



### 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 <sup>(1)</sup>	$L$	±20%	15	µH
Resistance	$R_{DC}$	typ	620	mΩ
Resistance <sub>MAX</sub>	$R_{DC\ MAX}$	max	768	mΩ
Rated Current <sup>(2)</sup>	$I_R$	typ	0.85	A
Saturation Current <sub>25°C</sub> <sup>(3)</sup>	$I_{SAT\ 25°C}$	typ	0.9	A
Saturation Current <sub>100°C</sub> <sup>(4)</sup>	$I_{SAT\ 100°C}$	typ	0.9	A
Resonance Frequency	$f_r$	typ	20	MHz

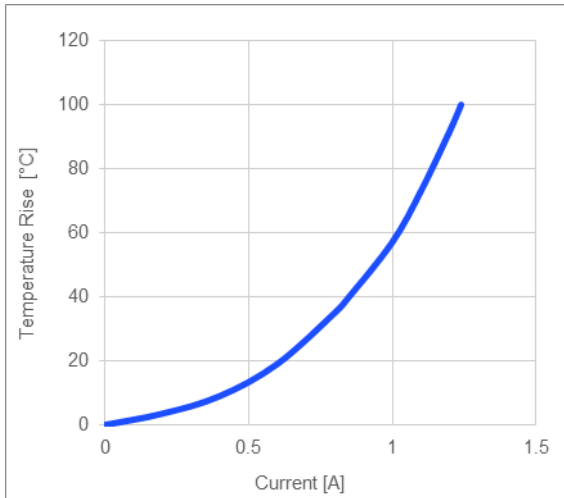
### GENERAL SPECIFICATIONS

<b>(1) Inductance</b>	Measured at 100kHz, 100mA
<b>(2) Rated Current</b>	Rated current will cause the coil temperature rise $\Delta T$ 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.
<b>(3) Saturation Current <sub>25°C</sub></b>	Saturation current will cause L to drop from 30% at 25°C ambient temperature
<b>(4) Saturation Current <sub>100°C</sub></b>	Saturation current will cause L to drop from 30% at 100°C ambient temperature
<b>Temperature Test Condition</b>	Electrical specifications measured at 25°C, 35% RH if not given differently
<b>Operating Condition</b>	Operating temperature: -40°C to +125°C (including temp rise) Should not exceed +125°C under worst-case operation conditions
<b>Storage Condition</b>	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

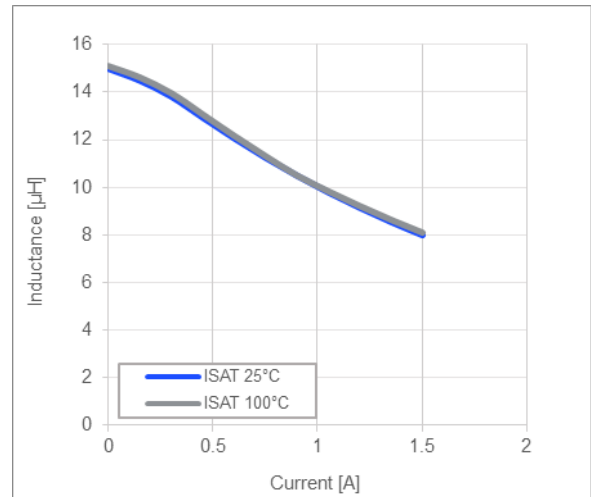
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TYPICAL PERFORMANCE CURVES

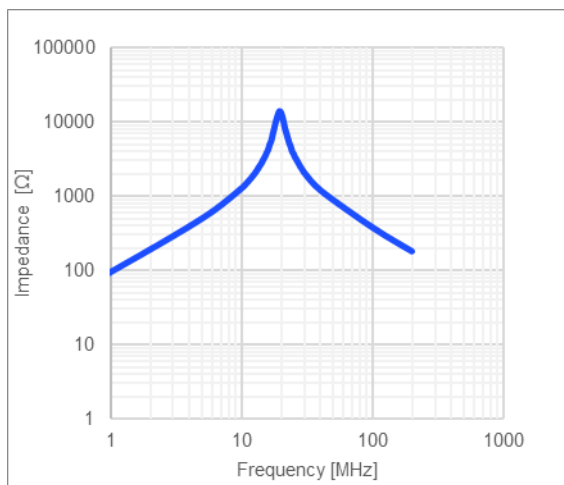
Temperature Rise vs. Current



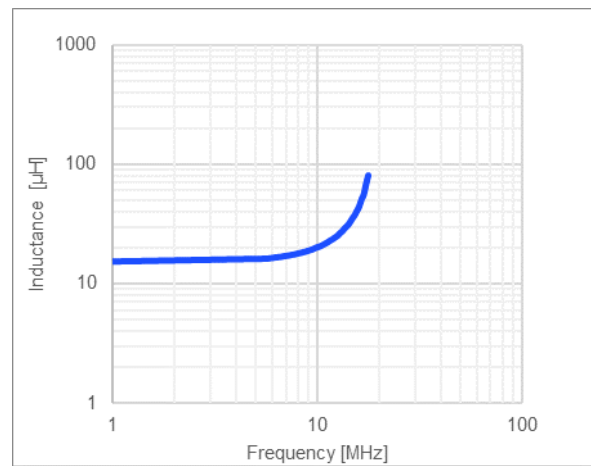
Inductance vs. Current



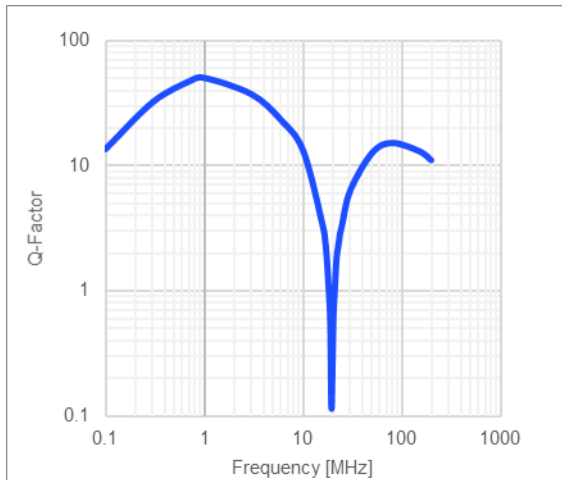
Impedance vs. Frequency



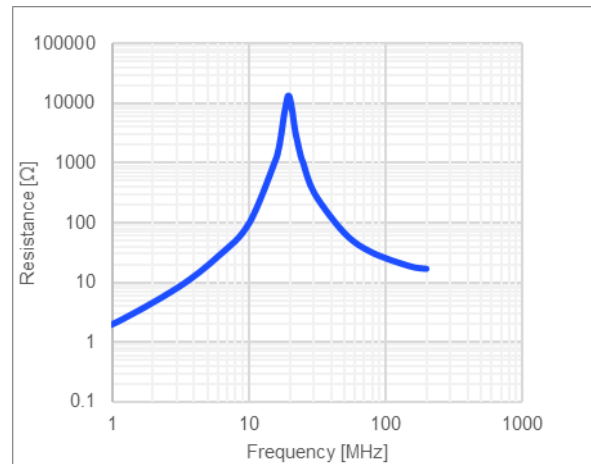
Inductance vs. Frequency



**Quality Factor vs. Frequency**



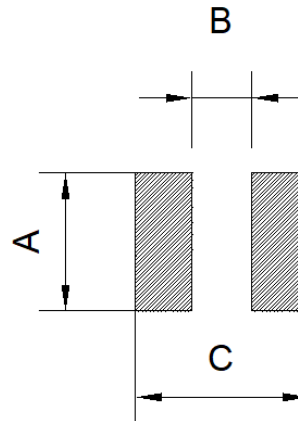
**AC Resistance vs. Frequency**



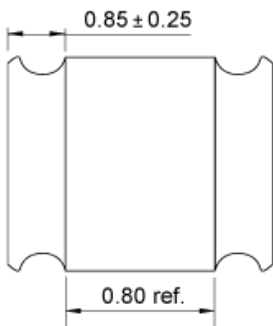
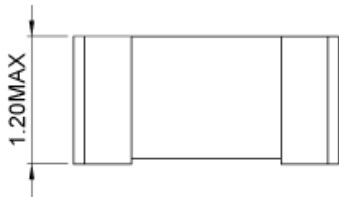
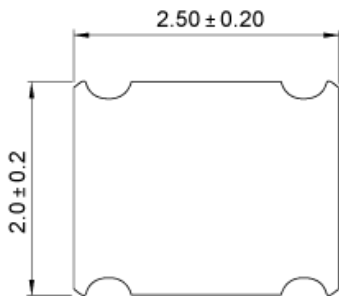
**LAND PATTERN**
**Dimensions**

A	2.10 ref.
B	0.80 ref.
C	2.60 ref.

(unit in mm)


**PRODUCT PACKAGE AND DIMENSIONS**
**Dimensions**

(unit in mm)



**ORDERING INFORMATION**

Part Number	$L$ <sup>(1)</sup> typ ( $\mu$ H)	$R_{DC}$ typ (m $\Omega$ )	$I_R$ <sup>(2)</sup> typ (A)	$I_{SAT\ 25^{\circ}C}$ <sup>(3)</sup> typ (A)	$I_{SAT\ 100^{\circ}C}$ <sup>(4)</sup> typ (A)
MPL-SE2512-R47	0.47	27	4.5	6.5	6.5
MPL-SE2512-R68	0.68	33	3.8	4.3	4.3
MPL-SE2512-1R0	1.0	45	3.35	4.2	4.2
MPL-SE2512-1R5	1.5	62	2.9	3.2	3.2
MPL-SE2512-2R2	2.2	92	2.5	2.7	2.7
MPL-SE2512-3R3	3.3	158	1.8	2.4	2.4
MPL-SE2512-4R7	4.7	205	1.6	1.9	1.9
MPL-SE2512-100	10	400	1.1	1.3	1.3
MPL-SE2512-150	15	620	0.85	0.9	0.9
MPL-SE2512-220	22	1000	0.70	0.8	0.8

**GENERAL SPECIFICATIONS**

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<b>(2) Rated Current</b>	Rated current will cause the coil temperature rise $\Delta T$ of 40K <i><math>I_R</math> measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35<math>\mu</math>m Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.</i>
<b>(3) Saturation Current <math>_{25^{\circ}C}</math></b>	Saturation current will cause L to drop from 30% at 25 $^{\circ}C$ ambient temperature
<b>(4) Saturation Current <math>_{100^{\circ}C}</math></b>	Saturation current will cause L to drop from 30% at 100 $^{\circ}C$ ambient temperature
<b>Temperature Test Condition</b>	Electrical specifications measured at 25 $^{\circ}C$ , 35% RH if not given differently
<b>Operating Condition</b>	Operating temperature: -40 $^{\circ}C$ to +125 $^{\circ}C$ (including temp rise) Should not exceed +125 $^{\circ}C$ under worst-case operation conditions
<b>Storage Condition</b>	Tape and Reel packaging: -10 $^{\circ}C$ to +40 $^{\circ}C$ Humidity: <50% RH

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