

Inductors for Standard Circuits

Multilayer

Narrow tolerance type, Magnetic shielded

MLF series

Type:	MLF1005-J	1005[0402 inch]*
	MLF1608-J	1608[0603 inch]
	MLF2012-J	2012[0805 inch]
		* Dimensions Code JIS[EIA]

Issue date: August 2012

○ All specifications are subject to change without notice.

○ Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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MLF Series Summary of MLF-J

FEATURES

- It supports J-tolerance at 1005 size of the world's smallest shape.
- Magnetically sealed configuration allowing for high-density mounting.
- The products contain no lead and also support lead-free soldering.

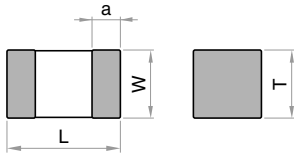
APPLICATIONS

Matching circuits, filter circuits and NFC (Near Field Communication) circuits of mobile devices including smartphones and smartphone modules, TV tuners or FM tuners.

PRODUCT IDENTIFICATION

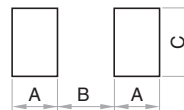
MLF		1005		V	R56		J	T		
Series name		Dimensions LxW mm [inch]		Type	Inductance [μH]		Inductance tolerance		Packaging style	
MLF	For multilayer signal ferrite inductors	1005[0402]	1.0×0.5		R10	0.1	J	±5%	T	Taping [reel]
		1608[0603]	1.6×0.8		1R0	1.0	K	±10%		
		2012[0805]	2.0×1.25		100	10	M	±20%		

SHAPES AND DIMENSIONS



Type	Dimensions				
	L (mm)	W (mm)	T (mm)	a (mm)	
MLF1005	1.0±0.05	0.5±0.05	0.5±0.05	0.1 min.	
MLF1608	1.6±0.15	0.8±0.15	0.8±0.15	0.3±0.2	
MLF2012	t=0.85	2.0±0.20	1.25±0.2	0.85±0.2	0.5±0.3
	t=1.25			1.25±0.2	

RECOMMENDED PC BOARD PATTERN



Type	Recommended PC board pattern		
	A (mm)	B (mm)	C (mm)
MLF1005	0.5	0.4	0.5
MLF1608	0.6	0.8	0.8
MLF2012	t=0.85	0.8	1.0
	t=1.25	0.8	1.0

WEIGHT

Type	Weight (mg)	
MLF1005	1.2	
MLF1608	4	
MLF2012	t=0.85	10
	t=1.25	14

SPECIFICATIONS

Type	Specifications	
	Operating temperature range	Storage temperature range(After mount)
MLF1005	-40 ... +85°C	-40 ... +85°C
MLF1608	-55 ... +125°C	-55 ... +125°C
MLF2012	t=0.85	-55 ... +125°C
	t=1.25	

PACKAGING STYLE AND SPECIFICATIONS

Type	Packaging style	
MLF1005	10,000 pieces/reel	
MLF1608	4,000 pieces/reel	
MLF2012	t=0.85	4,000 pieces/reel
	t=1.25	2,000 pieces/reel

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○ Please contact our Sales office when your application is considered the following:

The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

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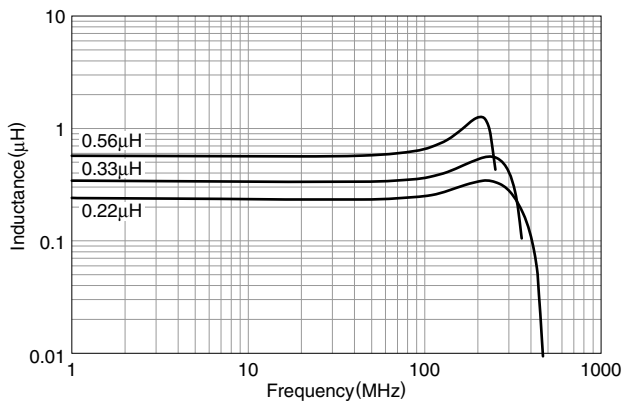
MLF Series MLF1005-J

ELECTRICAL CHARACTERISTICS

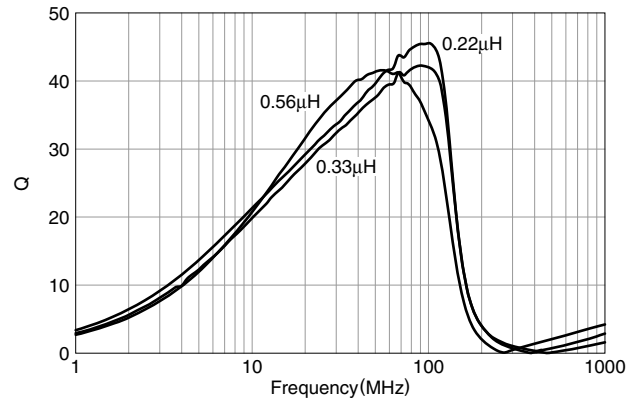
Part No.	Inductance (μH)		Q		Test L, Q		Self-resonant frequency (MHz)		DC resistance (Ω)		Rated current (mA)max.
	L(μH)	Tolerance	min.	typ.	Frequency (MHz)	Current (mA)	min.	typ.	max.	typ.	
MLF1005VR15JT	0.15	$\pm 5\%$	15	25	25	1.0	350	650	0.63	0.39	180
MLF1005VR18JT	0.18	$\pm 5\%$	15	30	25	1.0	320	600	0.72	0.40	160
MLF1005VR22JT	0.22	$\pm 5\%$	15	30	25	1.0	290	450	0.79	0.47	160
MLF1005VR27JT	0.27	$\pm 5\%$	15	30	25	1.0	260	450	0.91	0.65	150
MLF1005VR33JT	0.33	$\pm 5\%$	15	30	25	1.0	230	380	1.05	0.80	140
MLF1005VR39JT	0.39	$\pm 5\%$	15	30	25	1.0	210	330	1.35	0.89	130
MLF1005VR47JT	0.47	$\pm 5\%$	15	30	25	1.0	190	300	1.50	0.95	120
MLF1005VR56JT	0.56	$\pm 5\%$	15	30	25	1.0	170	250	1.95	1.35	120

TYPICAL ELECTRICAL CHARACTERISTICS

FREQUENCY CHARACTERISTICS (INDUCTANCE)



FREQUENCY CHARACTERISTICS (Q FACTOR)



Inductors for Standard Circuits

Conformity to RoHS Directive

Multilayer

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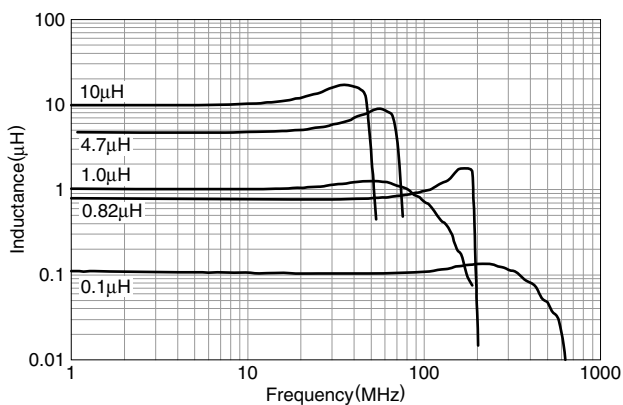
MLF Series MLF1608-J

ELECTRICAL CHARACTERISTICS

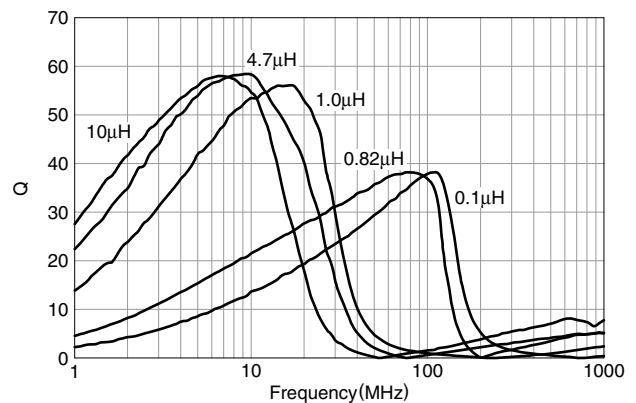
Part No.	Inductance (μH)		Q		Test L, Q		Self-resonant frequency (MHz)		DC resistance (Ω)		Rated current (mA)max.
	L(μH)	Tolerance	min.	typ.	Frequency (MHz)	Current (mA)	min.	typ.	max.	typ.	
MLF1608DR10JT	0.10	$\pm 5\%$	15	25	25	1.0	450	600	0.35	0.20	200
MLF1608DR12JT	0.12	$\pm 5\%$	15	25	25	1.0	400	550	0.40	0.20	200
MLF1608DR15JT	0.15	$\pm 5\%$	15	25	25	1.0	350	500	0.45	0.25	200
MLF1608DR18JT	0.18	$\pm 5\%$	15	25	25	1.0	320	450	0.50	0.25	150
MLF1608DR22JT	0.22	$\pm 5\%$	15	25	25	1.0	290	400	0.55	0.30	150
MLF1608DR27JT	0.27	$\pm 5\%$	15	25	25	1.0	260	350	0.60	0.35	150
MLF1608DR33JT	0.33	$\pm 5\%$	15	25	25	1.0	230	320	0.75	0.40	100
MLF1608DR39JT	0.39	$\pm 5\%$	15	25	25	1.0	210	290	0.85	0.45	100
MLF1608DR47JT	0.47	$\pm 5\%$	15	30	25	1.0	190	260	0.95	0.50	100
MLF1608DR56JT	0.56	$\pm 5\%$	15	30	25	1.0	170	230	1.05	0.55	100
MLF1608DR68JT	0.68	$\pm 5\%$	15	30	25	1.0	150	210	1.25	0.65	70
MLF1608DR82JT	0.82	$\pm 5\%$	15	30	25	1.0	130	190	1.40	0.75	70
MLF1608A1R0JT	1.0	$\pm 5\%$	35	50	10	1.0	120	170	0.50	0.25	50
MLF1608A1R2JT	1.2	$\pm 5\%$	35	50	10	1.0	110	150	0.65	0.25	50
MLF1608A1R5JT	1.5	$\pm 5\%$	35	55	10	1.0	100	140	0.70	0.30	50
MLF1608A1R8JT	1.8	$\pm 5\%$	35	55	10	1.0	90	130	0.85	0.35	50
MLF1608A2R2JT	2.2	$\pm 5\%$	35	55	10	1.0	80	120	1.00	0.45	30
MLF1608A2R7JT	2.7	$\pm 5\%$	35	55	10	1.0	70	110	1.15	0.50	30
MLF1608A3R3JT	3.3	$\pm 5\%$	35	60	10	1.0	65	100	1.30	0.55	30
MLF1608A3R9JT	3.9	$\pm 5\%$	35	60	10	1.0	60	90	1.45	0.65	30
MLF1608A4R7JT	4.7	$\pm 5\%$	35	60	10	1.0	55	80	1.60	0.75	30
MLF1608E5R6JT	5.6	$\pm 5\%$	35	60	4	1.0	45	70	1.10	0.55	15
MLF1608E6R8JT	6.8	$\pm 5\%$	35	60	4	1.0	40	60	1.30	0.65	15
MLF1608E8R2JT	8.2	$\pm 5\%$	35	60	4	1.0	35	55	1.50	0.80	10
MLF1608E100JT	10	$\pm 5\%$	30	55	2	1.0	30	50	1.70	1.00	10
MLF1608E120JT	12	$\pm 5\%$	30	55	2	1.0	25	45	1.80	1.20	10

TYPICAL ELECTRICAL CHARACTERISTICS

○ FREQUENCY CHARACTERISTICS (INDUCTANCE)



○ FREQUENCY CHARACTERISTICS (Q FACTOR)



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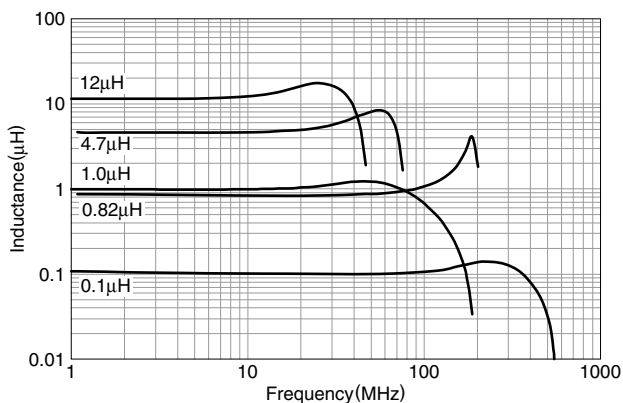
MLF Series MLF2012-J

ELECTRICAL CHARACTERISTICS

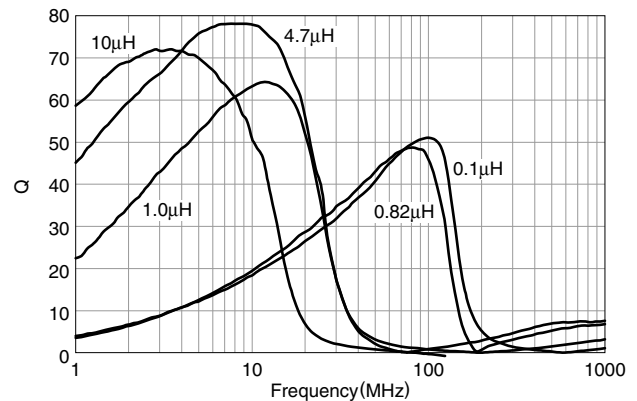
Part No.	Thickness T (mm)	Inductance (μH)		Q		Test L, Q		Self-resonant frequency (MHz)		DC resistance (Ω)		Rated current (mA)max.
		L(μH)	Tolerance	min.	typ.	Frequency (MHz)	Current (mA)	min.	typ.	max.	typ.	
MLF2012DR10JT	0.85±0.2	0.10	±5%	20	30	25	1.0	400	500	0.15	0.10	300
MLF2012DR12JT	0.85±0.2	0.12	±5%	20	30	25	1.0	360	450	0.20	0.12	300
MLF2012DR15JT	0.85±0.2	0.15	±5%	20	30	25	1.0	320	410	0.20	0.13	300
MLF2012DR18JT	0.85±0.2	0.18	±5%	20	30	25	1.0	280	370	0.25	0.15	300
MLF2012DR22JT	0.85±0.2	0.22	±5%	20	30	25	1.0	250	330	0.30	0.16	250
MLF2012DR27JT	0.85±0.2	0.27	±5%	20	30	25	1.0	220	300	0.35	0.18	250
MLF2012DR33JT	0.85±0.2	0.33	±5%	20	30	25	1.0	200	270	0.40	0.23	250
MLF2012DR39JT	0.85±0.2	0.39	±5%	25	35	25	1.0	180	250	0.45	0.25	200
MLF2012DR47JT	1.25±0.2	0.47	±5%	25	35	25	1.0	160	230	0.50	0.25	200
MLF2012DR56JT	1.25±0.2	0.56	±5%	25	35	25	1.0	150	210	0.55	0.30	150
MLF2012DR68JT	1.25±0.2	0.68	±5%	25	35	25	1.0	140	190	0.60	0.35	150
MLF2012DR82JT	1.25±0.2	0.82	±5%	25	35	25	1.0	130	170	0.65	0.40	150
MLF2012A1R0JT	0.85±0.2	1.0	±5%	45	55	10	1.0	120	160	0.30	0.15	80
MLF2012A1R2JT	0.85±0.2	1.2	±5%	45	55	10	1.0	110	150	0.35	0.15	80
MLF2012A1R5JT	0.85±0.2	1.5	±5%	45	60	10	1.0	100	140	0.40	0.18	80
MLF2012A1R8JT	0.85±0.2	1.8	±5%	45	60	10	1.0	90	130	0.45	0.20	80
MLF2012A2R2JT	0.85±0.2	2.2	±5%	45	60	10	1.0	80	120	0.50	0.22	50
MLF2012A2R7JT	1.25±0.2	2.7	±5%	45	70	10	1.0	70	100	0.55	0.25	50
MLF2012A3R3JT	1.25±0.2	3.3	±5%	45	70	10	1.0	60	90	0.60	0.28	50
MLF2012A3R9JT	1.25±0.2	3.9	±5%	45	70	10	1.0	55	80	0.65	0.30	30
MLF2012A4R7JT	1.25±0.2	4.7	±5%	45	70	10	1.0	50	70	0.70	0.35	30
MLF2012E5R6JT	1.25±0.2	5.6	±5%	50	75	4	0.1	45	65	0.60	0.30	15
MLF2012E6R8JT	1.25±0.2	6.8	±5%	50	75	4	0.1	40	60	0.65	0.32	15
MLF2012E8R2JT	1.25±0.2	8.2	±5%	50	75	4	0.1	35	55	0.70	0.35	15
MLF2012E100JT	1.25±0.2	10	±5%	50	75	2	0.1	30	50	0.80	0.40	15
MLF2012E120JT	1.25±0.2	12	±5%	50	75	2	0.1	25	45	0.90	0.50	15

TYPICAL ELECTRICAL CHARACTERISTICS

○ FREQUENCY CHARACTERISTICS (INDUCTANCE)



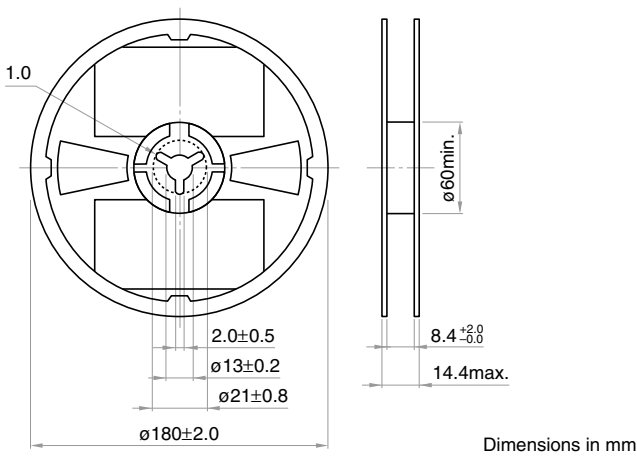
○ FREQUENCY CHARACTERISTICS (Q FACTOR)



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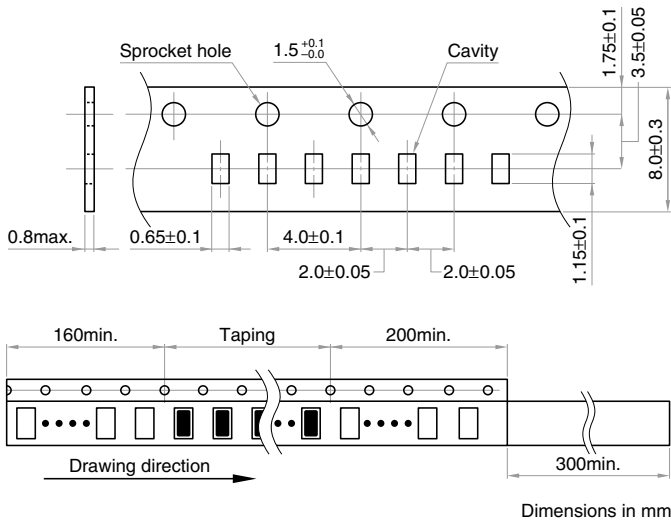
PACKAGING STYLES

REEL DIMENSIONS

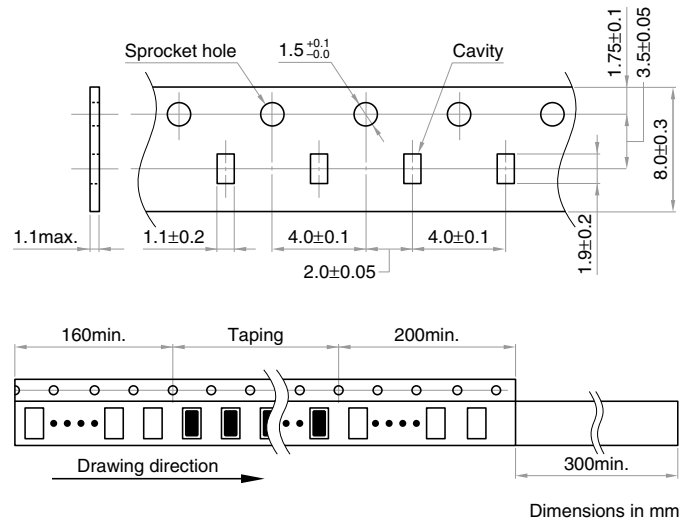


TAPE DIMENSIONS

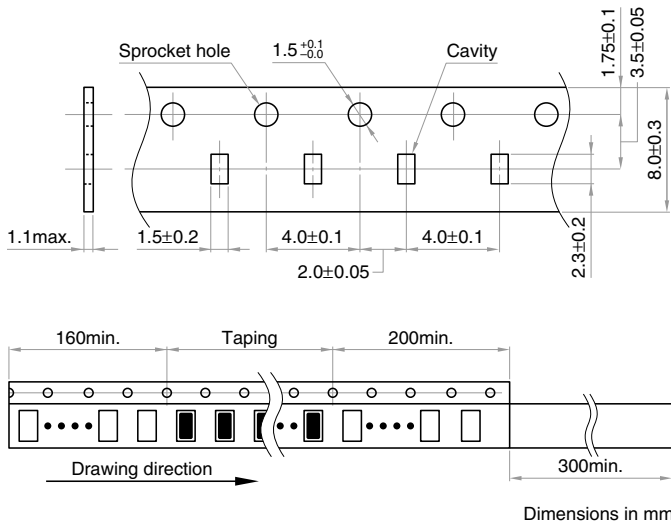
MLF1005 SERIES



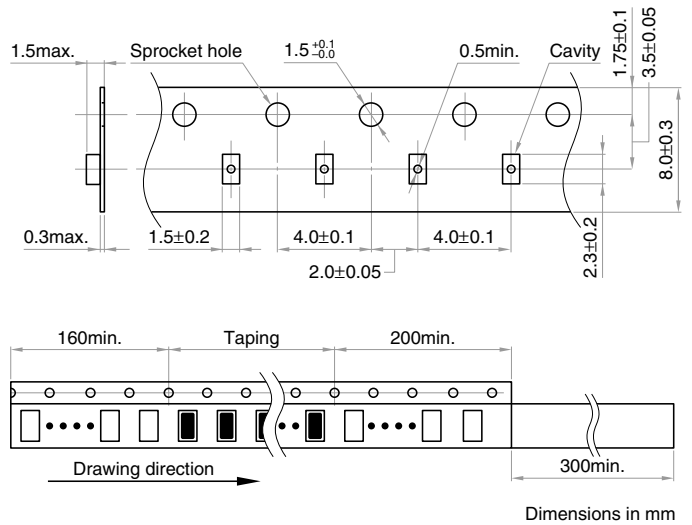
MLF1608 SERIES



MLF2012 SERIES t=0.85mm



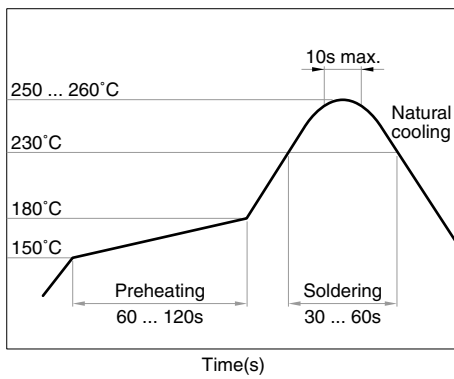
MLF2012 SERIES t=1.25mm



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RECOMMENDED SOLDERING CONDITION

REFLOW SOLDERING



HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- The inductance value may change due to magnetic saturation if the current exceeds the rated maximum.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.