



VEJ Series

Features

- 4 ϕ ~ 18 ϕ , 105°C, 2,000 hours assured
- Designed for surface mounting on high density PC board
- RoHS compliance



Marking color: Black

Specifications

Items	Performance																																												
Category Temperature Range	6.3 ~ 100V				160 ~ 400V				450V																																				
	-55°C ~ +105°C				-40°C ~ +105°C				-25°C ~ +105°C																																				
Capacitance Tolerance	±20% (at 120 Hz, 20°C)																																												
Leakage Current (at 20°C)	Rated voltage		6.3 ~ 100V						160 ~ 450V																																				
	Time		after 2 minutes						after 5 minutes																																				
	Case size		4 ~ 10 φ			12.5 ~ 18 φ			12.5 ~ 18 φ																																				
	Leakage Current		I = 0.01CV or 3μA, whichever is greater			I = 0.03CV or 4μA, whichever is greater			I = 0.04CV + 100μA																																				
	Where, C = rated capacitance in μF, V = rated DC working voltage in V																																												
Tanδ (at 120 Hz, 20°C)	<table><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160 ~ 250</td><td>400 ~ 450</td></tr><tr><td>4 ~ 10 φ</td><td>0.45</td><td>0.35</td><td>0.28</td><td>0.18</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.12</td><td>-</td><td>-</td></tr><tr><td>12.5 ~ 18 φ</td><td>0.40</td><td>0.38</td><td>0.34</td><td>0.26</td><td>0.22</td><td>0.18</td><td>0.14</td><td>0.10</td><td>0.20</td><td>0.25</td></tr></table>												Rated Voltage	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450	4 ~ 10 φ	0.45	0.35	0.28	0.18	0.16	0.14	0.12	0.12	-	-	12.5 ~ 18 φ	0.40	0.38	0.34	0.26	0.22	0.18	0.14	0.10	0.20	0.25
	Rated Voltage	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450																																		
	4 ~ 10 φ	0.45	0.35	0.28	0.18	0.16	0.14	0.12	0.12	-	-																																		
12.5 ~ 18 φ	0.40	0.38	0.34	0.26	0.22	0.18	0.14	0.10	0.20	0.25																																			
When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.																																													
Low Temperature Characteristics (at 120 Hz)	Impedance ratio shall not exceed the values given in the table below.																																												
	Rated Voltage		6.3	10	16	25	35	50	63	100	160	200	250	400	450																														
	Impedance Ratio	Z(-25°C)	φ D < 12.5	4	4	3	2	2	2	2	3	-	-	-	-																														
		/Z(+20°C)	φ D ≥ 12.5	5	4	3	2	2	2	2	2	3	3	3	6	6																													
		Z(-55/-40°C)	φ D < 12.5	12	8	6	4	3	3	3	4	-	-	-	-																														
/Z(+20°C)		φ D ≥ 12.5	10	8	6	4	3	3	3	3	6	6	6	10	-																														
Note: The ratio value with " * " is only available for 400V.																																													
Endurance	Test Time		2,000 Hrs																																										
	Capacitance Change		Within ±25% of initial value for φ D ≤ 6.3 mm; Within ±20% of initial value for φ D ≥ 8 mm																																										
	Tanδ		Less than 300% of specified value for φ D ≤ 6.3 mm; Less than 200% of specified value for φ D ≥ 8 mm																																										
	Leakage Current		Within specified value																																										
* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hours at 105°C.																																													
Shelf Life Test	Test time: 1,000 hours; other items are the same as those for the Endurance. The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V (Refer to JIS C 5101-4 4.1).																																												
Ripple Current and Frequency Multipliers	<table><tr><td colspan="2">Freq. (Hz)</td><td>50</td><td>120</td><td>1k</td><td>10k up</td></tr><tr><td>Cap. (μF)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2">≤ 1,000</td><td>0.80</td><td>1.00</td><td>1.25</td><td>1.40</td></tr><tr><td colspan="2">1,000 < C ≤ 8,200</td><td>0.85</td><td>1.00</td><td>1.15</td><td>1.25</td></tr></table>												Freq. (Hz)		50	120	1k	10k up	Cap. (μF)						≤ 1,000		0.80	1.00	1.25	1.40	1,000 < C ≤ 8,200		0.85	1.00	1.15	1.25									
	Freq. (Hz)		50	120	1k	10k up																																							
	Cap. (μF)																																												
≤ 1,000		0.80	1.00	1.25	1.40																																								
1,000 < C ≤ 8,200		0.85	1.00	1.15	1.25																																								

Diagram of Dimensions

Fig. 1

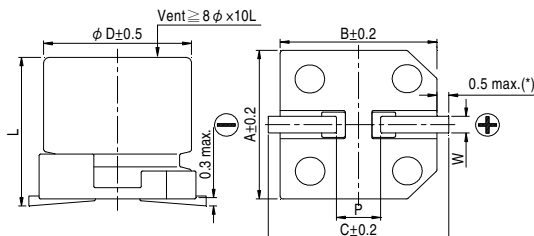
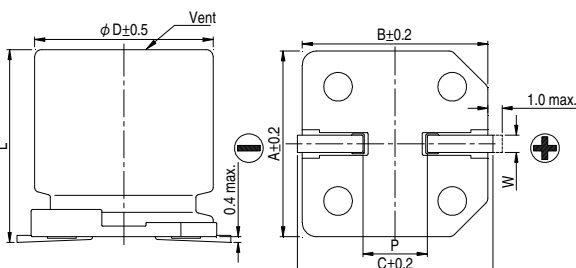


Fig. 2



Lead Spacing and Diameter

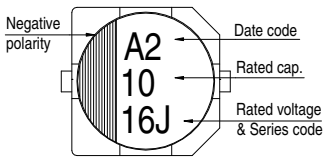
Unit: mm

ϕD	L	A	B	C	W	P ± 0.2	Fig. No.
4	5.7 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0	1
5	5.7 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5	1
6.3	5.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
8	6.5 ± 0.3	8.3	8.3	9.0	0.5 ~ 0.8	2.3	1
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1	1
10	7.7 ± 0.3	10.3	10.3	11.0	0.7 ~ 1.3	4.7	1
10	10 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.3	4.7	1
12.5	13.5 ± 0.5	13.0	13.0	13.7	1.1 ~ 1.4	4.4	2
12.5	16 ± 0.5	13.0	13.0	13.7	1.1 ~ 1.4	4.4	2
16	16.5 ± 0.5	17.0	17.0	18.0	1.1 ~ 1.4	6.4	2
16	21.5 ± 0.5	17.0	17.0	18.0	1.1 ~ 1.4	6.4	2
18	16.5 ± 0.5	19.0	19.0	20.0	1.1 ~ 1.4	6.4	2
18	21.5 ± 0.5	19.0	19.0	20.0	1.1 ~ 1.4	6.4	2

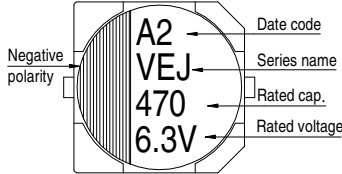
(*): For 4 ~ 6.3 ϕ is 0.4 max.

Marking

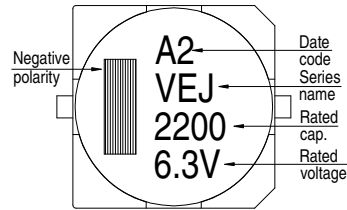
$\phi D \leq 6.3 \text{ mm}$



$\phi D = 8 \sim 10 \text{ mm}$



$\phi D \geq 12.5 \text{ mm}$



Dimension and Permissible Ripple Current

Dimension: $\phi D \times L(\text{mm})$

Ripple Current: mA/rms at 120 Hz, 105°C

Rated Volt. (Voc)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
Cap. (μF)	Contents	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA
1	010											4×5.7	8	4×5.7	8		
2.2	2R2											4×5.7	12	4×5.7	12		
3.3	3R3											4×5.7	14	5×5.7	17		
4.7	4R7							4×5.7	17	4×5.7	17	5×5.7	20	6.3×5.7	22		
10	100					4×5.7	20	4×5.7	20	5×5.7	27	6.3×5.7	32	6.3×5.7 8×6.5	32 51		
22	220	4×5.7	22	4×5.7	22	5×5.7	30	5×5.7	30	6.3×5.7	44	6.3×5.7 8×6.5	38 67	6.3×7.7	58	8×10	100
33	330	5×5.7	34	5×5.7	34	5×5.7	34	6.3×5.7	46	6.3×5.7 8×6.5	46 76	6.3×7.7	65	8×10	140	10×10	150
47	470	5×5.7	38	5×5.7	38	6.3×5.7	48	6.3×5.7 8×6.5	48 79	6.3×7.7	80	6.3×7.7	70	8×10	170	12.5×13.5	250
100	101	6.3×5.7	69	6.3×5.7 8×6.5	69 90	6.3×5.7	69	6.3×7.7	100	8×10	240	8×10	210	10×10	310	12.5×13.5	380
220	221	6.3×7.7 8×6.5	120 120	6.3×7.7	120	6.3×7.7	120	8×10 10×7.7	270 270	8×10	270	10×10	330	12.5×13.5	470	16×16.5	450
330	331	8×10	290	8×10	290	8×10 10×7.7	290 290	8×10	290	10×10	370	12.5×13.5	490	16×16.5	650	18×16.5 16×21.5	590 750
470	471	8×10	320	8×10 10×7.7	320 320	10×10	380	10×10	380	12.5×13.5	520	12.5×16	550	16×16.5	700	18×21.5	980
1,000	102	10×10	410	10×10	410	12.5×13.5	500	12.5×16	550	16×16.5	800	18×16.5	990				
2,200	222	12.5×13.5	680	12.5×13.5	680	16×16.5	900	16×16.5	900	18×16.5	1,050						
3,300	332	12.5×16	850	16×16.5	950	16×16.5	950	18×16.5 16×21.5	1,150 1,200								
4,700	472	16×16.5	1,000	16×16.5	1,000	18×16.5 16×21.5	1,225 1,275	18×21.5	1,300								
6,800	682	18×16.5 16×21.5	1,290 1,350	18×16.5 16×21.5	1,290 1,350												
8,200	822	18×21.5	1,450	18×21.5	1,450												

Rated Volt. (Voc)		160V (2C)		200V (2D)		250V (2E)		400V (2G)		450V (2W)	
Cap. (μF)	Contents	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA
4.7	4R7					12.5×13.5	65	12.5×13.5	45	12.5×13.5	45
10	100			12.5×13.5	80	12.5×13.5	70	12.5×13.5	50	12.5×16	75
22	220			12.5×16	110	12.5×13.5	105	16×16.5	85	16×16.5	85
33	330	12.5×13.5	95	12.5×16	120	16×16.5	180	18×16.5	100	18×16.5	100
47	470	12.5×16	205	16×16.5	220	16×16.5	220	18×21.5	130		
100	101	16×16.5	250	18×16.5	280	18×21.5	290				

Part Numbering System

VEJ Series 470μF

±20%

6.3V

Carrier Tape

8φ×10L

Pb-free and PET coating case

VEJ

471

M

OJ

TR

-

0810

Series Name

Capacitance

Capacitance Tolerance

Rated Voltage

Package Type

Terminal Type

Case size

Lead Wire and Coating Type

Note: For more details, please refer to "Part Numbering System (SMD Type)" on page 15.