ELXA350LGC823TEC0M
	100,000	76.2×140	0.60	13.5	ELXA350LGC104TEE0M
	120,000	89×140	0.60	16.1	ELXA350LGC124TFE0M
50	3,900	35×50	0.20	2.00	ELXA500LGB392TA50M
	4,700	35×50	0.25	2.20	ELXA500LGB472TA50M
	5,600	35×80	0.25	2.80	ELXA500LGB562TA80M
	6,800	35×80	0.25	3.00	ELXA500LGB682TA80M
	8,200	35×80	0.25	3.30	ELXA500LGB822TA80M
50	10,000	35×80	0.25	3.70	ELXA500LGB103TA80M
	12,000	35×100	0.25	4.40	ELXA500LGB123TAA0M
	15,000	35×120	0.30	4.70	ELXA500LGB153TAC0M
	18,000	50×80	0.35	4.80	ELXA500LGC183TC80M
	22,000	50×100	0.35	5.90	ELXA500LGC223TCA0M
	27,000	50×120	0.35	7.00	ELXA500LGC273TCC0M
	33,000	63.5×100	0.40	7.60	ELXA500LGC333TDA0M
	39,000	63.5×120	0.40	8.90	ELXA500LGC393TDC0M
	47,000	63.5×120	0.40	9.80	ELXA500LGC473TDC0M
	56,000	76.2×120	0.40	11.9	ELXA500LGC563TEC0M
	68,000	76.2×140	0.45	13.1	ELXA500LGC683TEE0M
	82,000	89×140	0.50	14.8	ELXA500LGC823TFE0M
63	2,700	35×50	0.15	1.90	ELXA630LGB272TA50M
	3,300	35×50	0.15	2.10	ELXA630LGB332TA50M
	3,900	35×80	0.20	2.70	ELXA630LGB392TA80M
	4,700	35×80	0.20	2.90	ELXA630LGB472TA80M
	5,600	35×80	0.20	3.20	ELXA630LGB562TA80M
	6,800	35×80	0.20	3.50	ELXA630LGB682TA80M
	8,200	35×100	0.20	4.20	ELXA630LGB822TAA0M
	10,000	35×120	0.25	4.30	ELXA630LGB103TAC0M
	12,000	50×80	0.25	4.80	ELXA630LGC123TC80M
	15,000	50×100	0.25	5.90	ELXA630LGC153TCA0M
	18,000	50×120	0.25	6.30	ELXA630LGC183TCC0M
	22,000	50×120	0.30	6.70	ELXA630LGC223TCC0M
	27,000	63.5×120	0.30	8.80	ELXA630LGC273TDC0M
	33,000	76.2×100	0.30	10.0	ELXA630LGC333TEA0M
	39,000	76.2×120	0.35	10.7	ELXA630LGC393TEC0M
	47,000	76.2×140	0.35	12.5	ELXA630LGC473TEE0M
	56,000	89×140	0.40	13.8	ELXA630LGC563TFE0M
80	2,200	35×50	0.15	1.90	ELXA800LGB222TA50M
	2,700	35×80	0.15	2.20	ELXA800LGB272TA80M
	3,300	35×80	0.15	2.50	ELXA800LGB332TA80M
	3,900	35×80	0.15	2.90	ELXA800LGB392TA80M
	4,700	35×100	0.15	3.10	ELXA800LGB472TAA0M
	5,600	35×100	0.15	3.50	ELXA800LGB562TAA0M
	6,800	35×120	0.20	4.10	ELXA800LGB682TAC0M
	8,200	50×80	0.20	4.80	ELXA800LGC822TC80M
	10,000	50×100	0.20	5.60	ELXA800LGC103TCA0M
	12,000	50×100	0.20	6.10	ELXA800LGC123TCA0M
	15,000	50×120	0.20	7.40	ELXA800LGC153TCC0M
	18,000	63.5×120	0.25	8.00	ELXA800LGC183TDC0M
	22,000	76.2×100	0.25	9.10	ELXA800LGC223TEA0M
	27,000	76.2×120	0.30	9.70	ELXA800LGC273TEC0M
	33,000	76.2×140	0.30	11.5	ELXA800LGC333TEE0M
	39,000	89×140	0.35	12.5	ELXA800LGC393TFE0M
100	1,200	35×50	0.15	1.40	ELXA101LGB122TA50M
	1,500	35×80	0.15	1.60	ELXA101LGB152TA80M
	1,800	35×80	0.15	1.80	ELXA101LGB182TA80M
	2,200	35×80	0.15	2.00	ELXA101LGB222TA80M
	2,700	35×80	0.15	2.40	ELXA101LGB272TA80M
	3,300	35×100	0.15	2.80	ELXA101LGB332TAA0M
	3,900	35×120	0.15	3.10	ELXA101LGB392TAC0M
	4,700	50×80	0.15	3.60	ELXA101LGC472TC80M
	5,600	50×100	0.15	4.30	ELXA101LGC562TCA0M
	6,800	50×120	0.15	5.00	ELXA101LGC682TCC0M
	8,200	50×120	0.15	5.50	ELXA101LGC822TCC0M
	10,000	63.5×100	0.15	6.40	ELXA101LGC103TDA0M
	12,000	63.5×120	0.20	6.60	ELXA101LGC123TDC0M
	15,000	76.2×100	0.20	7.50	ELXA101LGC153TEA0M
	18,000	76.2×120	0.25	8.00	ELXA101LGC183TEC0M
	22,000	76.2×140	0.25	9.40	ELXA101LGC223TEE0M
	27,000	89×140	0.30	10.4	ELXA101LGC273TFE0M
160	680	35×50	0.15	1.10	ELXA161LGB681TA50M
	820	35×80	0.15	1.20	ELXA161LGB821TA80M
	1,000	35×80	0.15	1.30	ELXA161LGB102TA80M
	1,200	35×80	0.15	1.50	ELXA161LGB122TA80M
	1,500	35×80	0.15	1.70	ELXA161LGB152TA80M

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	1,800	35×100	0.15	2.00	ELXA161LGB182TAA0M
	2,200	35×120	0.15	2.30	ELXA161LGB222TAC0M
	2,700	35×120	0.15	2.70	ELXA161LGB272TAC0M
	3,300	50×100	0.15	3.30	ELXA161LGC332TCA0M
	3,900	50×120	0.15	3.80	ELXA161LGC392TCC0M
	4,700	50×120	0.15	4.20	ELXA161LGC472TCC0M
	5,600	50×120	0.15	4.70	ELXA161LGC562TCC0M
	6,800	63.5×120	0.15	5.70	ELXA161LGC682TDC0M
	8,200	76.2×100	0.20	6.40	ELXA161LGC822TEA0M
	10,000	76.2×120	0.20	6.60	ELXA161LGC103TEC0M
	12,000	76.2×140	0.20	7.80	ELXA161LGC123TEE0M
	15,000	89×140	0.20	9.50	ELXA161LGC153TFE0M
200	470	35×50	0.15	0.90	ELXA201LGB471TA50M
	560	35×80	0.15	1.00	ELXA201LGB561TA80M
	680	35×80	0.15	1.10	ELXA201LGB681TA80M
	820	35×80	0.15	1.30	ELXA201LGB821TA80M
	1,000	35×100	0.15	1.50	ELXA201LGB102TAA0M
	1,200	35×120	0.15	1.70	ELXA201LGB122TAC0M
	1,500	35×120	0.15	1.90	ELXA201LGB152TAC0M
	1,800	50×80	0.15	2.20	ELXA201LGC182TC80M
	2,200	50×100	0.15	2.70	ELXA201LGC222TCA0M
	2,700	50×120	0.15	3.20	ELXA201LGC272TCC0M
	3,300	50×120	0.15	3.50	ELXA201LGC332TCC0M
	3,900	63.5×100	0.15	4.00	ELXA201LGC392TDA0M
	4,700	63.5×120	0.15	4.70	ELXA201LGC472TDC0M
	5,600	76.2×100	0.15	5.30	ELXA201LGC562TEA0M
	6,800	76.2×120	0.15	6.30	ELXA201LGC682TEC0M
	8,200	76.2×140	0.20	6.40	ELXA201LGC822TEE0M
	10,000	89×140	0.20	7.70	ELXA201LGC103TFE0M
250	330	35×50	0.15	0.70	ELXA251LGB331TA50M
	390	35×80	0.15	0.80	ELXA251LGB391TA80M
	470	35×80	0.15	0.90	ELXA251LGB471TA80M
	560	35×80	0.15	1.00	ELXA251LGB561TA80M
	680	35×100	0.15	1.20	ELXA251LGB681TAA0M
	820	35×100	0.15	1.40	ELXA251LGB821TAA0M
	1,000	35×120	0.15	1.60	ELXA251LGB102TAC0M
	1,200	50×80	0.15	1.80	ELXA251LGC122TC80M
	1,500	50×100	0.15	2.20	ELXA251LGC152TCA0M
	1,800	50×120	0.15	2.60	ELXA251LGC182TCC0M
	2,200	50×120	0.15	2.80	ELXA251LGC222TCC0M
	2,700	63.5×100	0.15	3.30	ELXA251LGC272TDA0M
	3,300	63.5×120	0.15	4.00	ELXA251LGC332TDC0M
	3,900	76.2×100	0.15	4.40	ELXA251LGC392TEA0M
	4,700	76.2×120	0.15	5.20	ELXA251LGC472TEC0M
	5,600	76.2×140	0.15	6.10	ELXA251LGC562TEE0M
	6,800	89×140	0.15	7.40	ELXA251LGC682TFE0M
350	820	50×60	0.20	3.30	ELXA351LGC821MC60M
	1,500	50×85	0.20	5.20	ELXA351LGC152MC85M
	2,200	50×105	0.20	7.00	ELXA351LGC222MCA5M
	2,700	50×125	0.20	8.40	ELXA351LGC272MCC5M
	2,700	63.5×85	0.20	8.10	ELXA351LGC272MD85M
	3,300	50×145	0.20	9.90	ELXA351LGC332MCE5M
	3,300	63.5×105	0.20	9.80	ELXA351LGC332MDA5M
	3,900	63.5×125	0.20	11.5	ELXA351LGC392MDC5M
	3,900	76.2×85	0.20	10.8	ELXA351LGC392ME85M
	5,600	63.5×145	0.20	14.7	ELXA351LGC562MDE5M
	6,800	76.2×125	0.20	16.8	ELXA351LGC682MEC5M
	8,200	76.2×145	0.20	19.6	ELXA351LGC822MEE5M
	8,200	89×125	0.20	18.9	ELXA351LGC822MFC5M
	10,000	76.2×190	0.20	23.0	ELXA351LGC103MEK0M
	10,000	89×145	0.20	22.2	ELXA351LGC103MFE5M
	15,000	89×190	0.20	30.6	ELXA351LGC153MFK0M
	22,000	89×270	0.20	43.5	ELXA351LGC223MFT0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	680	50×60	0.20	3.00	ELXA401LGC681MC60M
	1,200	50×85	0.20	4.70	ELXA401LGC122MC85M
	1,800	50×105	0.20	6.30	ELXA401LGC182MCA5M
	2,200	50×125	0.20	7.50	ELXA401LGC222MCC5M
	2,200	63.5×85	0.20	7.30	ELXA401LGC222MD85M
	2,700	50×145	0.20	8.90	ELXA401LGC272MCE5M
	2,700	63.5×105	0.20	8.80	ELXA401LGC272MDA5M
	3,300	63.5×125	0.20	10.5	ELXA401LGC332MDC5M
	3,300	76.2×85	0.20	9.90	ELXA401LGC332ME85M
	4,700	63.5×145	0.20	13.4	ELXA401LGC472MDE5M
	4,700	76.2×125	0.20	13.9	ELXA401LGC472MEC5M
	6,800	76.2×145	0.20	17.9	ELXA401LGC682MEE5M
	6,800	89×125	0.20	17.2	ELXA401LGC682MFC5M
	8,200	76.2×190	0.20	20.8	ELXA401LGC822MEK0M
	8,200	89×145	0.20	20.1	ELXA401LGC822MFE5M
	12,000	89×190	0.20	27.4	ELXA401LGC123MFK0M
	18,000	89×270	0.20	39.4	ELXA401LGC183MFT0M
450	560	50×60	0.20	2.60	ELXA451LGC561MC60M
	1,000	50×85	0.20	4.00	ELXA451LGC102MC85M
	1,200	50×105	0.20	4.80	ELXA451LGC122MCA5M
	1,800	50×125	0.20	6.40	ELXA451LGC182MCC5M
	1,800	63.5×85	0.20	6.20	ELXA451LGC182MD85M
	2,200	50×145	0.20	7.60	ELXA451LGC222MCE5M
	2,200	63.5×105	0.20	7.50	ELXA451LGC222MDA5M
	2,700	63.5×125	0.20	8.90	ELXA451LGC272MDC5M
	2,700	76.2×85	0.20	8.40	ELXA451LGC272ME85M
	3,300	63.5×145	0.20	10.6	ELXA451LGC332MDE5M
	3,300	76.2×105	0.20	10.2	ELXA451LGC332MEA5M
	3,900	76.2×125	0.20	11.9	ELXA451LGC392MEC5M
	4,700	76.2×145	0.20	14.0	ELXA451LGC472MEE5M
	5,600	89×125	0.20	14.2	ELXA451LGC562MFC5M
	6,800	76.2×190	0.20	17.3	ELXA451LGC682MEK0M
	6,800	89×145	0.20	16.7	ELXA451LGC682MFE5M
	10,000	89×190	0.20	22.8	ELXA451LGC103MFK0M
	15,000	89×270	0.20	32.8	ELXA451LGC153MFT0M
500	470	50×60	0.20	2.40	ELXA501LGC471MC60M
	820	50×85	0.20	3.60	ELXA501LGC821MC85M
	1,000	50×105	0.20	4.40	ELXA501LGC102MCA5M
	1,200	50×125	0.20	5.20	ELXA501LGC122MCC5M
	1,200	63.5×85	0.20	5.00	ELXA501LGC122MD85M
	1,500	50×145	0.20	6.30	ELXA501LGC152MCE5M
	1,800	63.5×105	0.20	6.80	ELXA501LGC182MDA5M
	2,700	63.5×145	0.20	9.60	ELXA501LGC272MDE5M
	2,700	76.2×105	0.20	9.20	ELXA501LGC272MEA5M
	3,900	76.2×145	0.20	12.7	ELXA501LGC392MEE5M
	3,900	89×125	0.20	11.9	ELXA501LGC392MFC5M
	6,800	89×190	0.20	18.8	ELXA501LGC682MFK0M
	10,000	89×270	0.20	26.8	ELXA501LGC103MFT0M
525	390	50×60	0.20	2.20	ELXA5C1LGC391MC60M
	680	50×85	0.20	3.30	ELXA5C1LGC681MC85M
	1,000	50×125	0.20	4.80	ELXA5C1LGC102MCC5M
	1,500	63.5×105	0.20	6.20	ELXA5C1LGC152MDA5M
	1,800	63.5×125	0.20	7.30	ELXA5C1LGC182MDC5M
	2,200	63.5×145	0.20	8.60	ELXA5C1LGC222MDE5M
	2,200	76.2×105	0.20	8.30	ELXA5C1LGC222MEA5M
	2,700	76.2×125	0.20	9.90	ELXA5C1LGC272MEC5M
	3,300	76.2×145	0.20	11.7	ELXA5C1LGC332MEE5M
	4,700	76.2×190	0.20	14.4	ELXA5C1LGC472MEK0M
	4,700	89×145	0.20	13.9	ELXA5C1LGC472MFE5M
	5,600	89×190	0.20	17.1	ELXA5C1LGC562MFK0M

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multiplirs

Frequency (Hz)	50	120	300	1k	3k	10k	50k
10 to 50Vdc	0.95	1.00	1.03	1.05	—	1.09	1.12
63 to 80Vdc	0.90	1.00	1.06	1.10	—	1.18	1.22
100 to 250Vdc	0.80	1.00	1.12	1.22	—	1.30	1.33
350 to 525Vdc	0.80	1.00	1.20	1.50	1.60	—	—

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is requested in actual use, the rms ripple current has to be reduced. Also, for the LXA series capacitors (350 to 525Vdc products), using them at operating voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-con.

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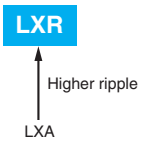
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminals ,105℃

LXR Series

- Higher ripple capability than LXA series
- Endurance with ripple current : 5,000 hours at 105℃
- **RoHS Compliant**

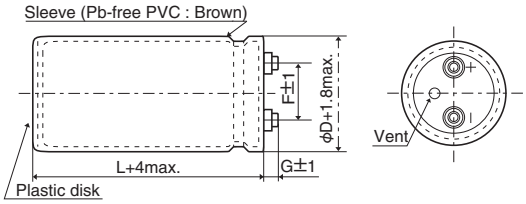


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.15max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C (−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

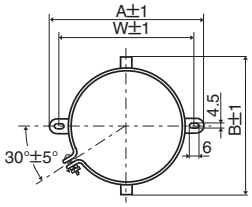
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



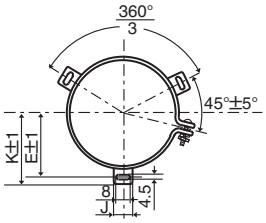
φ63.5 & φ76.2 : G=6
φ89 : G=4
φ100 : G=10

●Mounting Clamp Code : B



φD	A	B	W	F
63.5	90	76	80	28.0
76.2	104.5	90	93.5	31.5

●Mounting Clamp Code : C



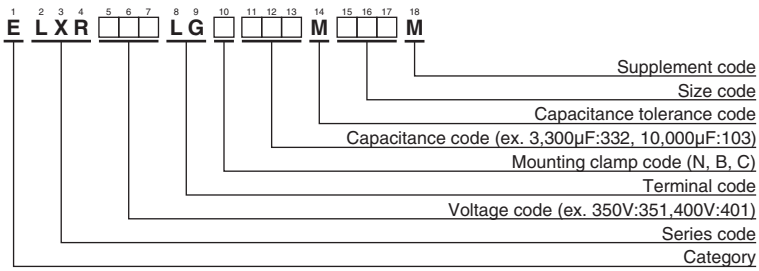
φD	E	K	F	J
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0
100	56.5	63.4	41.5	18.0

<Screw specifications>
to φ89 Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm

φ100 Cross-recessed head (Phillips) screw : M8×1.25×16
Spring washer,Washer
Maximum screw tightening torque :6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 105℃

LXR Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
350	3,300	63.5×115	0.15	14.4	ELXR351LGC332MDB5M
	3,900	63.5×130	0.15	16.6	ELXR351LGC392MDD0M
	4,700	63.5×155	0.15	19.8	ELXR351LGC472MDF5M
	4,700	76.2×115	0.15	19.1	ELXR351LGC472MEB5M
	5,600	63.5×170	0.15	22.5	ELXR351LGC562MDH0M
	5,600	76.2×130	0.15	21.9	ELXR351LGC562MED0M
	6,800	76.2×155	0.15	26.2	ELXR351LGC682MEF5M
	8,200	76.2×170	0.15	30.0	ELXR351LGC822MEH0M
	8,200	89×155	0.15	29.2	ELXR351LGC822MFF5M
	10,000	89×170	0.15	33.7	ELXR351LGC103MFH0M
	12,000	100×190	0.15	37.8	ELXR351LGC123MGK0M
	15,000	100×250	0.15	47.7	ELXR351LGC153MGR0M
400	2,700	63.5×115	0.15	13.1	ELXR401LGC272MDB5M
	3,300	63.5×130	0.15	15.2	ELXR401LGC332MDD0M
	3,900	63.5×155	0.15	17.9	ELXR401LGC392MDF5M
	3,900	76.2×115	0.15	18.2	ELXR401LGC392MEB5M
	4,700	63.5×170	0.15	20.5	ELXR401LGC472MDH0M
	4,700	76.2×130	0.15	20.1	ELXR401LGC472MED0M
	5,600	76.2×155	0.15	23.8	ELXR401LGC562MEF5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	6,800	76.2×170	0.15	27.3	ELXR401LGC682MEH0M
	6,800	89×155	0.15	26.6	ELXR401LGC682MFF5M
	8,200	89×170	0.15	30.5	ELXR401LGC822MFH0M
	10,000	100×190	0.15	34.5	ELXR401LGC103MGK0M
	12,000	100×220	0.15	40.2	ELXR401LGC123MGN0M
450	2,200	63.5×115	0.15	11.8	ELXR451LGC222MDB5M
	2,700	63.5×130	0.15	13.7	ELXR451LGC272MDD0M
	2,700	76.2×115	0.15	14.5	ELXR451LGC272MEB5M
	3,300	63.5×155	0.15	16.5	ELXR451LGC332MDF5M
	3,300	76.2×130	0.15	16.9	ELXR451LGC332MED0M
	3,900	63.5×170	0.15	18.7	ELXR451LGC392MDH0M
	4,700	76.2×155	0.15	21.7	ELXR451LGC472MEF5M
	5,600	76.2×190	0.15	26.1	ELXR451LGC562MEK0M
	5,600	89×155	0.15	24.1	ELXR451LGC562MFF5M
	6,800	89×170	0.15	27.8	ELXR451LGC682MFH0M
	8,200	89×190	0.15	32.0	ELXR451LGC822MFK0M
	10,000	100×220	0.15	36.8	ELXR451LGC103MGN0M
	12,000	100×250	0.15	42.7	ELXR451LGC123MGR0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	120	300	1k	3k
Coefficient	1.0	1.1	1.3	1.4

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the LXR series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

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NIPPON CHEMI-CON

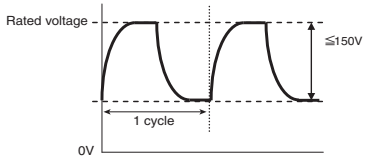
LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Screw terminals, 85℃

RWV Series

- ●For frequently change of regenerative voltage from AC servo amplifier and inverter control
- ●Improved the resistance for charge and discharge from same dimension of RWF series
- ●Endurance with ripple current : 5,000 hours at 85℃
- ●Rated voltage range : 350 to 450Vdc, Capacitance 820 to 18,000μF
- ●**RoHS Compliant**

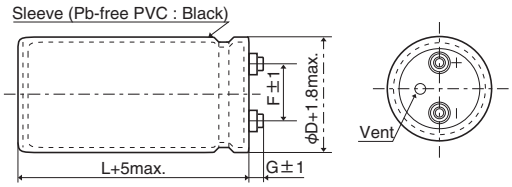
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals shorted each other and the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Charge and Discharge	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to charge and discharge test with the voltage waveform shown below at room temperature (15 to 35℃). Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value Frequency: 3Hz Number of cycles: 50 million times Voltage waveform: 
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

*Please consult with us about charge and discharge conditions.

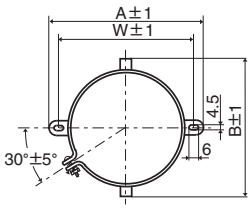
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



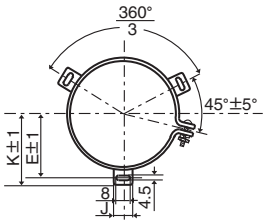
φ50 & φ63.5 : G=6
φ76.2 & φ89 : G=5

●Mounting Clamp Code : B



φD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76.2	104.5	90.0	93.5	31.5

●Mounting Clamp Code : C



φD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifcations>
Plus hexagon-headed screw :M5×0.8×10
Maximum screw tightening torque :3.23Nm
* The screw and the mounting clamp are separately supplied and not attached to the product.

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Screw terminals, 85℃

RWV Series

◆PART NUMBERING SYSTEM

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

E RWV □□□ LG □ □□□ M □□□ M

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 5,600μF:562, 12,000μF:123)
- Mounting clamp code (N, B, C)
- Terminal code
- Voltage code (ex. 350V:351, 400V:401)
- Series code
- Category

Please refer to "Product code guide (screw-mount terminal type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/ 85℃,120Hz)	Max. charge current and Max.discharge current (Arms/ 3Hz)	Part No.
350	1,200	50×60	4.70	1.56	ERWV351LGC122MC60M
	1,500	50×70	5.50	1.83	ERWV351LGC152MC70M
	1,800	50×80	6.40	2.13	ERWV351LGC182MC80M
	2,200	50×96	7.60	2.53	ERWV351LGC222MC96M
	2,700	50×105	8.80	2.94	ERWV351LGC272MCA5M
	2,700	50×115	9.20	3.06	ERWV351LGC272MCB5M
	3,300	50×130	10.8	3.58	ERWV351LGC332MCD0M
	4,700	63.5×115	13.2	4.61	ERWV351LGC472MDB5M
	5,600	63.5×130	15.2	5.30	ERWV351LGC562MDD0M
	5,600	76.2×105	15.2	5.36	ERWV351LGC562MEA5M
	6,800	63.5×155	18.1	6.32	ERWV351LGC682MDF5M
	8,200	63.5×170	20.7	7.25	ERWV351LGC822MDH0M
	8,200	76.2×130	20.2	6.57	ERWV351LGC822MED0M
	10,000	76.2×155	24.2	8.47	ERWV351LGC103MEF5M
	10,000	89×115	23.1	8.10	ERWV351LGC103MFB5M
	12,000	76.2×170	27.6	9.66	ERWV351LGC123MEH0M
	12,000	89×130	26.6	9.33	ERWV351LGC123MFD0M
	15,000	89×155	32.1	11.2	ERWV351LGC153MFF5M
	15,000	89×170	33.5	11.7	ERWV351LGC153MFH0M
	18,000	89×190	38.5	13.5	ERWV351LGC183MFK0M
375	1,000	50×60	4.30	1.42	ERWV3H1LGC102MC60M
	1,200	50×70	4.90	1.64	ERWV3H1LGC122MC70M
	1,500	50×80	5.80	1.94	ERWV3H1LGC152MC80M
	2,200	50×96	7.60	2.54	ERWV3H1LGC222MC96M
	2,200	50×105	8.00	2.65	ERWV3H1LGC222MCA5M
	2,700	50×115	9.20	3.06	ERWV3H1LGC272MCB5M
	3,300	50×130	10.8	3.58	ERWV3H1LGC332MCD0M
	4,700	63.5×115	13.2	4.61	ERWV3H1LGC472MDB5M
	5,600	63.5×130	15.2	5.30	ERWV3H1LGC562MDD0M
	5,600	76.2×105	15.2	5.36	ERWV3H1LGC562MEA5M
	6,800	63.5×155	18.1	6.32	ERWV3H1LGC682MDF5M
	6,800	63.5×170	18.9	6.60	ERWV3H1LGC682MDH0M
	8,200	76.2×130	20.2	7.09	ERWV3H1LGC822MED0M
	8,200	89×115	20.9	7.35	ERWV3H1LGC822MFB5M
	10,000	76.2×155	24.2	8.48	ERWV3H1LGC103MEF5M
	10,000	76.2×170	25.2	8.85	ERWV3H1LGC103MEH0M
	10,000	89×130	24.3	8.54	ERWV3H1LGC103MFD0M
	12,000	89×155	28.7	10.0	ERWV3H1LGC123MFF5M
	15,000	89×170	33.5	11.7	ERWV3H1LGC153MFH0M
	15,000	89×190	35.2	12.3	ERWV3H1LGC153MFK0M
400	1,000	50×60	4.30	1.42	ERWV401LGC102MC60M
	1,200	50×70	4.90	1.64	ERWV401LGC122MC70M
	1,500	50×80	5.80	1.95	ERWV401LGC152MC80M
	1,800	50×96	6.90	2.29	ERWV401LGC182MC96M
	2,200	50×105	8.00	2.65	ERWV401LGC222MCA5M
	2,200	50×115	8.30	2.77	ERWV401LGC222MCB5M
	2,700	50×130	9.80	3.23	ERWV401LGC272MCD0M
	3,900	63.5×115	12.0	4.21	ERWV401LGC392MDB5M
	4,700	63.5×130	13.9	4.86	ERWV401LGC472MDD0M
	5,600	63.5×155	16.4	5.75	ERWV401LGC562MDF5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/ 85℃,120Hz)	Max. charge current and Max.discharge current (Arms/ 3Hz)	Part No.
400	5,600	63.5×170	17.1	5.99	ERWV401LGC562MDH0M
	5,600	76.2×105	15.2	5.35	ERWV401LGC562MEA5M
	6,800	76.2×130	18.4	6.47	ERWV401LGC682MED0M
	8,200	76.2×155	21.9	7.68	ERWV401LGC822MEF5M
	8,200	76.2×170	22.8	8.02	ERWV401LGC822MEH0M
	8,200	89×115	20.9	7.35	ERWV401LGC822MFB5M
	10,000	89×130	24.3	8.26	ERWV401LGC103MFD0M
	12,000	89×155	28.7	10.0	ERWV401LGC123MFF5M
	12,000	89×170	29.9	10.5	ERWV401LGC123MFH0M
	15,000	89×190	35.2	12.3	ERWV401LGC153MFK0M
420	820	50×60	3.80	1.29	ERWV421LGC821MC60M
	1,000	50×70	4.40	1.50	ERWV421LGC102MC70M
	1,200	50×80	5.20	1.75	ERWV421LGC122MC80M
	1,800	50×96	6.80	2.30	ERWV421LGC182MC96M
	1,800	50×105	7.10	2.40	ERWV421LGC182MCA5M
	2,200	50×115	8.20	2.77	ERWV421LGC222MCB5M
	2,700	50×130	9.60	3.25	ERWV421LGC272MCD0M
	3,300	63.5×115	11.0	3.87	ERWV421LGC332MDB5M
	3,900	63.5×130	12.7	4.44	ERWV421LGC392MDD0M
	4,700	63.5×155	15.0	5.28	ERWV421LGC472MDF5M
	4,700	76.2×105	13.9	4.92	ERWV421LGC472MEA5M
	5,600	63.5×170	17.1	6.02	ERWV421LGC562MDH0M
	5,600	76.2×130	16.6	5.90	ERWV421LGC562MED0M
	6,800	76.2×155	19.8	7.02	ERWV421LGC682MEF5M
	6,800	89×115	19.0	6.73	ERWV421LGC682MFB5M
	8,200	76.2×170	22.7	8.04	ERWV421LGC822MEH0M
	8,200	89×130	22.0	7.78	ERWV421LGC822MFD0M
	10,000	89×155	26.2	9.24	ERWV421LGC103MFF5M
	12,000	89×170	29.9	10.5	ERWV421LGC123MFH0M
	12,000	89×190	31.5	11.0	ERWV421LGC123MFK0M
450	820	50×60	3.80	1.29	ERWV451LGC821MC60M
	1,000	50×70	4.40	1.50	ERWV451LGC102MC70M
	1,200	50×80	5.20	1.74	ERWV451LGC122MC80M
	1,500	50×96	6.20	2.10	ERWV451LGC152MC96M
	1,800	50×105	7.10	2.41	ERWV451LGC182MCA5M
	1,800	50×115	7.40	2.51	ERWV451LGC182MCB5M
	2,200	50×130	8.70	2.93	ERWV451LGC222MCD0M
	3,300	63.5×115	11.0	3.88	ERWV451LGC332MDB5M
	3,900	63.5×130	12.7	4.44	ERWV451LGC392MDD0M
	3,900	76.2×105	13.2	4.49	ERWV451LGC392MEA5M
	4,700	63.5×155	15.0	5.27	ERWV451LGC472MDF5M
	4,700	63.5×170	15.6	5.50	ERWV451LGC472MDH0M
	5,600	76.2×130	16.6	5.88	ERWV451LGC562MED0M
	6,800	76.2×155	19.8	7.04	ERWV451LGC682MEF5M
	6,800	89×115	19.0	6.72	ERWV451LGC682MFB5M
	8,200	76.2×170	22.7	7.97	ERWV451LGC822MEH0M
	8,200	89×130	22.0	7.72	ERWV451LGC822MFD0M
	10,000	89×155	26.2	9.22	ERWV451LGC103MFF5M
	10,000	89×170	27.3	9.66	ERWV451LGC103MFH0M
	12,000	89×190	31.5	11.1	ERWV451LGC123MFK0M

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NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Screw terminals, 85℃

RWV Series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurancce of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWV series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For the details, please contact a representative of Nippon Chemi-Con.

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Technical Note

Judicious Use of Aluminum Electrolytic Capacitors

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TECHNICAL NOTE

1. Overview of Aluminum Electrolytic Capacitors

1-1 Basic Model of Aluminum Electrolytic Capacitors

Capacitors are passive components. Among the various kinds of capacitors, aluminum electrolytic capacitors offer larger CV product per case size and lower cost than the others.
In principles of capacitor, its fundamental model is shown in Fig. 1 and its capacitance (C) is expressed by Equation (1) below:

$$C = 8.854 \times 10^{-12} \frac{\varepsilon S}{d} \text{ (F)} \quad \cdots\cdots (1)$$

ε : Dielectric constant
S : Surface area of dielectric (m^2)
d : Thickness of dielectric (m)

Equation (1) shows that the capacitance (C) increases as the dielectric constant (ε) and/or its surface area (S) increases and/or the dielectric thickness (d) decreases.
An aluminum electrolytic capacitor comprises a dielectric layer of aluminum oxide (Al_2O_3), the dielectric constant (ε) of which is 8 to 10. This value is not significantly larger than those of other types of capacitors.
However, by extending the surface area (S) of the aluminum foil electrode by means of etching, and by electrochemically forming a thinner but highly voltage-withstandable layer of oxide layer dielectric, the aluminum electrolytic capacitor can offer a larger CV product per case size than other types of capacitors.
A basic model of aluminum electrolytic capacitor is shown in Fig. 2.
An aluminum electrolytic capacitor comprises:

Anode …Aluminum foil
Dielectric…Electrochemically formed oxide layer (Al_2O_3) on the anode
Cathode …A true cathode is electrolytic solution (electrolyte).

Other component materials include a paper separator that holds electrolyte in place and another aluminum foil that functions as a draw-out electrode coming into contact with the true cathode (electrolyte).
In general, an aluminum electrolytic capacitor is asymmetrical in structure and polarized. The other capacitor type known as a bi-polar (non-polar) comprises the anodic aluminum foils for both electrodes.

1-2 Structure of Aluminum Electrolytic Capacitor

The aluminum electrolytic capacitor has, as shown in Fig. 3, a roll of anode foil, paper separator, cathode foil and electrode terminals (internal and external terminals) with the electrolyte impregnated, which is sealed in an aluminum can case with a sealing material.
The terminal draw-out structure, sealing material and structure differ depending on the type of the capacitor.
Figure 4 shows typical examples.

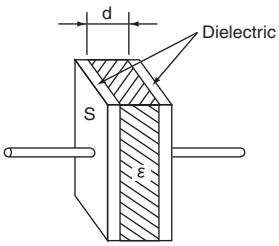
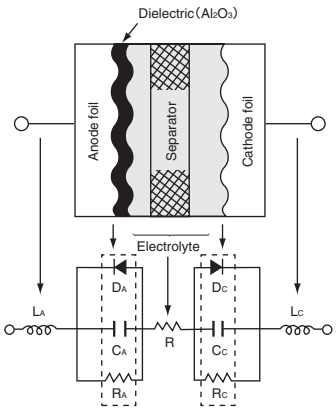


Fig-1 Basic model of capacitor



C_A、C_C : Capacitance due to anode and cathodes foils
D_A、D_C : Diode effects due to oxide layer on anode and cathode foils
L_A、L_C : Inductance due to anode and cathode terminals
R : Resistance of electrolyte and separator
R_A、R_C : Internal resistance of oxide layer on anode and cathode foils

Fig-2 Basic model and equivalent circuit of aluminum electrolytic capacitor

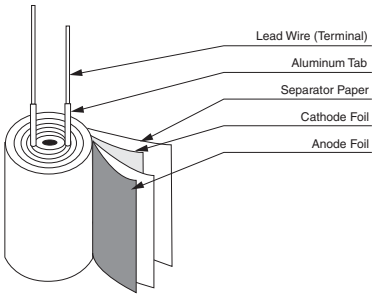


Fig-3 Basic model of element

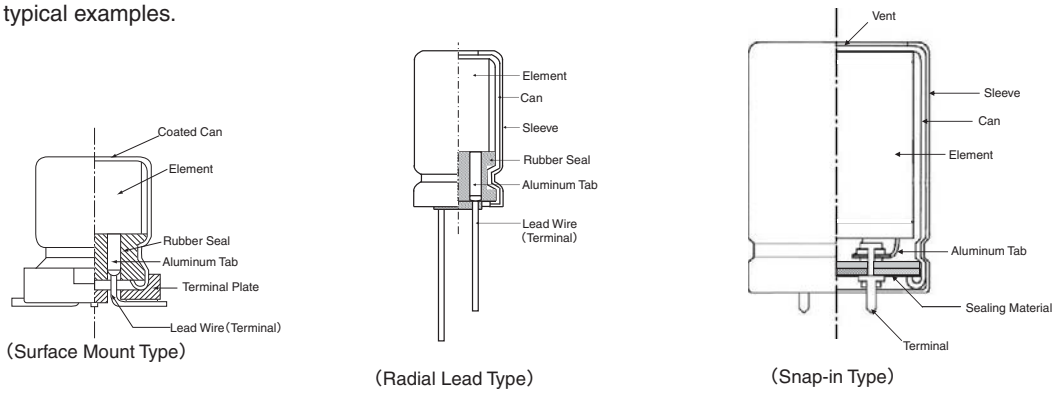


Fig-4 Construction of Aluminum Electrolytic Capacitors

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TECHNICAL NOTE

1-3 Features of Capacitor Materials

Aluminum, which is main material in an aluminum electrolytic capacitor, forms an oxide layer (Al_2O_3) on its surface when the aluminum is set as anode and charged with electricity in electrolyte.
The aluminum foil with an oxide layer formed thereon, as shown in Fig. 5, is capable of rectifying electriccurrent in electrolyte. Such a metal is called a valve metal.

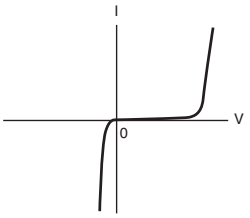
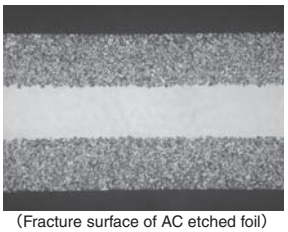


Fig-5 V-I characteristics of aluminum oxide

<Anode aluminum foil>
First, the foil material is electromechanically etched in a chloride solution to extend the surface area of the foil.
Secondly, for the foil to form an aluminum oxide layer (Al_2O_3) as a dielectric, more than the rated voltage is applied to the foil in a solution such as ammonium borate. This dielectric layer is as dense and thin as 1.1 - 1.5 nm/volt and showing a high insulation resistance (10^8 - 10^9 Ω/m).
The thickness of the oxide layer determines the withstand voltage according to their direct proportional relationship. For the etching pits to be shaped to the intended thickness of the oxide layer, the pit patterns have been designed to have efficient surface area extension depending on the intended withstand voltage (see Fig. 6)

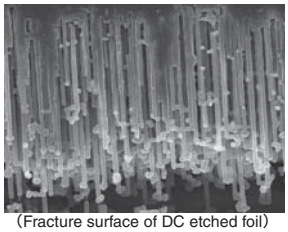
<Cathode aluminum foil>
An etching process is performed to the cathode aluminum foil as well as the anode foil. However, the formation process for oxide layer is generally not performed. Therefore, the surface of the cathode foil only has an oxide layer (Al_2O_3) that has spontaneously formed, which gives a withstand voltage of about 0.5 volt.

Low Voltage Foil



(Fracture surface of AC etched foil)

High Voltage Foil



(Fracture surface of DC etched foil) Replica

Fig-6 Cross section of aluminum etched foil (SEM)

<Electrolyte>
The electrolyte, an ion-conductive liquid functions as a true cathode coming into contact with the dielectric layer on the surface of the anode foil. The cathode foil serves as a collector electrode to connect the true cathode with the external circuit. Electrolyte is an essential material that controls the performance of the capacitor (temperature characteristics, frequency characteristics, service life, etc.).

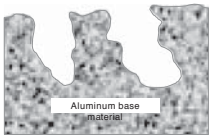
<Paper separator >
The separator maintains uniform distribution of the electrolyte and keeps the anode-to-cathode foil distance unchanged.

<Can case and sealing materials>
An aluminum can case and seal materials mainly consisting of rubber are used for the purpose of keeping airtightness.

1-4 Manufacturing Process

① Etching (for extending the surface area)

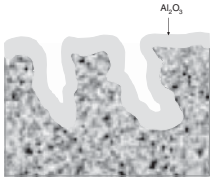
This etching process serves to extend the surface area of the aluminum foil. This is an AC or DCcurrent-employed electrochemical process for etching the foil surface in a chloride solution.



Etching Model

② Formation (for forming a dielectric)

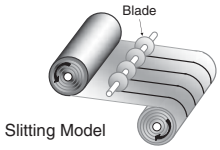
This is a process for forming a dielectric layer (Al_2O_3), which is normally performed on the anode aluminum foil.



Forming Model

③ Slitting

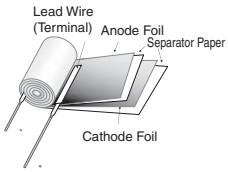
This is a process for slitting aluminum foils (both the anode and cathode) and paper separators to the specified product size.



Slitting Model

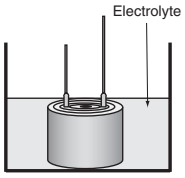
④ Winding

This is a process for rolling a set of anode and cathode foils into a cylindrical form with a paper separator inserted between them. During this process, an inner terminal (called a tab) is attached to each of the aluminum foils. The roll made at this process is called a capacitor element.



⑤ Impregnation

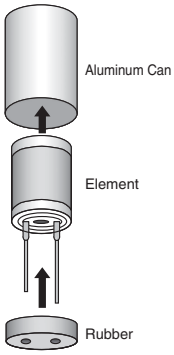
This is a process for impregnating the element with electrolyte as a true cathode. The electrolyte also functions to repair the dielectric layer.



Impregnation

⑥ Sealing

This process seals the element using the aluminum can case and sealing materials (rubber,rubber-lined cover, etc.) for keeping the case airtight.



⑦ Aging (reforming)

The process of applying voltage to a post-sealed capacitor at high temperature is called “aging”. This serves to repair defective dielectrics that have been made on the foil during the slitting or winding process.

⑧ 100% inspection and packaging

After the aging, all products shall undergo testing for checking their electrical characteristics with chip termination, lead reforming, taping etc. finished, and then be packaged.

⑨ Outgoing inspections

Outgoing inspections are performed as per standard inspection procedures.

⑩ Shipment

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2 . Basic Performance

2-1 Basic Electrical Characteristics

2-1-1 Capacitance

The larger the surface area of an electrode is, the higher the capacitance (capacity for storing electricity) is. For aluminum electrolytic capacitors, the capacitance is measured under the standard measuring conditions of 20°C and a 120Hz AC signal of about 0.5V. Generally, as the temperature rises, the capacitance increases; as the temperature decreases, the capacitance decreases (Fig. 7). With a higher frequency, the capacitance is smaller; with a lower frequency, the capacitance is larger (Fig. 8).

2-1-2 Tan δ (also called tangent of loss angle or dissipation factor)

(Fig. 9) is a simplified model of the equivalent circuit shown in (Fig. 2). For an ideal capacitor with an equivalent series resistance of R = 0, the tan δ shown in (Fig. 10) is zero. For an aluminum electrolytic capacitor, the equivalent series resistance (R) is not zero due to the presence of resistance of the electrolyte and paper separator and other contact resistances. 1/ωC and R are correlated as shown in (Fig. 10) and Equation (2).

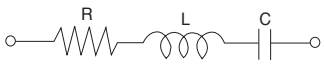

Fig-9 Simplified equivalent circuit

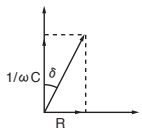

Fig-10 Dissipation Factor (tan δ)

$$\tan\delta = \frac{R}{1/\omega C} = \omega CR \quad \cdots\cdots (2)$$

ω : 2πf

π=Circular constant、f : Frequency(f = 120Hz)

2-1-3 Leakage Current (LC)

As a feature of an aluminum electrolytic capacitor, when DC voltage is applied to it, the oxide layer that acts as a dielectric in the electrolyte allows a small amount of electric current to flow in it. The small amount of current is called a leakage current (LC). An ideal capacitor does not allow the leakage current to flow (this is not the case for charging current).

The leakage current (LC) changes with time as shown in (Fig. 12). Note that LC, decreasing with time, will reach a steady-state value. Therefore, the specifications of LC are defined as a value measured several minutes after the beginning of the application of the rated voltage at 20°C. As the temperature rises, the LC increases; as the temperature decreases, the LC decreases (Fig.13). As the applied voltage decreases, the LC decreases.

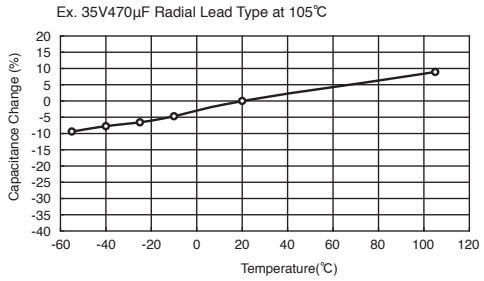

Fig-7 Temperature Characteristics of Capacitance

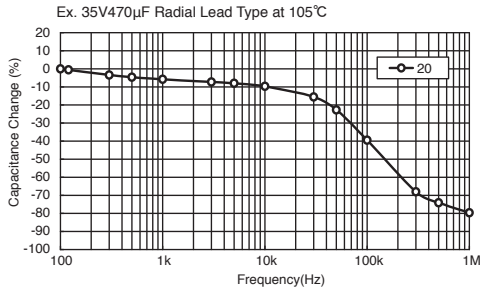

Fig-8 Frequency Characteristics of Capacitance

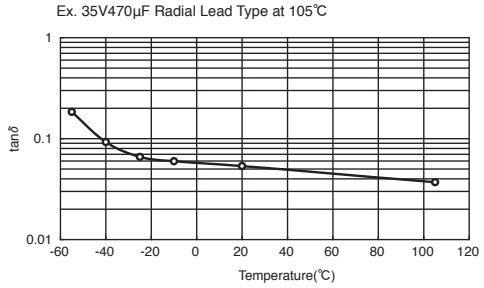

Fig-11 Temperature Characteristics of tan δ

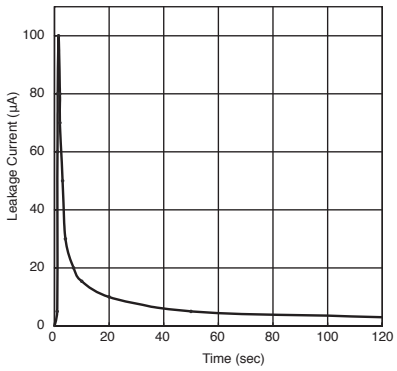

Fig-12 Leakage Current vs. Time

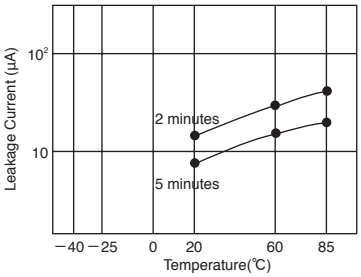

Fig-13 Temperature Characteristics of Leakage Current

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TECHNICAL NOTE

2-2 Frequency Characteristics of Impedance (Z)

When a capacitor is applied with a voltage with the frequency changed, the impedance (Z), a factor of preventing the AC current changes as shown in (Fig. 14). This is the impedance-frequency characteristics of the capacitor.

(Fig. 9) is a simplified model of an equivalent circuit of an aluminum electrolyte capacitor. (Fig. 14) shows dotted lines representing a breakdown of the impedance-frequency characteristic curve into components (C, R and L). As can be seen in this figure, the impedance-frequency characteristics are a composition of C, R and L frequency characteristics.

The value $1/\omega C$ shows the pure capacitive reactance graphically presented by a straight line going downward at an angle of 45°, and ωL shows the pure inductive reactance graphically presented by a straight line going upward at 45°. R shows the equivalent series resistance (ESR). At a range of lower frequencies, the R curve goes downward due to the dielectric loss frequency-dependence. At a range of higher frequencies, the R curve tends to be almost flat since resistance of electrolyte and paper separator is dominant and independent on frequency. Equation (3) shows this tendency.

$$Z=\sqrt{R^2+\left(\omega L-\frac{1}{\omega C}\right)^2} \quad \cdots\cdots (3)$$

Because the impedance characteristics of an aluminum electrolyte capacitor depend on resistance of the electrolyte and paper separator, the Z value at the self-resonant frequency tends to be relatively higher, as shown by the solid line in (Fig. 15). The resistance of the electrolyte varies depending on temperature: as the temperature rises, the impedance decreases; and as the temperature decreases, the impedance increases, as shown in (Fig. 16).

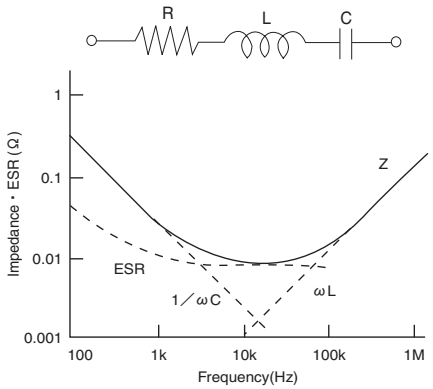

Fig-14 Factor of Impedance Frequency

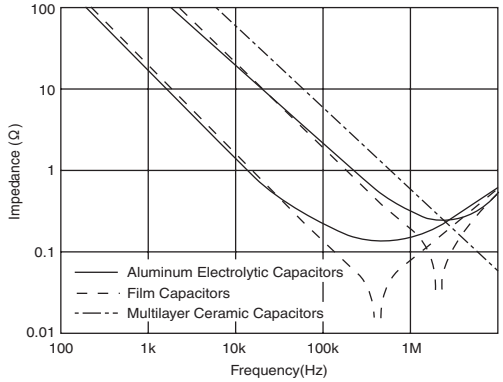

Fig-15 Frequency Characteristics of each Capacitors Impedance

Ex. 35V470μF Radial Lead Type

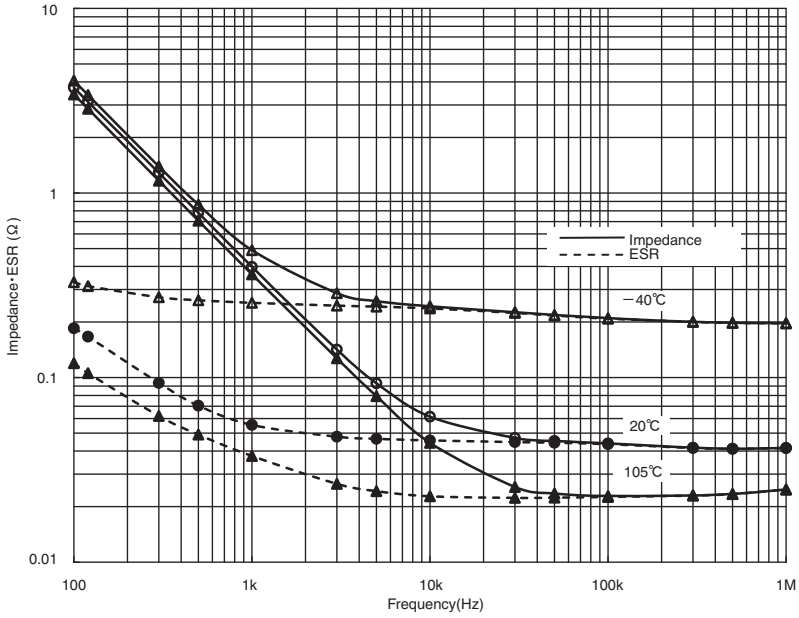

Fig-16 Temperature and Frequency Characteristics of Impedance・ESR

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TECHNICAL NOTE

3. Reliability

For designing the device with aluminum electrolytic capacitors, a failure rate and useful life are necessary to be considered for their reliability. The failure rate of aluminum electrolytic capacitors is approximated by the bathtub curve shown in (Fig.17).

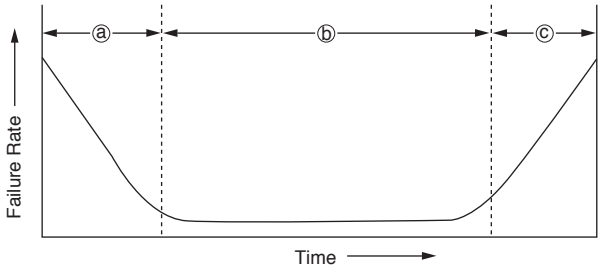

Fig-17 Bathtub curve

ⓐ Early failure period

At the comparatively early periods of use, devices/components fail by deficiencies in design or manufacturing process or incompatibility with operation conditions. For aluminum electrolytic capacitors, these defectives are removed by debugging at one of manufacturing processes before shipments.

ⓑ Random failure period

Failure is stable low in occurrence and appears unrelated to their served term. Aluminum electrolytic capacitors are low in catastrophic failures in this period compared with semi-conductors and solid tantalum capacitors.

ⓒ Wear-out failure period

In this period, the failure rate increases with the served time. For aluminum electrolytic capacitors, since they were completed in manufacturing, the electrolyte impregnated has gradually evaporated and diffused out of the capacitors through the rubber seal materials with time, which leads to decrease in the capacitance and/or increase tanδ. When any of these values changes beyond the allowable range of specifications, the capacitors are defined as "fell into the wear-out failure". The served term until the capacitors fall into the wear-out failure period is called a useful life.

Aluminum electrolytic capacitors have two categories of failures: catastrophic failure and wear-out failure.

<Catastrophic failure>

This is a failure mode that completely destroys the function of the capacitor such as short circuit and open circuit failure.

<Wear-out failure>

This is a failure mode where the electrical parameters of the capacitor gradually deteriorate and fail. The criteria for determining if this failure has occurred depend on the purpose of a device. For each series of capacitors, the following electrical parameters have been defined as criteria in the specifications of Endurance in the catalogs or product specifications:

- Change in capacitance
- Tan δ
- Leakage current

Failure rates are often measured in units of % per 1000 hours (10^{-5}/hour). For higher reliability devices designed with a smaller failure rate, units of Failure In Time (FIT) (10^{-9}/hour) is used.

Aluminum electrolytic capacitors are considered as components of wear-out failure mode, the electrical characteristics of which gradually deteriorate and their failure rate increases with time. In general, the failure rate in FIT is determined by total component-hours (product of the number of tested components and test hours).

Due to the definition of FIT, the same FIT rate can be calculated in both cases of testing on the large number of tested components and also testing for long test periods of time. However, these cases mean differently for aluminum electrolytic capacitors. Using the failure rate is not suited to express the reliability of aluminum electrolytic capacitors, but the electrical characteristics based lifetime in hour should be considered to express the reliability.

Also, there are MTBF (Mean Time Between Failures) and MTTF (Mean Time To Failure) to express reliability. The latter is applicable for aluminum electrolytic capacitors because they are categorized into a group of non-repairable systems, equipment and devices for which MTTF is applicable.

4. Failure Modes

Failure modes depend on the application conditions that lead to fail. (Fig. 18).

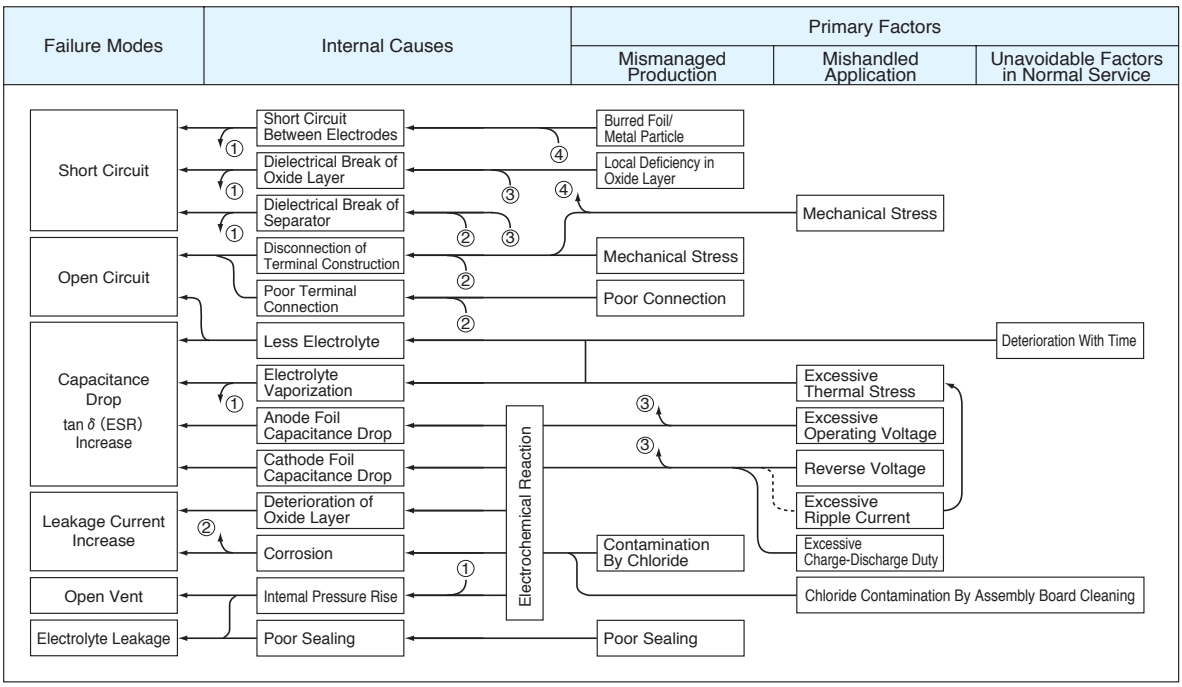

Fig-18 Failure Modes

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5. Lifetime

The lifetime of aluminum electrolytic capacitors is largely dependent on the application conditions. Environmental factors include temperature, humidity, atmospheric pressure and vibrations. Electrical factors include operating voltage, ripple current and charge-discharge. Where the capacitors are used in a normal filtering circuit, ambient temperature and heating due to the ripple current are crucial factors for determining the lifetime of the capacitors. These factors are included to the lifetime specifications titled "Endurance" on the catalogs or product specifications.
For applications subject to high humidity and/or continuous vibrations, or subject to frequent charge and discharge operations, the endurance of individual conditions should be considered.

5-1 Ambient Temperature Effect on Lifetime

The lifetime of aluminum electrolytic capacitors is affected mainly by the loss of electrolyte as the result of diffusion through the rubber seal materials, which leads to a decrease in capacitance and increase in tanδ.
The relationship of temperature to the diffusion of electrolyte follows the Arrhenius' Law (Equations (4) and (5)):

$$k = Ae^{\frac{-E}{RT}} \quad \text{.....(4)}$$

$$\ln k = \left(\frac{-E}{RT}\right) + \ln A \quad \text{.....(5)}$$

k : Reaction rate constant
A : Frequency factor
E : Activation energy
R : Gas constant (8.31J/deg)
T : Absolute temperature (K)

Applying Equation (5) to the lifetime of the capacitors brings Equation (6), which is converted to Equation (7):

$$\log\left(\frac{Lx}{Lo}\right) = \frac{E}{2.303R}\left(\frac{1}{Tx} - \frac{1}{To}\right) \quad \text{.....(6)}$$

$$\log Lx = \frac{E}{2.303R}\left(\frac{1}{Tx} - \frac{1}{To}\right) + \log Lo \quad \text{.....(7)}$$

Practical estimation of the lifetime has been using Equation (8) as an approximation:

$$Lx = Lo \cdot Bt^{(To-Tx)/10} \quad \text{.....(8)}$$

Lo : Specified lifetime (hour) with the rated voltage applied (or the rated ripple current superimposed to a DC voltage) at the upper limit of the category temperature. Refer to the lifetime specifications of individual products.
Lx : Estimated life on actual usage (hour)
To : Maximum Category Temperature (℃)
Tx : Actual Ambient Temperature (℃)
Bt : Temperature acceleration factor

Where, the temperature acceleration factor (BT) is approximately 2 over an ambient temperature range from 60°C to 95°C, which means that the lifetime is approximately halved for every 10°C rise in ambient temperature. However, according to the Arrhenius Equation (6), the reciprocal of T is directly proportional to the logarithm of lifetime, which means that, strictly speaking, there is the temperature range where the theory of lifetime reducing by half at every 10°C rise is not applied. (Fig. 19).

Especially for capacitors whose maximum operating temperature is a 105°C or higher, the temperature acceleration factor (BT) needs to be modified depending on temperature ranges of the lifetime estimation.
For details, please consult us.

For lifetime estimation at a lower-temperature range, evaluation test data have not been obtained, and for evaluating long term endurance, it is necessary to take into account some additional factors such as deterioration of the rubber seal materials as well as the diffusion of electrolyte. Accordingly, in Equation (8), Tx should be 40°C at the lowest for the lifetime calculation purpose, and also the estimated lifetime (Lx) should be 15 years at the longest.

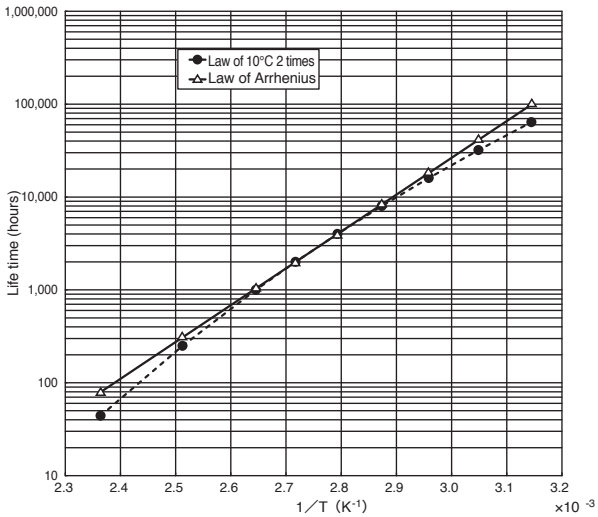

Fig-19 Estimated result by Law of 10℃ 2 times and Law of Arrhenius

5-2 Applying Voltage Effect on Lifetime

Where a capacitor is used at lower than the rated voltage, the lifetime may not be adversely affected, which means that the effect of the applying voltage is negligibly small, while the effect of the ambient temperature and heat generation due to ripple current is significant.

(Fig-20)

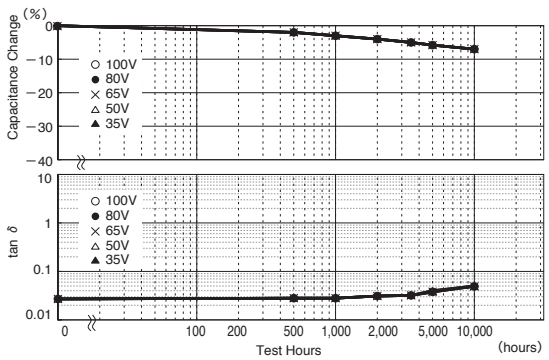

Fig-20 Endurance (measured by each apply voltage, result curves are overlapped)
Note: Due to the very small effect of the applying voltages, the plots cannot be distinguished from one another.

However, for capacitors of larger size and higher rated voltage contain a larger volume of electrolyte, difference in applying voltages can affect degradation of the oxide layer, other than the diffusion of electrolyte.
Therefore, for screw mount terminal type capacitors with the rated voltage of 350Vdc or higher, the lifetime estimation includes the effect of applying a lower voltage than the rated voltage (derating voltage).

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5-3 Ripple Current Effect on Lifetime

Since an aluminum electrolytic capacitor has a larger tanδ than other types of capacitors, the capacitor produces more internal heat when a ripple current flows through it. The temperature rise due to this heat may significantly affect the lifetime of the capacitor. This is the reason why ripple current ratings are specified for capacitors.

5-3-1 Heat Generation due to Ripple Current

Power consumption by the ripple current can be expressed as follows:

$$W = I_R^2 R + VI_L \quad \cdots\cdots (9)$$

W : Internal power dissipation
I_R : Ripple Current
R : Internal Resistance (Equivalent Series Resistance)
V : Applied voltage
I_L : Leakage Current

Leakage current I_L at the maximum operating temperature can be 5 to 10 times higher than the values-measured at 20°C. However, considering $I_R >> I_L$, the above equation can be simplified as Equation (10).

$$W \fallingdotseq I_R^2 R \quad \cdots\cdots (10)$$

To obtain the temperature at which equilibrium is achieved between heat generation and dissipation, derive Equation (11).

$$I_R^2 R = \beta A \Delta T \quad \cdots\cdots (11)$$

β : Radiation Constant
A : Surface area of can case (m^2)
ΔT : Temperature-rise due to the Ripple Current (℃)

$$A = \frac{\pi}{4} D (D + 4L)$$

D : Can Diameter (m)
L : Can Length (m)

From the above equation, the internal temperature rise (ΔT) is given by Equation (12):

$$\Delta T = \frac{I_R^2 R}{\beta A} \quad \cdots\cdots (12)$$

Also, for a ripple frequency of 120Hz, Equation (12) for calculating ΔT is rewritten as Equation (13):

$$\Delta T = \frac{I_R^2 R}{\beta A} = \frac{I_R^2 \tan\delta}{\beta A \omega C} \quad \cdots\cdots (13)$$

Where $R = \frac{\tan\delta}{\omega C}$

$\tan\delta$: Dissipation Factor at 120Hz
ω : $2\pi f$ (f = 120Hz)
C : Capacitance at 120Hz (F)

An approximate value of ripple current-caused ΔT can be calculated using Equation (14):

$$\Delta T = (Ix/Io)^2 \times \Delta To \quad \cdots\cdots (14)$$

Io : Rated ripple current (Arms), frequency compensated, at the upper limit of the category temperature range
Ix : Operating ripple current (Arms) actually flowing in the capacitor
ΔTo : Rise in internal temperature due to the rated ripple current (℃): different for each product series. Please consult us.

There are some product families that can accept a higher ripple current than the rated value providing that ambient temperature Tx is lower than the upper limit of the category temperature range. However, in this case, remember that the lifetime decreases due to the higher ΔT due to the ripple current. Be sure that ΔT does not exceed the specified limit that has been determined as a function of ambient temperature. Note that the core temperature limit of the element is shown by [Tx + ΔT limit].

Examples of ΔT limits at some ambient temperatures are shown below.

Ambient Temp Tx	85℃ less or equal	105℃
Limit value of ΔT	15℃	5℃

Each product family has a different ΔT limit. For details, consult us.

5-3-2 Ripple Current and Frequency

The ripple current rating is specified normally by the effective value (r.m.s value) of 120Hz or 100kHz sine wave. However, since the equivalent series resistance (ESR) of a capacitor is frequency-dependent, the allowable ripple current depends on the frequency. Where the operating ripple current consists of a mains power frequency element and switching frequency element(s) like switching mode power supplies do, the internal power loss is expressed by Equation (15):

$$W = I_{f1}^2 R_{f1} + I_{f2}^2 R_{f2} + \ldots\ldots I_{fn}^2 R_{fn} \quad \cdots\cdots (15)$$

W : Power consumption
I_{f1}、I_{f2}、…I_{fn} : Ripple current (Arms) at frequency f1…fn
R_{f1}、R_{f2}、…R_{fn} : ESR (Ω) at f1…fn

Given a frequency compensation factor (Frequency Multiplier) = F_{fn} and reference frequency for the ripple current = fo, $R_{fn} = R_{fo}/F_{fn}$ is obtained. Therefore, the ripple current at any frequency can be converted into its r.m.s. value at the reference frequency (I_{fo}) using Equation (16):

$$I_{fo} = \sqrt{(I_{f1}/F_{f1})^2 + (I_{f2}/F_{f2})^2 + \ldots\ldots (I_{fn}/F_{fn})^2} \quad \cdots\cdots (16)$$

I_{fo} : Reference ripple current (Arms), i.e., that at the reference frequency
F_{f1}、F_{f2}、…F_{fn} : Frequency compensation factor (Frequency Multiplier) at frequency f1…fn (Refer to the catalogs)

Note that the ESR depends on the temperature and the value of β depends on the installation conditions of the capacitor on the board. To determine more accurate values of ΔT, they can be actually measured using a thermocouple.

5-3-3 Lifetime Estimation

Equations (17) through (19) can be used for estimating the lifetime of a non-solid aluminum electrolytic capacitor based on the ambient temperature, the rise of internal temperature due to ripple current, and operating voltage applied.

For a capacitor whose Endurance specifications are defined by only "the DC rated voltage".

$$Lx = Lo \times 2^{\frac{To-Tx}{10}} \times 2^{\frac{-\Delta T}{5}} \quad \cdots\cdots (17)$$

For a capacitor whose Endurance specifications are defined by "the rated ripple current with a DC voltage superimposed".

$$Lx = Lr \times 2^{\frac{To-Tx}{10}} \times 2^{\frac{\Delta To - \Delta T}{5}} \quad \cdots\cdots (18)$$

For a screw terminal type capacitor with the rated voltage of 350Vdc or higher

$$Lx = Lr \times 2^{\frac{To+5-Tx-25}{10}} \times 2^{\frac{25-\Delta T}{A}} \times Kv \quad \cdots\cdots (19)$$

Lo : Specified lifetime (hour) at the upper limit of the category temperature range and at the rated voltage
Lr : Specified lifetime (hour) at the upper limit of the category temperature range and at the rated ripple current superimposed to a DC voltage
Lx : Estimation of actual lifetime (hour)
To : Upper limit of the category temperature range (℃)
Tx : Actual ambient temperature of the capacitor (℃) Use 40℃ if the actual ambient temperature is below it.
ΔT : Rise of internal temperature due to actual ripple current (℃)
*ΔTo : Rise of internal temperature due to the rated ripple current (℃)
*A : This factor depends on the ripple frequency and internal temperature rise.
Kv : Derating voltage factor

For the values marked with * , consult us.

Note that the calculation results above are not considered as a guaranteed value. When designing the lifetime of a device, please select a capacitor that has an extra margin against the device lifetime requirements. Also, where the estimation result calculated exceeds 15 years, please consider 15 years to be a maximum.

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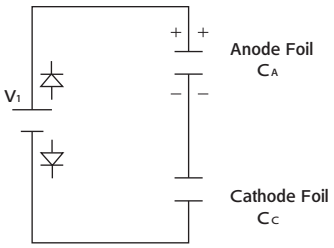
5-4 Charge and Discharge Operation Effect on Lifetime

Applying a voltage to an aluminum electrolytic capacitor makes the electric charges accumulate on the anode foil dielectric. Discharging the electricity through a discharging resistance makes the electric charges move to the cathode foil and cause chemical reactions between the cathode aluminum and electrolyte, thereby forming a dielectric oxide layer.

When this charge and discharge is repeatedly operated, the chemical reactions proceed to further form the oxide layer on the cathode foil, causing the capacitance of the cathode foil to reduce and thereby reducing the capacitance of the capacitor. Moreover, the chemical reactions bring heat and gases. Depending on the charge and discharge conditions, the internal pressure may increase, the pressure relief vent may open or the capacitor may have destructive failures. Consult us for using a capacitor with the following applications:

- Frequently repeating power on/off.
- Repeating rapid charge and discharge operations at a short interval cycle.
- Repeating charge and discharge operations with a large voltage drop.



$$Q = C_A V_1$$

C_A : Capacitance of Anode Foil
C_C : Capacitance of Cathode Foil
V_1 : Voltage of Power Supply
V_2 : Applied Voltage to Cathode Foil

Fig-21 Charge Condition at Charge

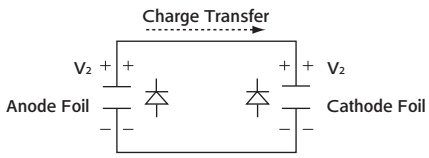


Fig-22 Charge Condition at Discharge
(Disconnect V1 and Discharged condition)

$$Q = C_A V_2 + C_C V_2$$

then $C_A V_1 = C_A V_2 + C_C V_2$

$$V_2 = \frac{C_A V_1}{C_A + C_C} \quad \cdots\cdots (20)$$

Figures 23 through 25 show some test data of special-design capacitors for charge and discharge application, compared with general-purpose capacitors.

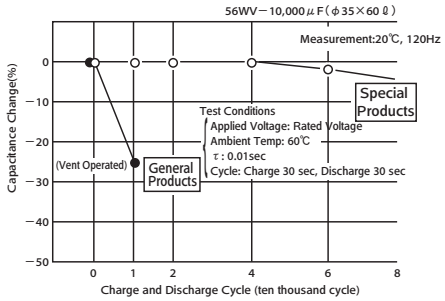


Fig-23 Rapid charge and discharge characteristics
(Effects of Frequency)

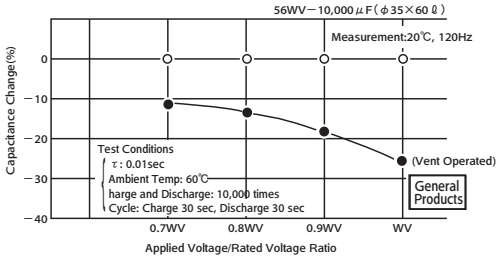


Fig-24 Rapid charge and discharge characteristics
(Effects of Applied Voltage)

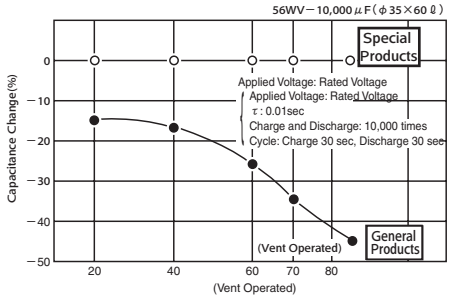


Fig-25 Rapid charge and discharge characteristics
(Effects of Ambient Temperature)

5-5 Inrush Current

For the power supply inrush current that can occur on the start-up of a power supply or on the charge of a welding machine lasts only milliseconds, but its magnitude may reach 10 to 100 times more than the normal current. Usually, a single, non-repeated inrush current produces a negligibly small amount of heat, so it does not matter.

However, frequently repeating inrush currents may heat up the element inside a capacitor more than the allowable limit and/or overheat the external terminal connections or the connections between the internal lead and foil electrode.

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5-6 Abnormal Voltage Effect on Lifetime

Applying abnormal voltage can increase the internal pressure with heat and gases produced, causing the pressure relief vent to open or the capacitor to have destructive failures.

5-6-1 Overvoltage

Applying a voltage higher than the rated voltage will cause chemical reactions (formation of dielectric) to occur on the anode foil with the leakage current rapidly increasing, which produces heat and gases and thereby increases the internal pressure.
The reactions are accelerated by the voltage, current density and ambient temperature, causing the pressure relief vent to open or the capacitor to have destructive failures. It may also accompany a reduction in capacitance and an increase in tan δ as well as an increase in the leakage current, which can lead to internal short-circuiting failure. An example of capacitor overvoltage characteristics is shown in Fig. 26.

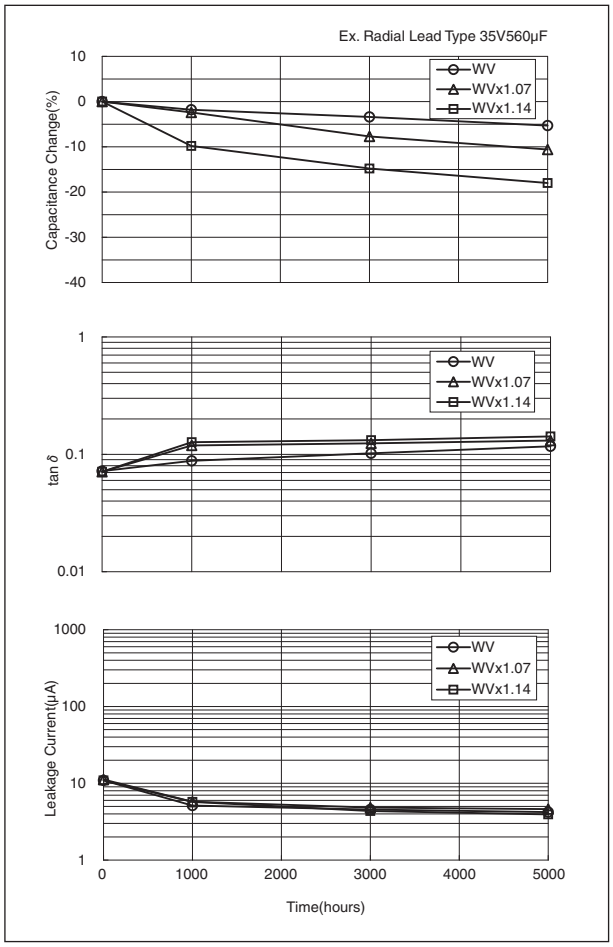

Fig-26 Applied overvoltage characteristic at 105℃

5-6-2 Reverse Voltage

Applying a reverse voltage will cause chemical reactions (formation of dielectric) to occur on the cathode foil, and, as is the case with overvoltage, the leakage current will rapidly increase with heat and gases generating and thus the internal pressure increases.
The reactions are accelerated by the voltage, current density and ambient temperature. It may also accompany a reduction in capacitance and an increase in tan δ as well as an increase in the leakage current. An example of capacitor reverse-voltage characteristics is shown in Fig. 27.
A reverse voltage of as small as 1V can cause the capacitance to decrease. A reverse voltage of 2 to 3V can shorten lifetime due to a reduction in capacitance, increase in tan δ , and/or increase in leakage current. A reverse voltage of even higher value can open the pressure relief vent or lead to destructive failures (Fig. 27).

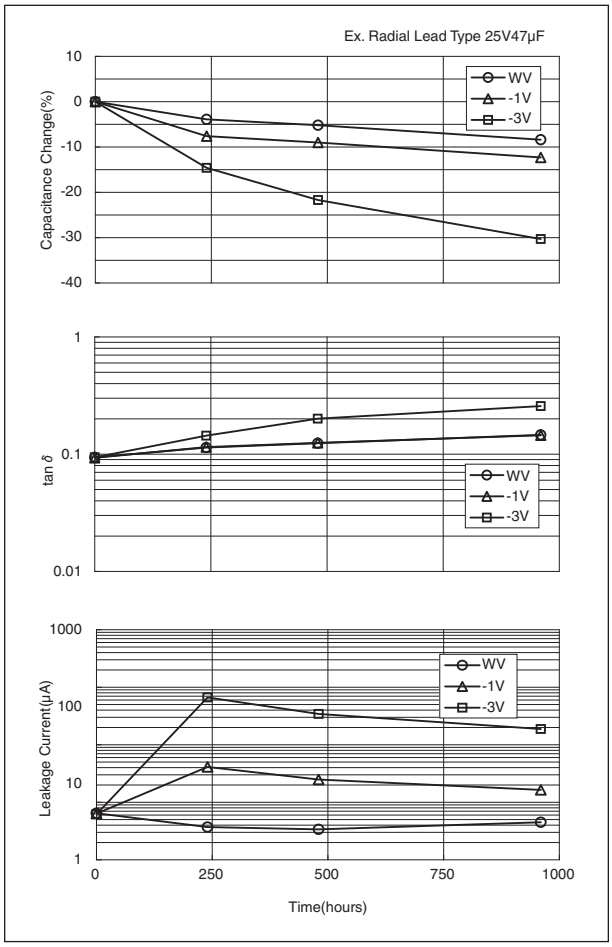

Fig-27 Applied Reverse voltage characteristic at 105℃

5-6-3 Do not Use Aluminum Electrolytic Capacitors in an AC Circuit

Using an aluminum electrolytic capacitor in an AC circuit will result in the same situation as that with a positive potential being applied to the cathode (like a reverse voltage) and with an excessively large ripple current flowing in the capacitor, which may increase the internal pressure due to the generation of heat and gases, open the pressure relief vent, leak the electrolyte with the rubber seal bung expelled or cause the capacitor to blow up or catch fire in the worst case. If the capacitor blows up, it may scatter flammable materials such as electrolyte and element-supporting wax materials, which can lead to short-circuiting of the device. Therefore, do not use aluminum electrolytic capacitors in any of the AC circuits.

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6. Effect of Halogens

Aluminum electrolytic capacitors are sensitive to contamination of halogen ions (especially to chlorine and bromine ions) though the degree of the effect depends on the properties of the electrolyte and/or sealing materials used in the capacitors.
For using a halide-containing flux, solvent (cleaning agent, adhesive or coating materials) or fumigant, the halide may penetrate into the capacitor through the rubber seal materials and cause the following corrosion reactions to occur. These reactions can lead to an increase in leakage current, opening of the pressure relief vent, and/or open-circuit failure in the capacitor. The reactions are accelerated as the voltage and/or temperature rises.

[Corrosion reactions]

a) Decomposition of halides

$RX + H_2O \rightarrow ROH + H^+ + X^-$ ..... (21)

b) Corrosion reactions

$Al_2O_3 + 6H^+ + 6X^- \rightarrow 2AlX_3 + 3H_2O$ ..... (22)

$Al + 3X^- \rightarrow AlX_3 + 3e^-$ ..... (23)

$\Downarrow$

$2AlX_3 + 6H_2O \rightarrow 2Al(OH)_3 + 6H^+ + 6X^-$..... (24)

RX : Halogenated compound

X- : Halogen ions(Cl^-, F^-, Br^-)

Halides that penetrated the element inside a capacitor make contact with the electrolyte, by which the halides are hydrolyzed and release halogen ions as shown on Reaction (21). The halogen ions then attack aluminum by anodic half-cell reaction, producing AlX_3 (Reaction 22 and 23).
AlX_3 is then hydrolyzed, which is decomposed to aluminum hydroxide and the halogen ions (Reaction (24). The halogen ions reproduced are repeatedly used and reproduced by the reactions of (22) ～ (24), and then the corrosion develops endlessly.
Shown below are precautions for use of flux, cleaning agents, adhesive, coating materials and fumigant.

6-1 Effect of Flux

Usually flux products contain an activator of ionic halide system, which has been associated with the corrosion issues of capacitors, and nowadays non-ionic halide system type flux products have been increasingly available on the market. Some of the latter flux type have been classified into the so called “non-halogen flux” or “halogen-free flux”, and parts of the “non-halogen” or “halogen-free” flux products may contain a large amount of non-ionic halides, which can also adversely affect the capacitors.
Flux types whose halogen ion concentrations are so low that the capacitor may not be adversely affected include:

・AHQ3100K (Asahi)
・POZ6 (Senjyu)

6-2 Cleaning Agents

6-2-1 Alcohol Cleaning Agents

①Fatty-alcohol cleaning agents (New type of solvent)
Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750H, 750K, 750L, and 710M (Kao)
Technocare FRW-14 through 17 (GE Toshiba Silicones)
② IPA (Isopropyl alcohol)

[Compatible capacitor products]

Terminal Shape	Subject Series
Surface Mount Type	All Series
Radial Lead Type	All Series
Snap-in Type	All Series (Less and equal 100Vdc)

[Cleaning conditions]
Either of Immersion or ultrasonic cleaning, for a maximum of 10 minutes at a maximum liquid temperature of 60°C.

[Precautions]

a. Make sure that the markings on a capacitor are not rubbed against any other component or the PC board during cleaning. Note that shower cleaning can cause the markings on the capacitor to be washed off.
b. Depending on the cleaning method, the markings may be erased or blur.
c. A drying process following a water cleaning or rinsing process may cause the outer sleeve materials of a capacitor to swell or shrink.
d. After using a weak-alkaline cleaning agent (e.g. Clean Through 750H), rinse with water to make sure that no alkaline residue is left on the capacitor.
e. Control a flux concentration in a cleaning agent within 2 wt%.
f. IPS (Isopropyl Alcohol), if containing xylene or other solvent to improve its cleanability, may swell the rubber seal materials.
g. Depending on the type of cleaning agent or conditions, note that the outer sleeve of a capacitor may lose a gloss or whiten in appearance.

6-2-2 HCFC (Freon-225), as Alternative CFCs

AK225AES (Asahi Glass)

[Cleaning conditions]
Solvent resistant type capacitors, which were originally developed to intend to resist Freon TE or Freon TES, are also capable of withstanding either of immersion or ultrasonic cleaning, for a maximum of 5 minutes (or 2 minutes for KRE and KRE-BP series capacitors or 3 minutes for SRM series). However, in view of global environmental issues, HCFCs has not been recommended.

[Compatible capacitor products]

Terminal Shape	Subject Series
Surface Mount Type	PXG, PXK, PXS, PXF, PXE, PXA, PXD, PXH, MVA(～63Vdc), MVE(～63Vdc), MZJ, MZA, MVY(6.3 ～ 63Vdc), MZF, MZE, MZK, MLA, MLF, MLE, MLK, MVL, MVJ, MVH(～50Vdc), MHB, MHJ,MV-BP, MVK-BP
Radial Lead Type	PSG, PSK, PSF, PSE, PSC, PSA, PS, SRM, KRE, KMA, SRG, KRG, KRE-BP, KMA-BP, KMQ(～100Vdc),SMG(～250Vdc), KMG(～250Vdc), SME-BP, KME-BP, LZA, LXZ, LXY, LXV, LE, FL, GPA, GXE(～50Vdc), GXL, GXH, LBG, LLA

When a capacitor is mounted closely flush on the PC board, a residual cleaning agent may be left in the gap between the body of the capacitor and PC board surface. Dry out the residue with a forced hot air of 50 to 85°C for 10 minutes or more.

6-2-3 Other Solvents

To avoid capacitor failures, do not use the following cleaning agents:

・Halogenated system: causes capacitor failures due to corrosion.
・Alkali system: corrodes (dissolves) the aluminum can case.
・Terpene and petroleum system: deteriorates the rubber seal materials.
・Xylene: deteriorates the rubber seal materials as well.
・Acetone: erases the markings printed on a capacitor.

6-3 Adhesive and Coating Material

To use adhesives and/or coating materials for aluminum electrolytic capacitors, make sure of the following conditions:

a. Do not use any of adhesive or coating materials containing halogenated solvents.
b. No flux residue nor stain is left between the rubber seal of a capacitor and PC board.
c. Dry the capacitor to remove residual cleaning agents before applying adhesive and coating materials. Do not cover up the entire surface of the rubber seal of the capacitor with adhesive and coating materials.
d. Improper heating and/or curing conditions for adhesives and coating materials may cause the sleeve to swell or shrink. Please consult us for proper conditions.

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e. For a non-solid aluminum electrolytic capacitor, covering up the entire surface of the rubber seal with resin mold materials will obstruct the normal diffusion of internal hydrogen gas from the capacitor and result in serious failures. Also, where the adhesive and coating materials contain a large amount of halogen ions, the halogen ions will contaminate the inside of the capacitor through the rubber seal materials, which cause the capacitor to become a failure.
f. The outer sleeve of a capacitor may lose a gloss or whiten in appearance depending on solvent materials that the adhesive or coating materials contains.
g. Some adhesives or coating materials contain organic solvent such as Xylene. Xylene can deteriorate the rubber seal materials, which cause the flux ingredients to penetrate into the capacitor.

6-4 Effect of Fumigation

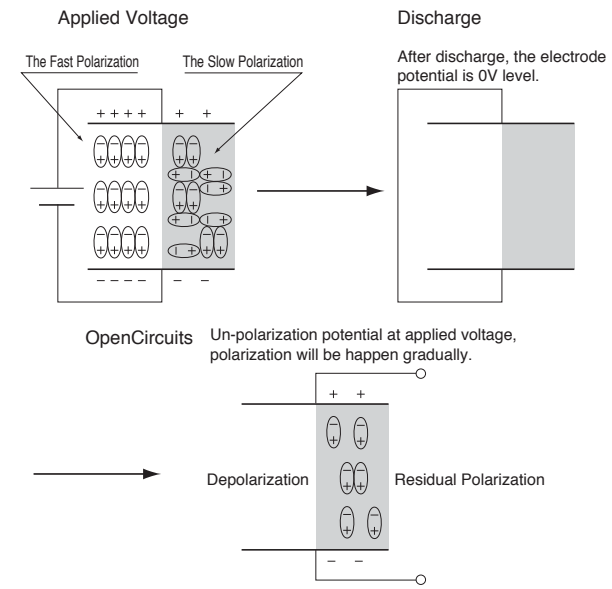
In exporting or importing electronic devices, they may be exposed to fumigation with halide such as methyl bromide. Where aluminum electrolytic capacitors exposed to halide such as methyl bromide, the capacitors will be damaged with the corrosion reaction with the halogen ions.
For the export and import, Nippon Chemi-Con considers using some packaging method and so forth that the fumigation is not required to. For customers to export or import electronic devices, semi-assembly products or capacitor components, confirm if they will be exposed to fumigation and also consider final condition of packaging. (Note that either cardboard or vinyl package has a risk of fumigation gas penetration.)

7. Recovery Voltage

Where a capacitor is once charged and discharged with both of the terminals short-circuiting and then left the terminals open for a while, a voltage across the capacitor spontaneously increases again. This is called “recovery voltage phenomenon”. The mechanism for this phenomenon can be interpreted as follows:
When charged with a voltage, the dielectric produces some electrical changes within, and then the inside of the dielectric is electrified with the opposite polarities (dielectric polarization).
The dielectric polarization occurs in both ways of proceeding rapidly and slowly. When a charged capacitor was discharged until the voltage across the capacitor disappears, and then being left the terminals open, the slow polarization will discharge within the capacitor and appear as recovery voltage. (Fig. 28).

The recovery voltage changes with time as sown in Fig. 29. Its peak will appear 10 to 20 days after the terminals are opened, with gradual weakening thereafter. Larger sized capacitors (screw terminal type and snap-in type) may produce larger recovery voltage.
With a recovery voltage residing in a capacitor, carelessly short-circuiting the terminals can cause sparks to occur, which may scare workers and/or damage low-voltage operating components such as CPU’s and memories in the device circuit. To avoid this trouble, discharge the capacitor through 100 - 1kΩ resistors before use. Also, Nippon Chemi-Con may provide some solutions with some packaging method for it. Please consult us.

Fig-28 Model of Recovery Voltage



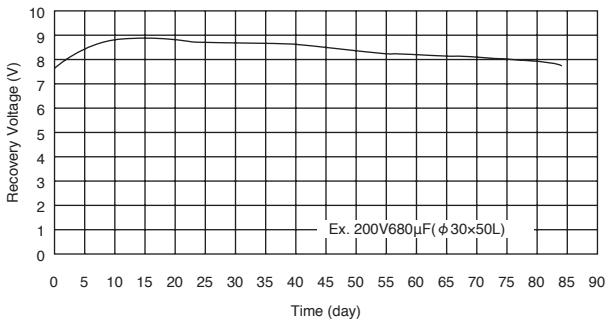


Fig-29 Change of Recovery Voltage

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TECHNICAL NOTE

8. Storage

Some characteristics of an aluminum electrolytic capacitor are temperature-dependent. The higher the temperature is, the more deteriorated the capacitor will be. An increase in temperature accelerates the increase in leakage current and tanδ and the decrease in capacitance. Leaving a capacitor exposed to high humidity for long hours may lead to discoloration of the lead wires and terminals, and poor solderability. To store aluminum electrolytic capacitors, keep them at normal temperature and humidity without exposure to direct sunlight.

Leaving them exposed to high temperatures (higher than the normal ambient temperature) may lead to chemical reactions between the anode oxide layer and electrolyte, which drop the withstanding voltage and increase leakage current. If this is the case, applying the rated voltage to the capacitor will lead to dielectric breakdown due to the heat produced with the large leakage current, which finally causes the pressure relief vent to open.

Capacitors that have been stored for long periods of time should be subjected to a voltage treatment process (see Note 1) which will reform the dielectric (Al_2O_3) by electrolyte and return the leakage current to the initial level. Leakage current increase during storage will vary with the withstanding voltage of a capacitor. In general, the higher the rated voltage, the larger increased the leakage current tends to be. Also, since storing for long period of time may shorten the lifetime of the capacitors, consider storage conditions according to the requirements of device life expectancy.

(Note 1) In the voltage treatment process, connecting resistor (around 1kΩ) in series with the capacitor, applied the rated voltage and then be kept the rated voltage for 30 to 60 minutes.

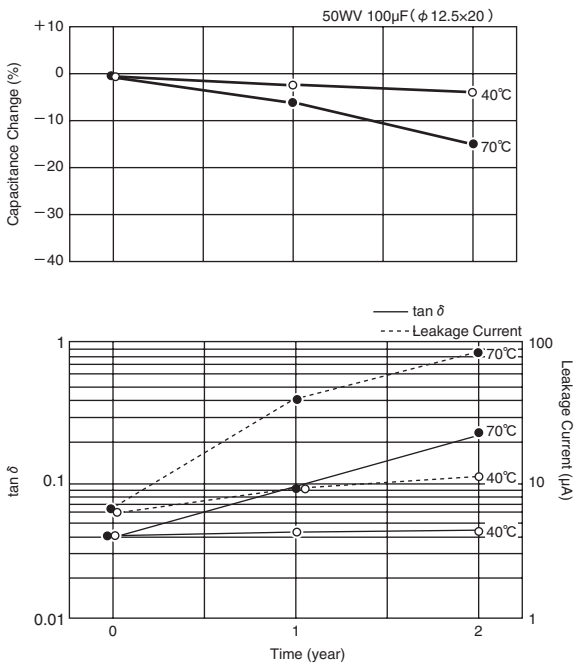

Fig-30 Temperature Characteristics of Storage

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TECHNICAL NOTE

9. Tips for Selecting Capacitors Appropriate for Individual Applications

Aluminum electrolytic capacitors are used mainly for the filtering application of power supplies. Select appropriate capacitors for the specific requirements of each application, referring to the following examples for typical applications:

9-1 Input Filtering Capacitors for Switching Mode Power Supplies

An input filtering capacitor functions to smooth 50-120 Hz waveforms that come from a rectifying circuit, the waveforms of which are superimposed with the ripples with the switching frequency from the switching stage where the capacitor supplies the electric power. Therefore, the capacitor must be capable of managing both ripple currents with each frequency. The ESR of a capacitor is frequency-dependent, so that a ripple current of different frequency produces a different thermal energy in the capacitor.
For PFC power supplies or lighting ballasts, capacitors are subjected to ripple current whose frequency is several dozens of kHz to 100kHz. Therefore, to select capacitors, take their impedance characteristics into consideration.

●Recommended input filtering capacitors for SMPS

Characteristics / Type	85℃		105℃		
	Standard	Longer Life	Standard	Compact	Longer Life
Radial Lead	—	—	KMG	PAG	KXJ
Snap-in	SMQ	SMM	KMQ	KMS,KMR	LXS,LXM

9-2 Output Filtering Capacitors for Switching Mode Power Supplies

In the output filtering, a capacitor must be capable of managing a ripple current with the frequency as high as around 100 kHz. Therefore, Nippon Chemi-Con provides excellent product lineups with low impedance characteristic at high frequencies, including high temperature and long-life versions, which can be chosen according to the application purpose.
The 125˚C maximum temperature series capacitors have a shorter lifetime than the “Long Life” series of 105˚C max. temperature though the electrical characteristics are highly stable. The “wide temperature range” series has two subseries that differ by the applicable temperature range: -55 to 105˚C and -40 to 125˚C .
The “Long Life” series capacitors have been designed for specializing lower impedance and also longer lifetime. Compared to the “wide temperature range” series, the Long Life series can serve longer with the lower impedance, though the maximum operating temperature is limited to 105˚C and the electrical characteristics are large in change over the temperature range.

●Recommended output filtering capacitors for SMPS

Characteristics / Type	105℃			125℃
	Standard	Low Z	Longer Life	High Temp
Wide Temp Range	LXY	LXZ	—	GXE
Longer Life	KY	KZH,KZE	KZM	—

9-3 Filtering Capacitors for Inverter Main Circuits

These capacitors are used in a similar way to those for the input of the switching mode power supplies. Additionally, please understand the following precautions:

For the filtering circuit for 400Vac line, two capacitors of each a rated voltage 350 to 400Vdc can be used with being connected in series. In the series connection, voltages across the individual capacitors during charging depend on their individual capacitance values. After completion of the charging, the voltages come to depend on their leakage current values as the voltage distribution to the individual capacitors inversely corresponds to their leakage current values. For the voltage not to exceed the rated value after the charging is completed, balancing resistors should be connected in parallel with each capacitor. For guidance on choosing balancing resistors, please consult us.
Where capacitors connected in series are frequently charged and discharged, individual charging voltages depend on the variations in their capacitance values. Therefore, keeping the voltage balance will be difficult even if balancing resistors are employed. For servo amplifiers and other application where the voltage fluctuates frequently due to regeneration, use capacitor families that have been especially designed for intensive charge and discharge operations, or consult us for individual designs.

●Recommended capacitors for inverter main circuits

Characteristics / Type	85℃		105℃	
	Standard	Longer Life	Standard	Longer Life
Snap-in	SMQ	SMM	KMQ	LXS,LXM
Screw Mount	RWE	RWF,RWG	KMH	LXA,LXR

●Recommended capacitors for servo amplifiers

Characteristics / Type	85℃	105℃
	Standard	High Temp
Snap-in	—	KMV
Screw Mount	RWV	—

9-4 Capacitors for Control Circuits

These capacitors are relatively small in capacitance, and therefore the case size is also small. However, the smaller the case size, the shorter the lifetime of a capacitor. Moreover, if a capacitor is located near a heat source, the capacitor’ s lifetime may be shortened. Consider selecting an adequate capacitor in lifetime balancing with other capacitors.

●Recommended capacitors for control circuits

Characteristics / Type	105℃	
	5L、7L	11L
Radial Lead	FL	KY

9-5 Photoflash Capacitors

These capacitors are specially designed so that much higher energy-volumetric efficiency can be obtained. Therefore, these capacitors are limited in application. Note that they cannot substitute filtering capacitors. Detailed specifications of these capacitors should be determined specifically for each photoflash application through discussions with a customer.

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Reliability Test Data

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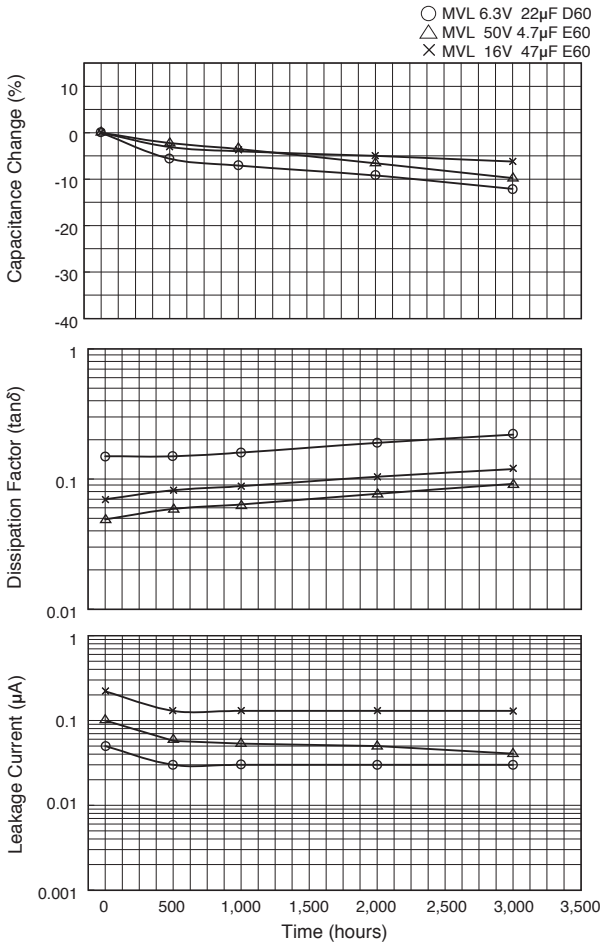
RELIABILITY TEST DATA

Surface Mount

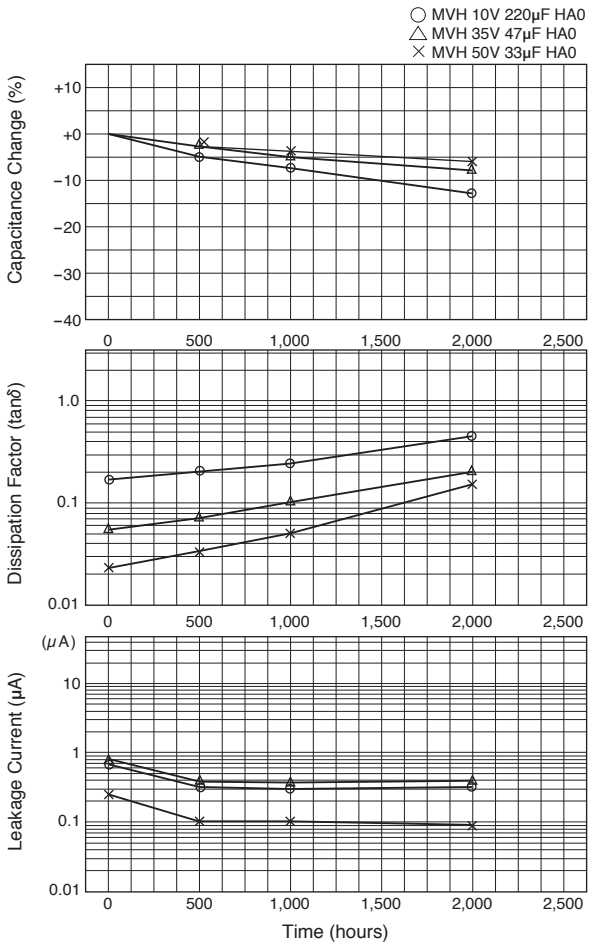
MVL Series

●105℃ Endurance



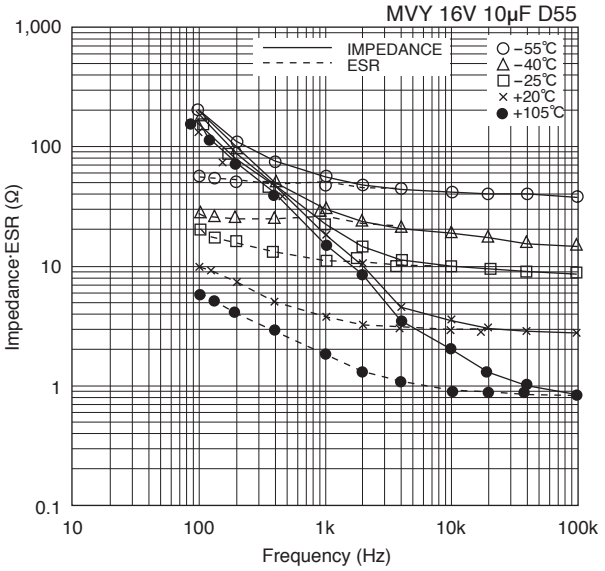
MVH Series

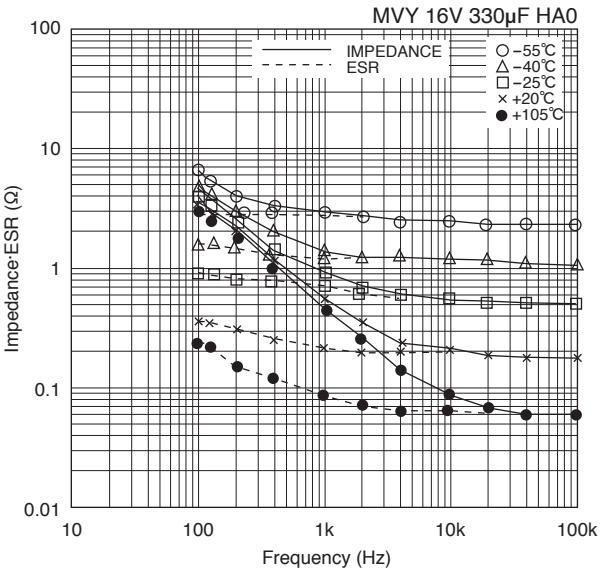
●125℃ Endurance



MVY Series

●Impedance/ESR vs Frequency





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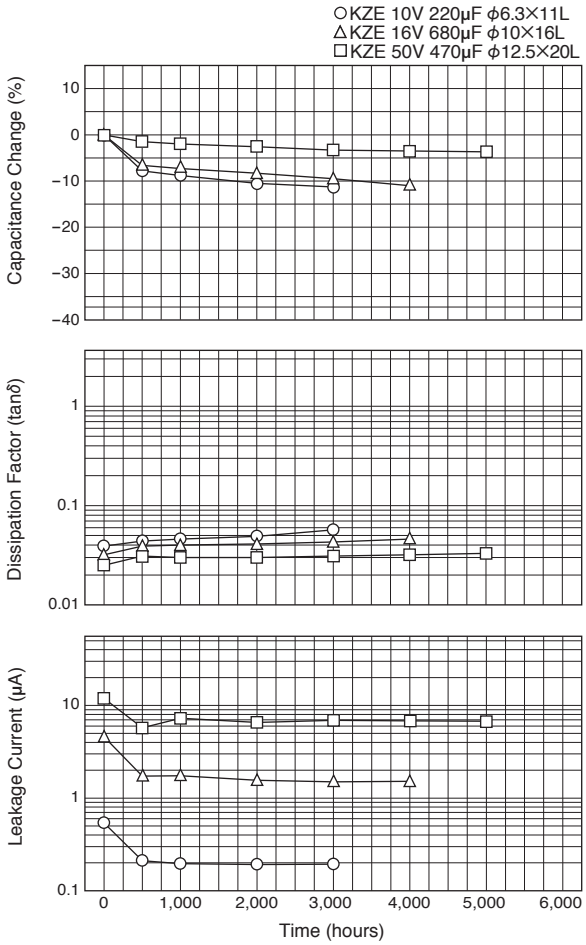
NIPPON CHEMI-CON

RELIABILITY TEST DATA

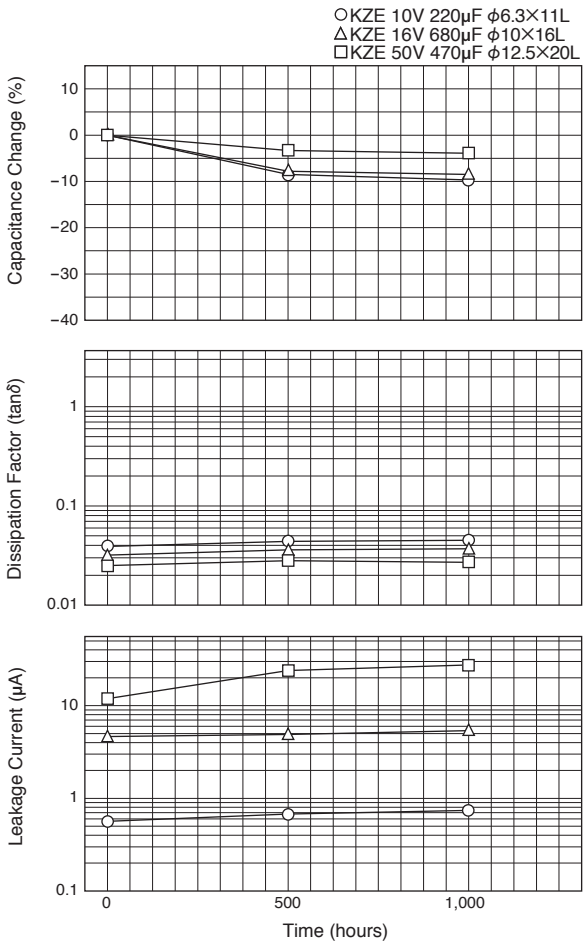
Radial

KZE Series

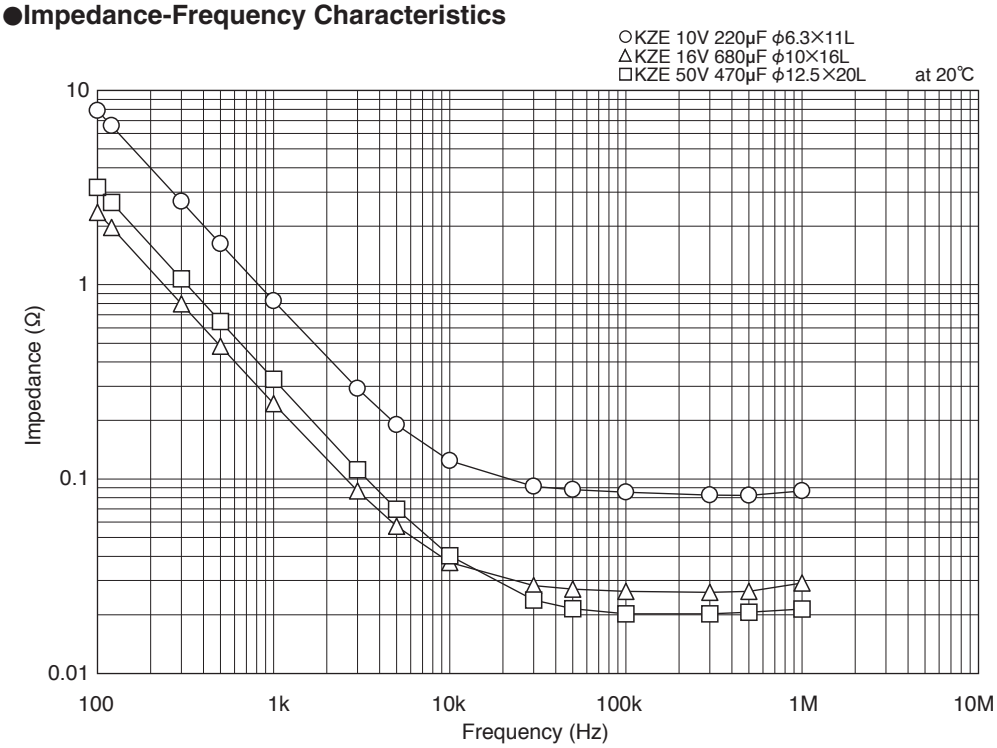
●105℃ Endurance with Rated Ripple Current



●105℃ Shelf Life



●Impedance-Frequency Characteristics



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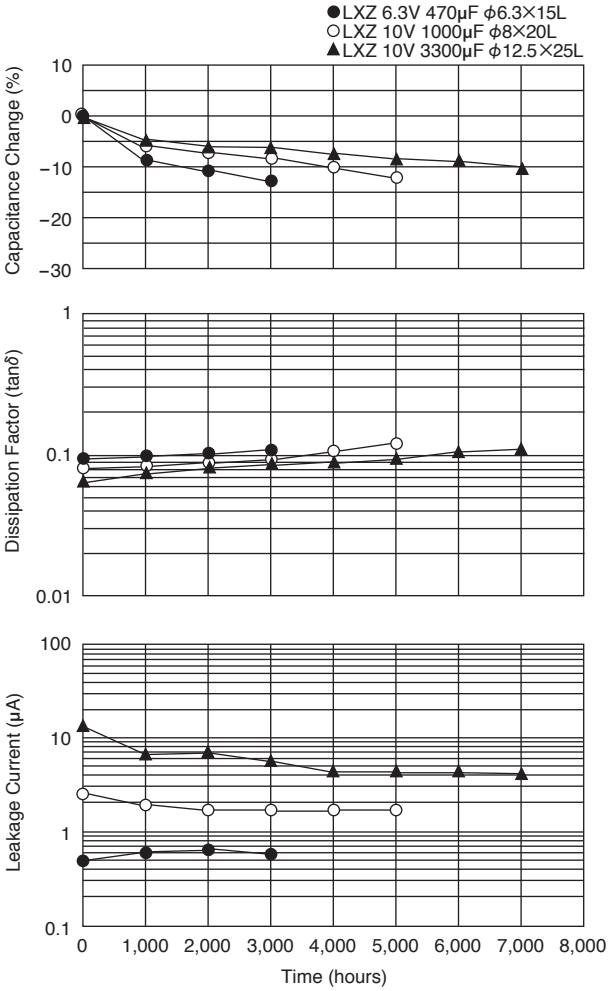
NIPPON CHEMI-CON

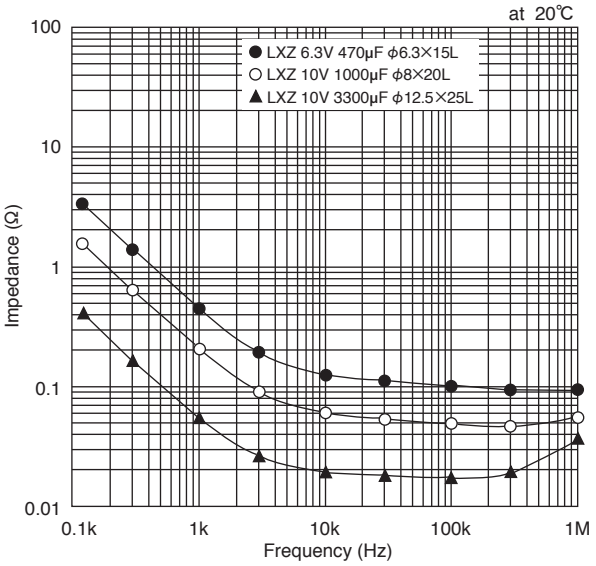
RELIABILITY TEST DATA

LXZ Series

●105℃ Endurance with Rated Ripple Current

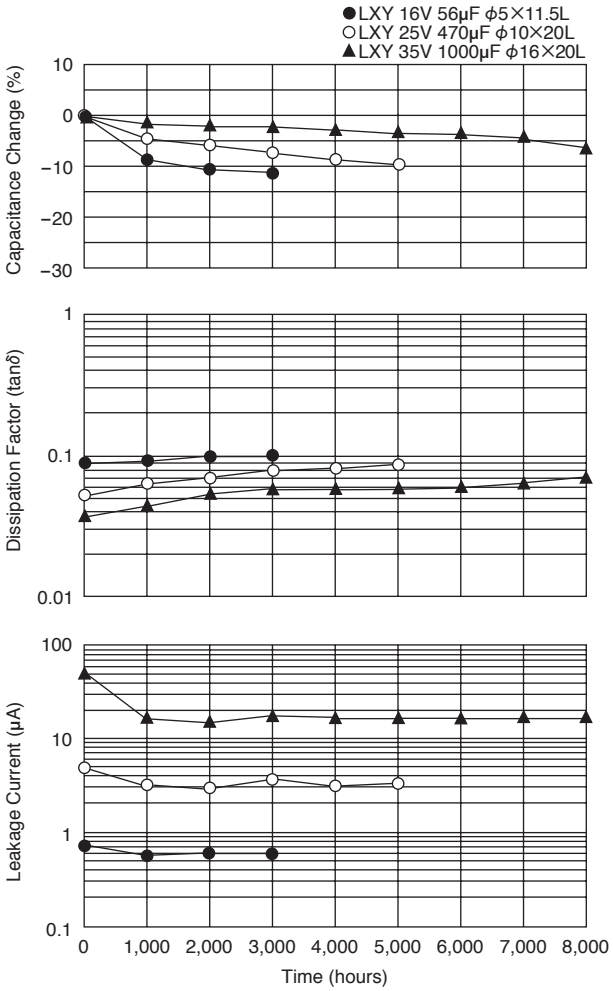


●Impedance-Frequency Characteristics

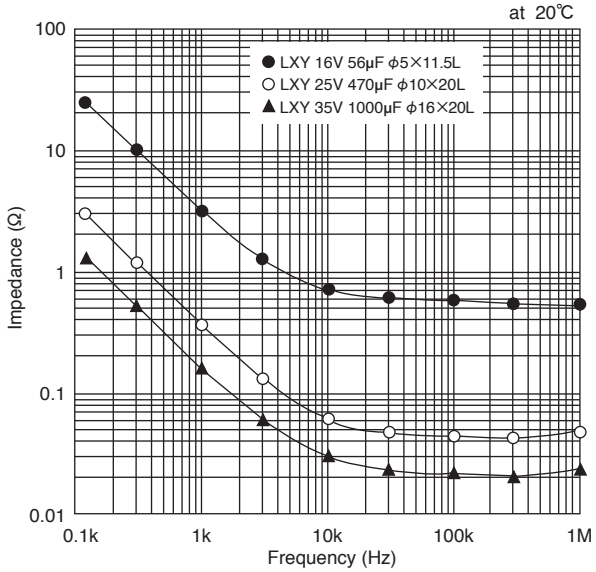


LXY Series

●105℃ Endurance with Rated Ripple Current



●Impedance-Frequency Characteristics



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NIPPON CHEMI-CON

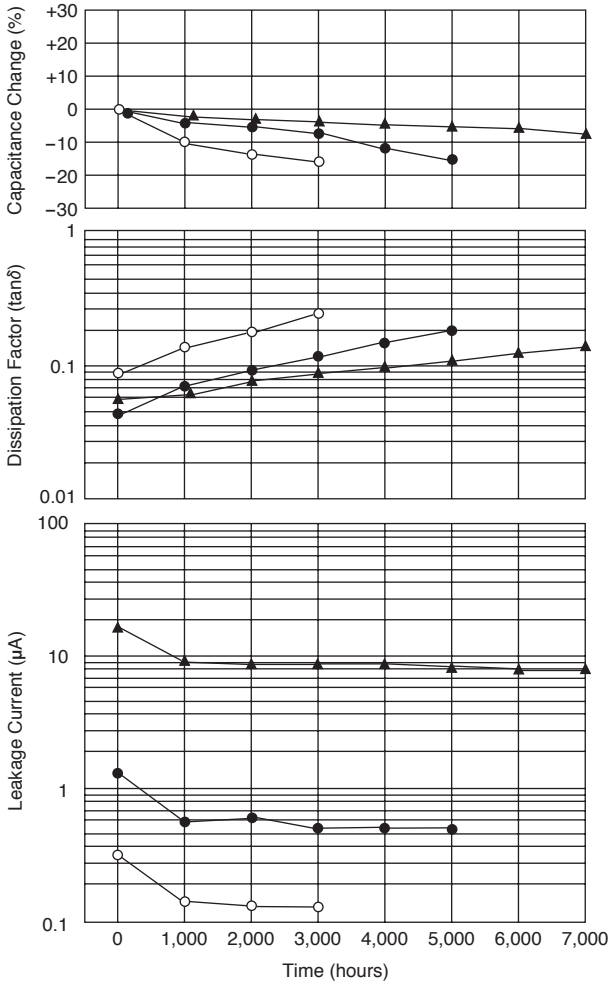
RELIABILITY TEST DATA

Low Impedance Radial

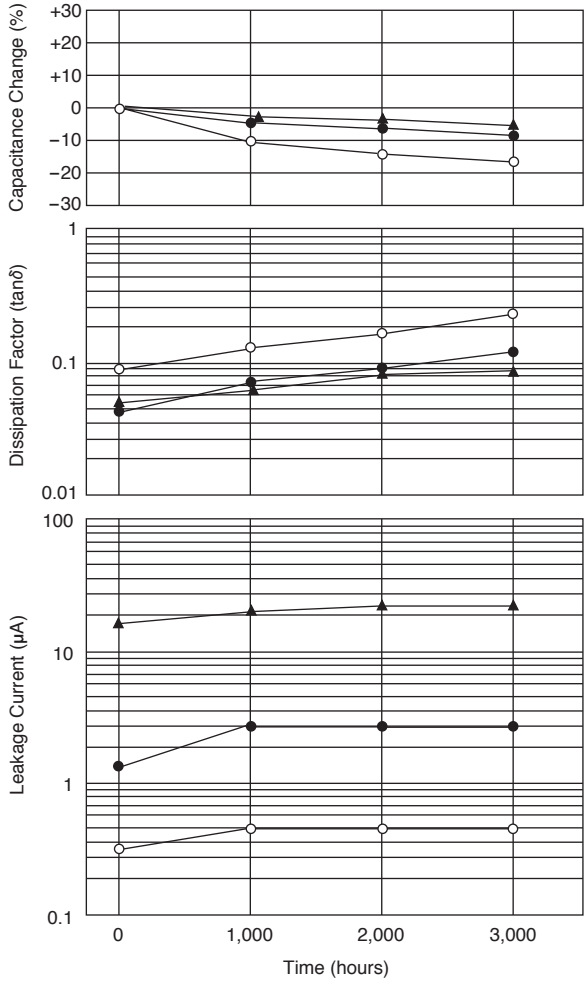
LXV Series

○ LXV 10V 820μF φ5×11.5L
● LXV 25V 220μF φ8×15L
▲ LXV 35V 560μF φ12.5×20L

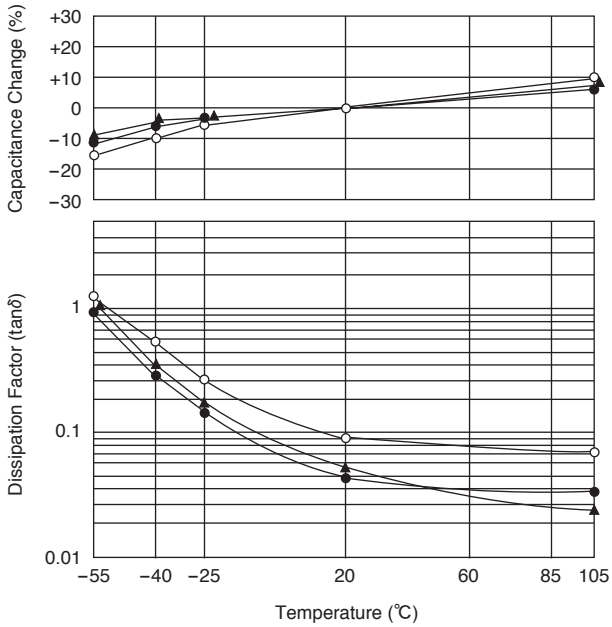
●105℃ Endurance with Rated Ripple Current



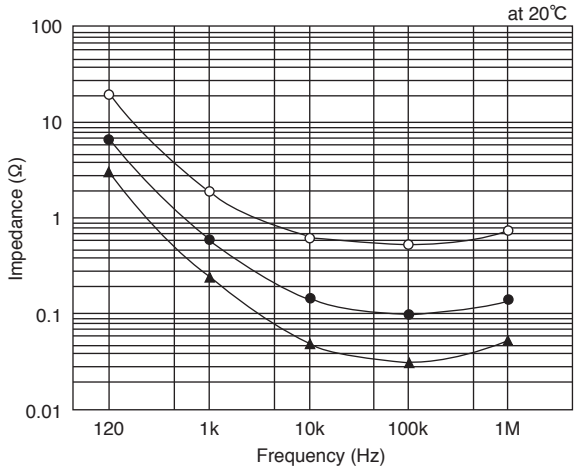
●105℃ Shelf Life test



●Temperature Characteristics



●Impedance-Frequency Characteristics



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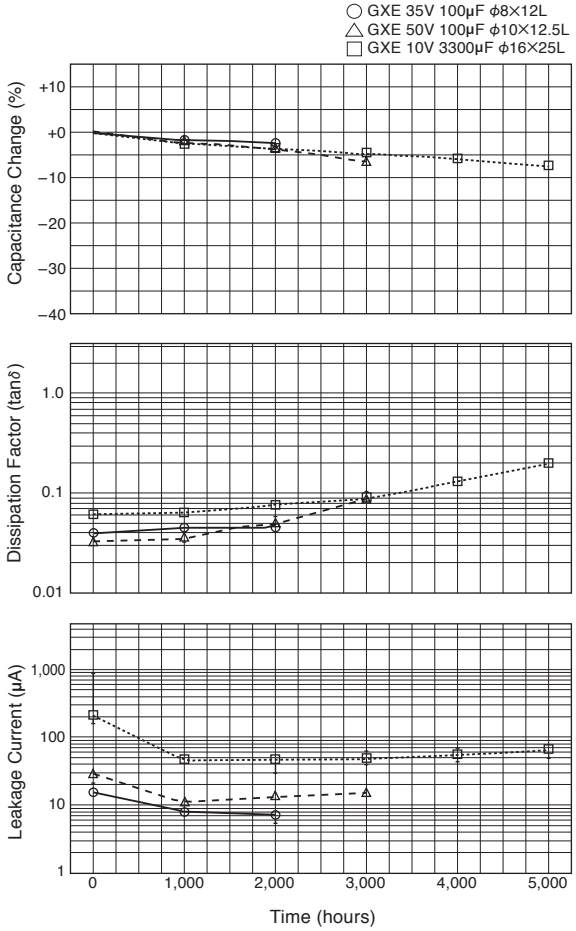
NIPPON CHEMI-CON

RELIABILITY TEST DATA

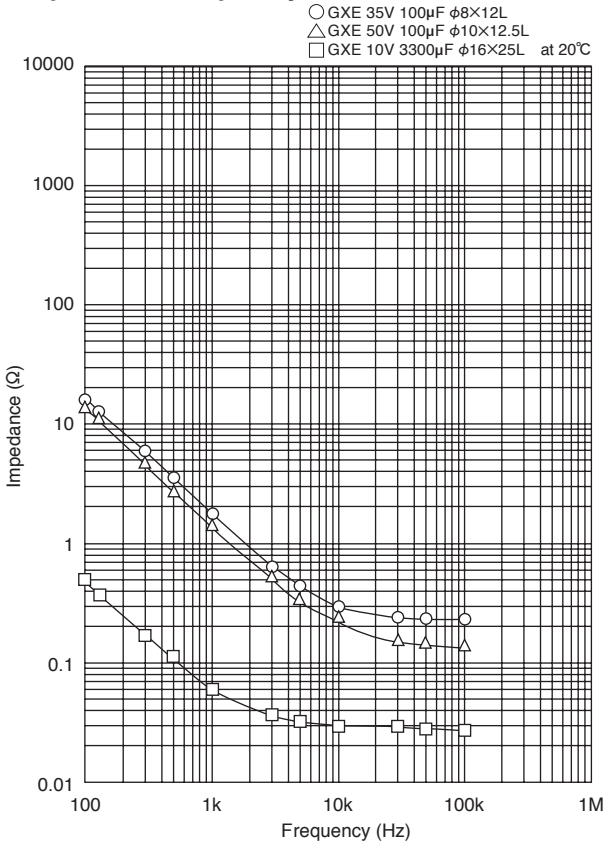
Radial

GXE Series

●125℃ Endurance with Rated Ripple Current



●Impedance-Frequency Characteristics



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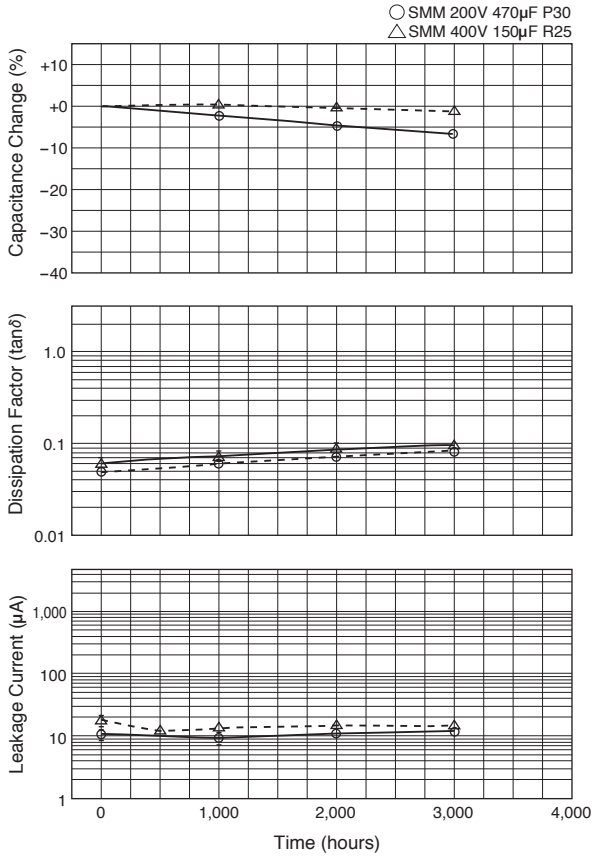
NIPPON CHEMI-CON

RELIABILITY TEST DATA

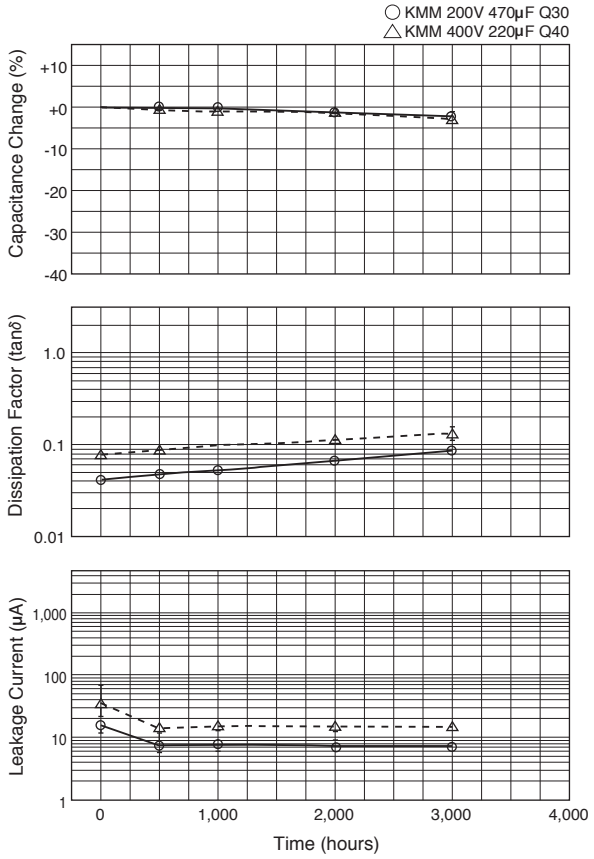
SMM Series

●85℃ Endurance with Rated Ripple Current



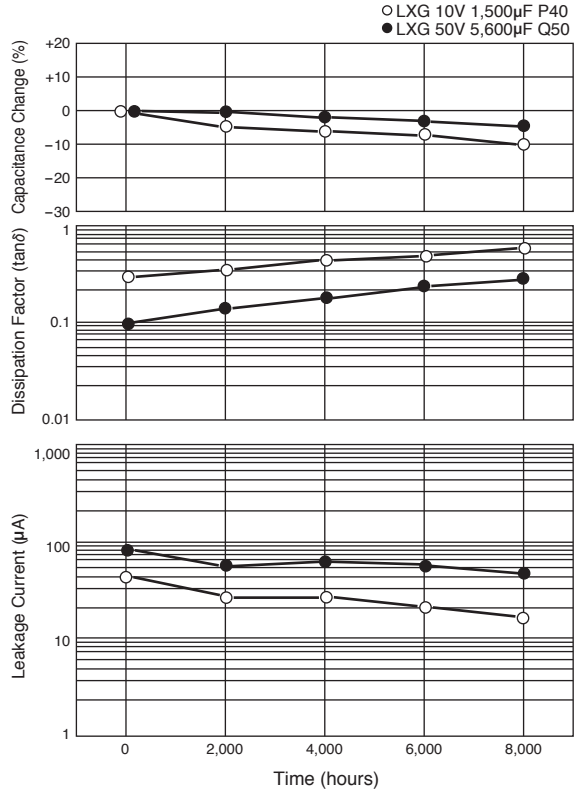
KMM Series

●105℃ Endurance with Rated Ripple Current



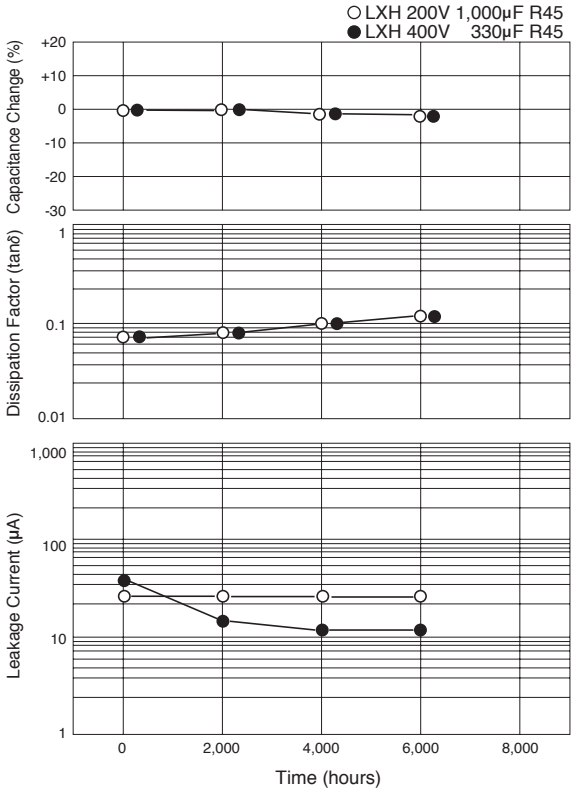
LXG Series

●105℃ Endurance with Rated Ripple Current



LXH Series

●105℃ Endurance with Rated Ripple Current



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NIPPON CHEMI-CON

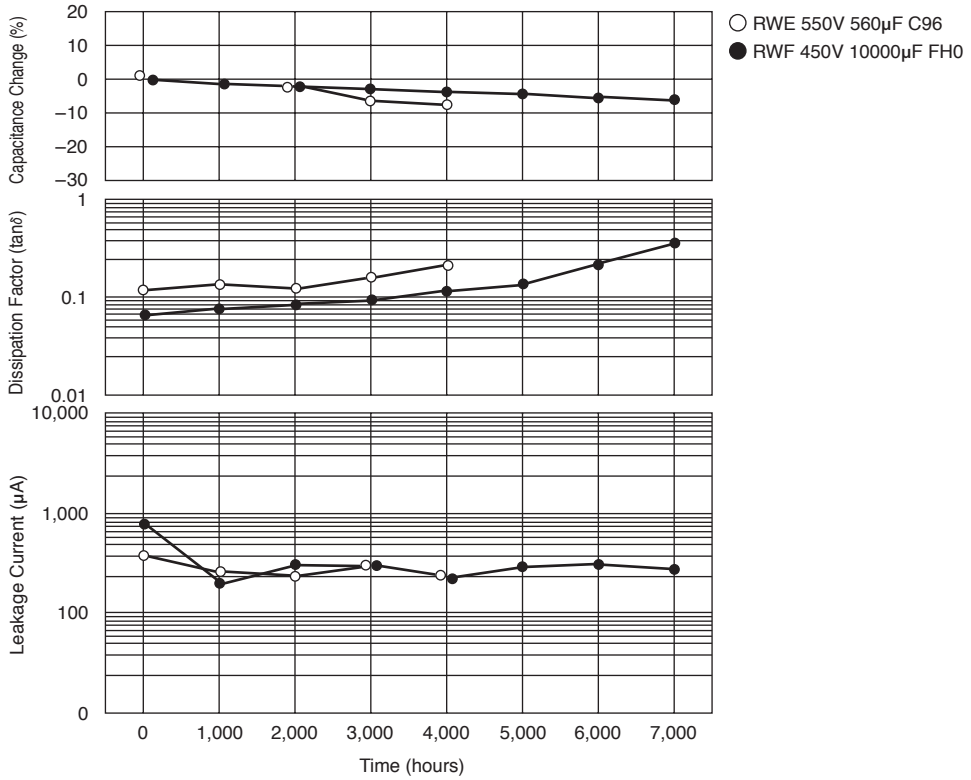
RELIABILITY TEST DATA

Screw-Mount

RWE/RWF/RWL Series

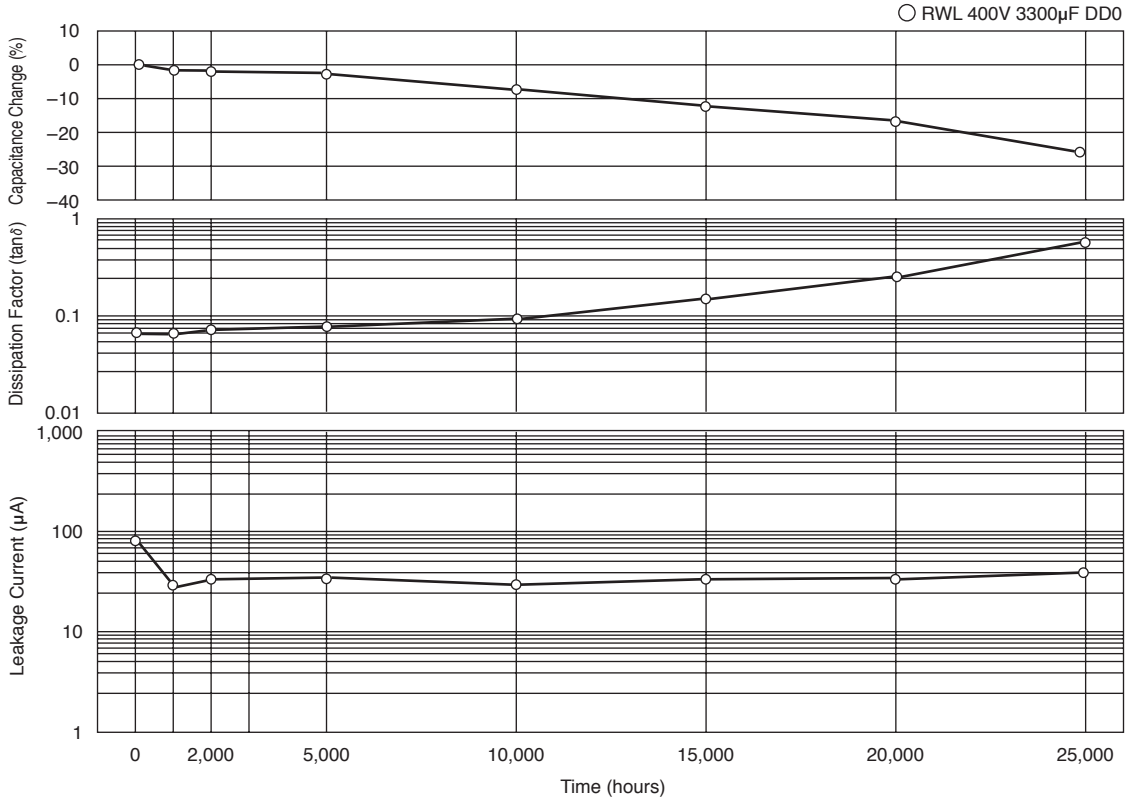
RWE/RWF series

●85℃ Endurance with Rated Ripple Current



RWL series

●85℃ Endurance with Rated Ripple Current



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Appendix

NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Appendix (Part number)

◆Capacitance code

* How to use the table

	1st
2nd	Cap. Value

Capacitance value part

2nd	1st								
	1	2	3	4	5	6	7	8	9
0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0
A	10.5	20.5	30.5	40.5	50.5	60.5	70.5	80.5	90.5
1	11.0	21.0	31.0	41.0	51.0	61.0	71.0	81.0	91.0
B	11.5	21.5	31.5	41.5	51.5	61.5	71.5	81.5	91.5
2	12.0	22.0	32.0	42.0	52.0	62.0	72.0	82.0	92.0
C	12.5	22.5	32.5	42.5	52.5	62.5	72.5	82.5	92.5
3	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0	93.0
D	13.5	23.5	33.5	43.5	53.5	63.5	73.5	83.5	93.5
4	14.0	24.0	34.0	44.0	54.0	64.0	74.0	84.0	94.0
E	14.5	24.5	34.5	44.5	54.5	64.5	74.5	84.5	94.5
5	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	95.0
F	15.5	25.5	35.5	45.5	55.5	65.5	75.5	85.5	95.5
6	16.0	26.0	36.0	46.0	56.0	66.0	76.0	86.0	96.0
G	16.5	26.5	36.5	46.5	56.5	66.5	76.5	86.5	96.5
7	17.0	27.0	37.0	47.0	57.0	67.0	77.0	87.0	97.0
H	17.5	27.5	37.5	47.5	57.5	67.5	77.5	87.5	97.5
8	18.0	28.0	38.0	48.0	58.0	68.0	78.0	88.0	98.0
J	18.5	28.5	38.5	48.5	58.5	68.5	78.5	88.5	98.5
9	19.0	29.0	39.0	49.0	59.0	69.0	79.0	89.0	99.0
K	19.5	29.5	39.5	49.5	59.5	69.5	79.5	89.5	99.5

For less than 10μF, a decimal point position is displayed with R.
For 10μF or more, capacitance code is set to the first 2 digits and index (1digit).
Treatment of fraction (Refer to the table)

Example of conversion

Real cap.	The first 2 digits	Treatment of fraction	Code		
			11th	12th	13th
10.0μF →	10.0 →	10.0 →	1	0	0
10.1μF →	10.1 →	10.0 →	1	0	0
10.2μF →	10.2 →	10.0 →	1	0	0
10.3μF →	10.3 →	10.5 →	1	A	0
10.4μF →	10.4 →	10.5 →	1	A	0
10.5μF →	10.5 →	10.5 →	1	A	0
10.6μF →	10.6 →	10.5 →	1	A	0
10.7μF →	10.7 →	10.5 →	1	A	0
10.8μF →	10.8 →	11.0 →	1	1	0
10.9μF →	10.9 →	11.0 →	1	1	0
11.0μF →	11.0 →	11.0 →	1	1	0
132μF →	13.2 →	13.0 →	1	3	1
133μF →	13.3 →	13.5 →	1	D	1
167μF →	16.7 →	16.5 →	1	G	1
168μF →	16.8 →	17.0 →	1	7	1
1110μF →	11.1 →	11.0 →	1	1	2
1340μF →	13.4 →	13.5 →	1	D	2
13200μF →	13.2 →	13.0 →	1	3	3
13600μF →	13.6 →	13.5 →	1	D	3
270000μF →	27.0 →	27.0 →	2	7	4

◆Case length (Radial lead type)

Case length [mm]	16th	17th
0.0	–	–
0.1	0	B
0.2	0	C
0.3	0	D
0.4	0	E
0.5	0	F
0.6	0	G
0.7	0	H
0.8	0	J
0.9	0	K

Case length [mm]	16th	17th
1.0	0	1
1.1	1	B
1.2	1	C
1.3	1	D
1.4	1	E
1.5	1	F
1.6	1	G
1.7	1	H
1.8	1	J
1.9	1	K

Case length [mm]	16th	17th
2.0	0	2
2.1	2	B
2.2	2	C
2.3	2	D
2.4	2	E
2.5	2	F
2.6	2	G
2.7	2	H
2.8	2	J
2.9	2	K

Case length [mm]	16th	17th
3.0	0	3
3.1	3	B
3.2	3	C
3.3	3	D
3.4	3	E
3.5	3	F
3.6	3	G
3.7	3	H
3.8	3	J
3.9	3	K

Case length [mm]	16th	17th
4.0	0	4
4.1	4	B
4.2	4	C
4.3	4	D
4.4	4	E
4.5	4	F
4.6	4	G
4.7	4	H
4.8	4	J
4.9	4	K

Case length [mm]	16th	17th
5.0	0	5
5.1	5	B
5.2	5	C
5.3	5	D
5.4	5	E
5.5	5	F
5.6	5	G
5.7	5	H
5.8	5	J
5.9	5	K

Case length [mm]	16th	17th
6.0	0	6
6.1	6	B
6.2	6	C
6.3	6	D
6.4	6	E
6.5	6	F
6.6	6	G
6.7	6	H
6.8	6	J
6.9	6	K

Case length [mm]	16th	17th
7.0	0	7
7.1	7	B
7.2	7	C
7.3	7	D
7.4	7	E
7.5	7	F
7.6	7	G
7.7	7	H
7.8	7	J
7.9	7	K

Case length [mm]	16th	17th
8.0	0	8
8.1	8	B
8.2	8	C
8.3	8	D
8.4	8	E
8.5	8	F
8.6	8	G
8.7	8	H
8.8	8	J
8.9	8	K

Case length [mm]	16th	17th
9.0	0	9
9.1	9	B
9.2	9	C
9.3	9	D
9.4	9	E
9.5	9	F
9.6	9	G
9.7	9	H
9.8	9	J
9.9	9	K

Case length [mm]	16th	17th
10.0	1	0
10.1	A	1
10.2	A	2
10.3	A	3
10.4	A	4
10.5	A	5
10.6	A	6
10.7	A	7
10.8	A	8
10.9	A	9

Case length [mm]	16th	17th
11.0	1	1
11.1	B	1
11.2	B	2
11.3	B	3
11.4	B	4
11.5	B	5
11.6	B	6
11.7	B	7
11.8	B	8
11.9	B	9

Case length [mm]	16th	17th
12.0	1	2
12.1	C	1
12.2	C	2
12.3	C	3
12.4	C	4
12.5	C	5
12.6	C	6
12.7	C	7
12.8	C	8
12.9	C	9

Case length [mm]	16th	17th
13.0	1	3
13.1	D	1
13.2	D	2
13.3	D	3
13.4	D	4
13.5	D	5
13.6	D	6
13.7	D	7
13.8	D	8
13.9	D	9

Case length [mm]	16th	17th
14.0	1	4
14.1	E	1
14.2	E	2
14.3	E	3
14.4	E	4
14.5	E	5
14.6	E	6
14.7	E	7
14.8	E	8
14.9	E	9

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PART NUMBERING SYSTEM

Case length [mm]	16th	17th
15.0	1	5
15.1	F	1
15.2	F	2
15.3	F	3
15.4	F	4
15.5	F	5
15.6	F	6
15.7	F	7
15.8	F	8
15.9	F	9

Case length [mm]	16th	17th
16.0	1	6
16.1	G	1
16.2	G	2
16.3	G	3
16.4	G	4
16.5	G	5
16.6	G	6
16.7	G	7
16.8	G	8
16.9	G	9

Case length [mm]	16th	17th
17.0	1	7
17.1	H	1
17.2	H	2
17.3	H	3
17.4	H	4
17.5	H	5
17.6	H	6
17.7	H	7
17.8	H	8
17.9	H	9

Case length [mm]	16th	17th
18.0	1	8
18.1	J	1
18.2	J	2
18.3	J	3
18.4	J	4
18.5	J	5
18.6	J	6
18.7	J	7
18.8	J	8
18.9	J	9

Case length [mm]	16th	17th
19.0	1	9
19.1	K	1
19.2	K	2
19.3	K	3
19.4	K	4
19.5	K	5
19.6	K	6
19.7	K	7
19.8	K	8
19.9	K	9

Case length [mm]	16th	17th
20.0	2	0
20.5	L	1
21.0	2	1
21.5	L	3
22.0	2	2
22.5	L	5
23.0	2	3
23.5	L	7
24.0	2	4
24.5	L	9
25.0	2	5
25.5	M	1
26.0	2	6
26.5	M	3
27.0	2	7
27.5	M	5
28.0	2	8
28.5	M	7
29.0	2	9
29.5	M	9

Case length [mm]	16th	17th
30.0	3	0
30.5	N	1
31.0	3	1
31.5	N	3
32.0	3	2
32.5	N	5
33.0	3	3
33.5	N	7
34.0	3	4
34.5	N	9
35.0	3	5
35.5	P	1
36.0	3	6
36.5	P	3
37.0	3	7
37.5	P	5
38.0	3	8
38.5	P	7
39.0	3	9
39.5	P	9

Case length [mm]	16th	17th
40.0	4	0
40.5	Q	1
41.0	4	1
41.5	Q	3
42.0	4	2
42.5	Q	5
43.0	4	3
43.5	Q	7
44.0	4	4
44.5	Q	9
45.0	4	5
45.5	R	1
46.0	4	6
46.5	R	3
47.0	4	7
47.5	R	5
48.0	4	8
48.5	R	7
49.0	4	9
49.5	R	9

Case length [mm]	16th	17th
50.0	5	0
50.5	S	1
51.0	5	1
51.5	S	3
52.0	5	2
52.5	S	5
53.0	5	3
53.5	S	7
54.0	5	4
54.5	S	9
55.0	5	5
55.5	T	1
56.0	5	6
56.5	T	3
57.0	5	7
57.5	T	5
58.0	5	8
58.5	T	7
59.0	5	9
59.5	T	9

Case length [mm]	16th	17th
60.0	6	0
60.5	U	1
61.0	6	1
61.5	U	3
62.0	6	2
62.5	U	5
63.0	6	3
63.5	U	7
64.0	6	4
64.5	U	9
65.0	6	5
65.5	V	1
66.0	6	6
66.5	V	3
67.0	6	7
67.5	V	5
68.0	6	8
68.5	V	7
69.0	6	9
69.5	V	9

Case length [mm]	16th	17th
70.0	7	0
70.5	W	1
71.0	7	1
71.5	W	3
72.0	7	2
72.5	W	5
73.0	7	3
73.5	W	7
74.0	7	4
74.5	W	9
75.0	7	5
75.5	X	1
76.0	7	6
76.5	X	3
77.0	7	7
77.5	X	5
78.0	7	8
78.5	X	7
79.0	7	9
79.5	X	9

Case length [mm]	16th	17th
80.0	8	0
80.5	Y	1
81.0	8	1
81.5	Y	3
82.0	8	2
82.5	Y	5
83.0	8	3
83.5	Y	7
84.0	8	4
84.5	Y	9
85.0	8	5
85.5	Z	1
86.0	8	6
86.5	Z	3
87.0	8	7
87.5	Z	5
88.0	8	8
88.5	Z	7
89.0	8	9
89.5	Z	9

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PART NUMBERING SYSTEM

◆Case length (Snap-in type / Screw mount terminal type)

Case length [mm]	16th	17th
20	2	0
21	2	1
22	2	2
23	2	3
24	2	4
25	2	5
26	2	6
27	2	7
28	2	8
29	2	9

Case length [mm]	16th	17th
30	3	0
31	3	1
32	3	2
33	3	3
34	3	4
35	3	5
36	3	6
37	3	7
38	3	8
39	3	9

Case length [mm]	16th	17th
40	4	0
41	4	1
42	4	2
43	4	3
44	4	4
45	4	5
46	4	6
47	4	7
48	4	8
49	4	9

Case length [mm]	16th	17th
50	5	0
51	5	1
52	5	2
53	5	3
54	5	4
55	5	5
56	5	6
57	5	7
58	5	8
59	5	9

Case length [mm]	16th	17th
60	6	0
61	6	1
62	6	2
63	6	3
64	6	4
65	6	5
66	6	6
67	6	7
68	6	8
69	6	9

Case length [mm]	16th	17th
70	7	0
71	7	1
72	7	2
73	7	3
74	7	4
75	7	5
76	7	6
77	7	7
78	7	8
79	7	9

Case length [mm]	16th	17th
80	8	0
81	8	1
82	8	2
83	8	3
84	8	4
85	8	5
86	8	6
87	8	7
88	8	8
89	8	9

Case length [mm]	16th	17th
90	9	0
91	9	1
92	9	2
93	9	3
94	9	4
95	9	5
96	9	6
97	9	7
98	9	8
99	9	9

Case length [mm]	16th	17th
100	A	0
101	A	1
102	A	2
103	A	3
104	A	4
105	A	5
106	A	6
107	A	7
108	A	8
109	A	9

Case length [mm]	16th	17th
110	B	0
111	B	1
112	B	2
113	B	3
114	B	4
115	B	5
116	B	6
117	B	7
118	B	8
119	B	9

Case length [mm]	16th	17th
120	C	0
121	C	1
122	C	2
123	C	3
124	C	4
125	C	5
126	C	6
127	C	7
128	C	8
129	C	9

Case length [mm]	16th	17th
130	D	0
131	D	1
132	D	2
133	D	3
134	D	4
135	D	5
136	D	6
137	D	7
138	D	8
139	D	9

Case length [mm]	16th	17th
140	E	0
141	E	1
142	E	2
143	E	3
144	E	4
145	E	5
146	E	6
147	E	7
148	E	8
149	E	9

Case length [mm]	16th	17th
150	F	0
151	F	1
152	F	2
153	F	3
154	F	4
155	F	5
156	F	6
157	F	7
158	F	8
159	F	9

Case length [mm]	16th	17th
160	G	0
161	G	1
162	G	2
163	G	3
164	G	4
165	G	5
166	G	6
167	G	7
168	G	8
169	G	9

Case length [mm]	16th	17th
170	H	0
171	H	1
172	H	2
173	H	3
174	H	4
175	H	5
176	H	6
177	H	7
178	H	8
179	H	9

Case length [mm]	16th	17th
180	J	0
181	J	1
182	J	2
183	J	3
184	J	4
185	J	5
186	J	6
187	J	7
188	J	8
189	J	9

Case length [mm]	16th	17th
190	K	0
191	K	1
192	K	2
193	K	3
194	K	4
195	K	5
196	K	6
197	K	7
198	K	8
199	K	9

Case length [mm]	16th	17th
200	L	0
201	L	1
202	L	2
203	L	3
204	L	4
205	L	5
206	L	6
207	L	7
208	L	8
209	L	9

Case length [mm]	16th	17th
210	M	0
211	M	1
212	M	2
213	M	3
214	M	4
215	M	5
216	M	6
217	M	7
218	M	8
219	M	9

Case length [mm]	16th	17th
220	N	0
221	N	1
222	N	2
223	N	3
224	N	4
225	N	5
226	N	6
227	N	7
228	N	8
229	N	9

Case length [mm]	16th	17th
230	P	0
231	P	1
232	P	2
233	P	3
234	P	4
235	P	5
236	P	6
237	P	7
238	P	8
239	P	9

Case length [mm]	16th	17th
240	Q	0
241	Q	1
242	Q	2
243	Q	3
244	Q	4
245	Q	5
246	Q	6
247	Q	7
248	Q	8
249	Q	9

Case length [mm]	16th	17th
250	R	0
251	R	1
252	R	2
253	R	3
254	R	4
255	R	5
256	R	6
257	R	7
258	R	8
259	R	9

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PART NUMBERING SYSTEM

◆Supplement code

Conductive polymer Chip and Radial lead type / Electrolytec Chip type

	Terminal plating material	
	Sn	Sn-Bi
Coating case	S	G

Radial lead type / Snap-in type

		Terminal plating material	
		Sn	Sn-Bi
Outer sleeve	PET	S	D
	Coating case	H	G
	Polyolefin	L	—
	Pb-free PVC	M	—

* Pb-free snap-in type does not have a plastic disk.
We also produce Pb-free snap-in type with "Plastic disk, Pb-free PVC sleeve and Sn terminal plating".
In this case, supplement code (the 18th digit) is "T".

Screw mount terminal type

	Screw terminal
Pb-free PVC	M
Polyolefin	S
PET	C

Product specifications in this catalog are subject to change without notice.Request our product specifications before purchase and/or use. Please use our products based on the information contained in this catalog and product specifications.