MPL-SE2512-R47

Semi-Shielded Inductor 0.47µH

APPLICATIONS

- Battery-Powered Devices
- IoT
- Wearable
- Portable Devices
- Input Filters

FEATURES

- Size 2mmx2.5mmx1.2mm
- Semi-Shielded Construction
- Low DCR
- Low Profile
- Low Stray Field
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

Parameter			Value	Unit
Inductance (1)	L	±20%	0.47	µH
Resistance	R_{DC}	Typ	20	mΩ
Resistance $_{MAX}$	$R_{DC\ MAX}$	Max	25	mΩ
Rated Current (2)	I_R	Typ	4.5	A
Saturation Current $_{25°C}$ (3)	$I_{SAT\ 25°C}$	Typ	6.5	A
Saturation Current $_{100°C}$ (4)	$I_{SAT\ 100°C}$	Typ	6.5	A
Resonance Frequency	f_r	Typ	122	MHz

GENERAL SPECIFICATIONS

(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise ΔT of 40K *I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35µm Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.*
(3) Saturation Current $_{25°C}$	Saturation current will cause L to drop from 30% at 25°C ambient temperature
(4) Saturation Current $_{100°C}$	Saturation current will cause L to drop from 30% at 100°C ambient temperature
Temperature Test Condition	Electrical specifications measured at 25°C, 35% RH if not otherwise noted
Operating Condition	Operating temperature: -40°C to +125°C (including temp rise) Should not exceed +125°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

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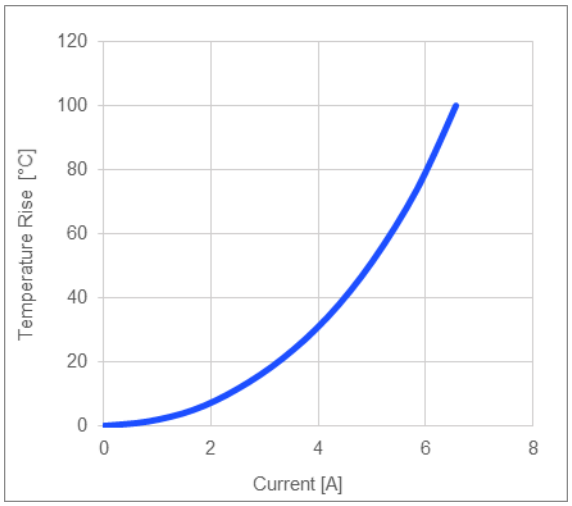
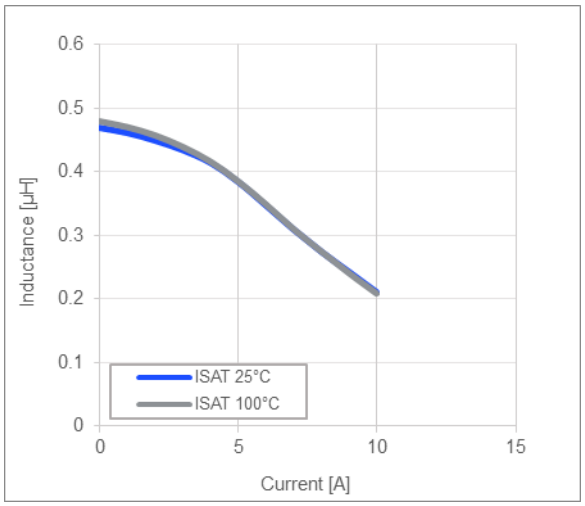
TYPICAL PERFORMANCE CURVES

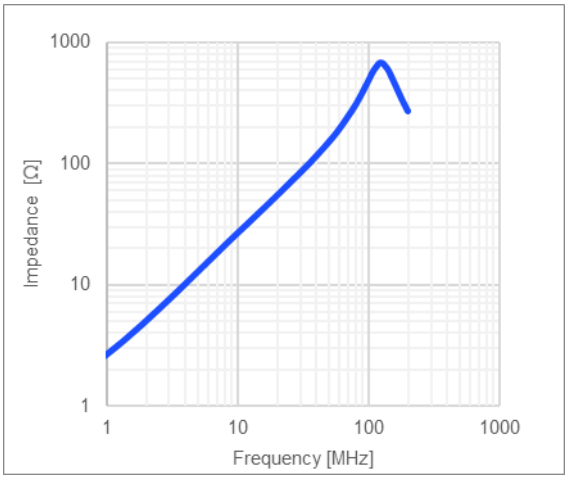
Temperature Rise vs. Current



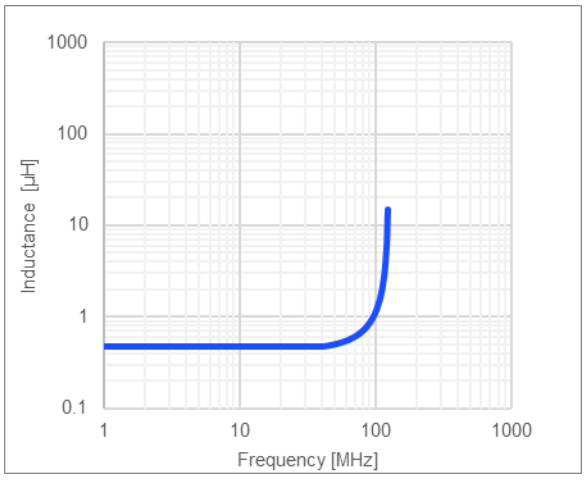
Inductance vs. Current



Impedance vs. Frequency



Inductance vs. Frequency



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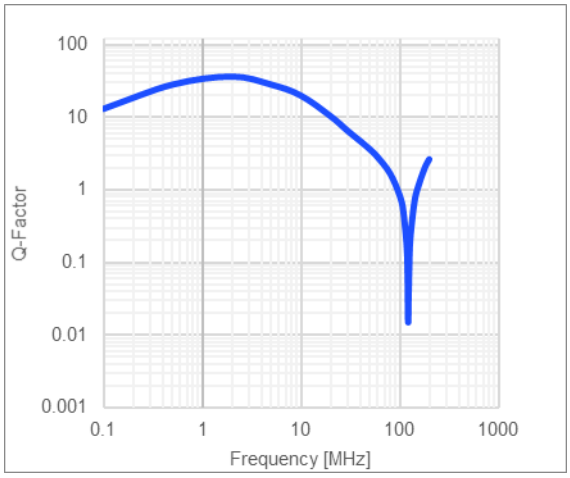
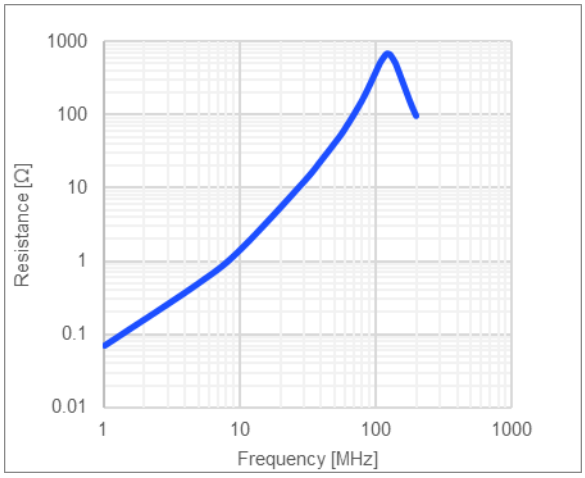
Quality Factor vs. Frequency



AC Resistance vs. Frequency



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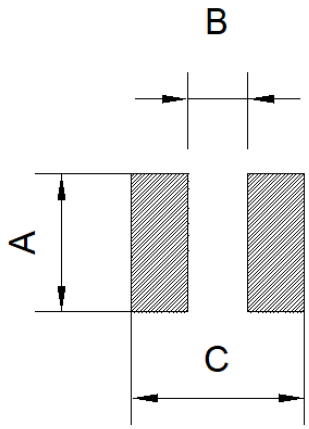
LAND PATTERN

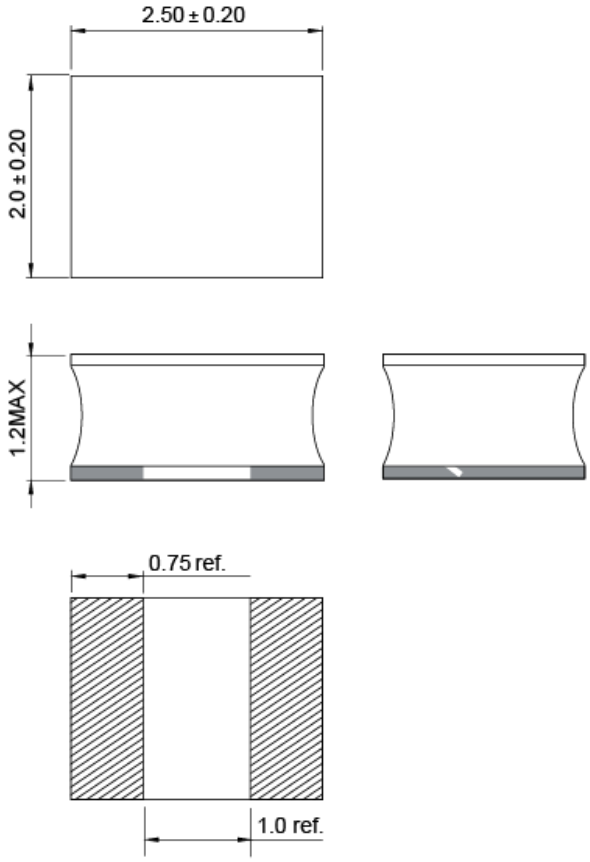
Dimensions	
A	2.40 ref.
B	1.00 ref.
C	2.90 ref.
	(units in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(units in mm)



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ORDERING INFORMATION

Part Number	L (1)	R_{DC}	I_R (2)	$I_{SAT\ 25°C}$ (3)	$I_{SAT\ 100°C}$ (4)
	Typ (µH)	Typ (mΩ)	Typ (A)	Typ (A)	Typ (A)
MPL-SE2512-R47	0.47	20	4.5	6.5	6.5
MPL-SE2512-R68	0.68	28	3.9	5	5
MPL-SE2512-1R0	1	35	3.4	4.2	4.2
MPL-SE2512-1R5	1.5	50	2.9	3.2	3.2
MPL-SE2512-2R2	2.2	72	2.5	2.7	2.7
MPL-SE2512-3R3	3.3	90	2.1	2.4	2.4
MPL-SE2512-4R7	4.7	165	1.6	1.9	1.9
MPL-SE2512-6R8	6.8	305	1.2	1.6	1.6
MPL-SE2512-100	10	410	1.1	1.3	1.3
MPL-SE2512-150	15	620	0.85	0.9	0.9
MPL-SE2512-220	22	885	0.7	0.8	0.8

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(3) Saturation Current 25°C	Saturation current will cause L to drop from 30% at 25°C ambient temperature
(4) Saturation Current 100°C	Saturation current will cause L to drop from 30% at 100°C ambient temperature
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Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

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REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	7/26/2019	Initial Release	-
1.1	8/2/2019	Updated Impedance vs. Frequency Curve	2
1.2	1/19/2022	Updated Electrical Characteristics	1
		Updated Typical Performance Curves	2–3
		Updated Land Pattern and Product Package Dimensions	4
		Updated Ordering Information	5
		Grammar and formatting updates	All

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