



### APPLICATIONS

- Battery-powered devices
- High switching frequency SMPS
- IoT
- Wearable
- Portable devices
- Input filters

### FEATURES

- Size 2.5mmx2.0mmx1.2mm
- Low Profile
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable Over High Temperatures
- Low DCR
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

### ELECTRICAL CHARACTERISTICS

Parameter		Value	Unit
<b>Inductance</b> <sup>(1)</sup>	<i>L</i>	±20%	0.33 μH
<b>Resistance</b>	<i>R<sub>DC</sub></i>	typ	13.5 mΩ
<b>Resistance</b> <sub>MAX</sub>	<i>R<sub>DC MAX</sub></i>	max	17 mΩ
<b>Rated Current</b> <sup>(2)</sup>	<i>I<sub>R</sub></i>	typ	6.4 A
<b>Saturation Current</b> <sub>25°C</sub> <sup>(3)</sup>	<i>I<sub>SAT 25°C</sub></i>	typ	8.5 A
<b>Saturation Current</b> <sub>100°C</sub> <sup>(4)</sup>	<i>I<sub>SAT 100°C</sub></i>	typ	8.5 A
<b>Resonance Frequency</b>	<i>f<sub>r</sub></i>	typ	138 MHz

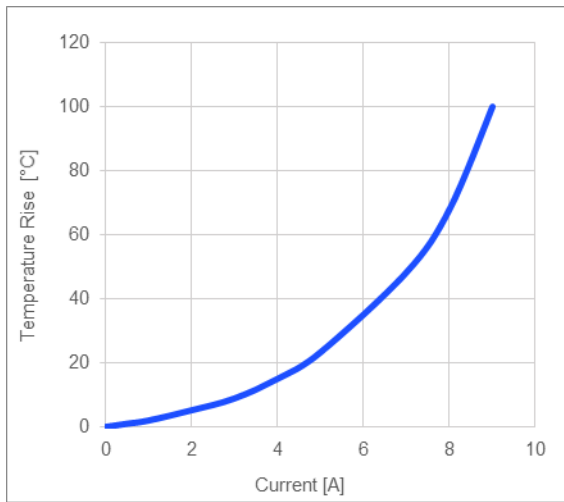
### GENERAL SPECIFICATIONS

<b>(1) Inductance</b>	Measured at 100kHz, 100mA
<b>(2) Rated Current</b>	Rated current will cause the coil temperature rise ΔT of 40K <i>I<sub>R</sub></i> 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</b> <sub>25°C</sub>	Saturation current will cause L to drop from 30% at 25°C ambient temperature
<b>(4) Saturation Current</b> <sub>100°C</sub>	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

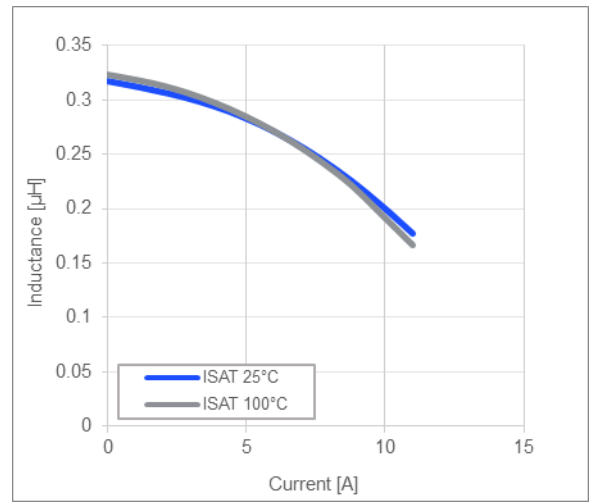
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**TYPICAL PERFORMANCE CURVES**

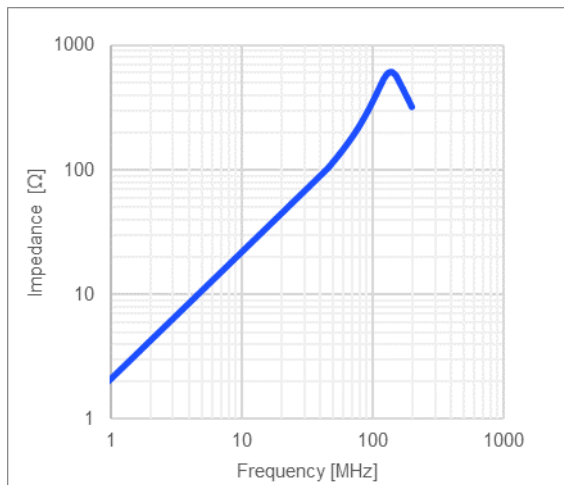
**Temperature Rise vs. Current**



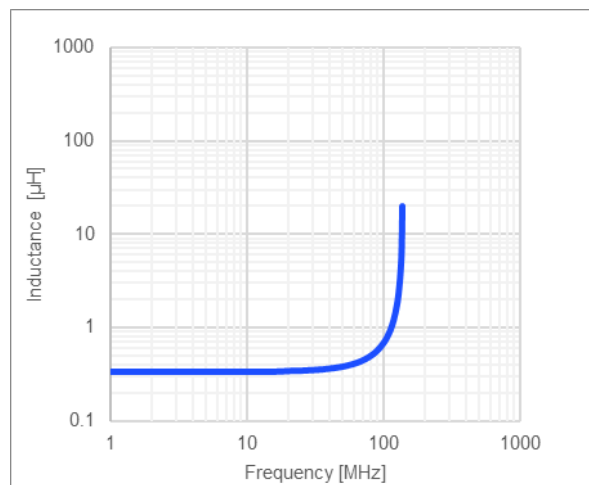
**Inductance vs. Current**



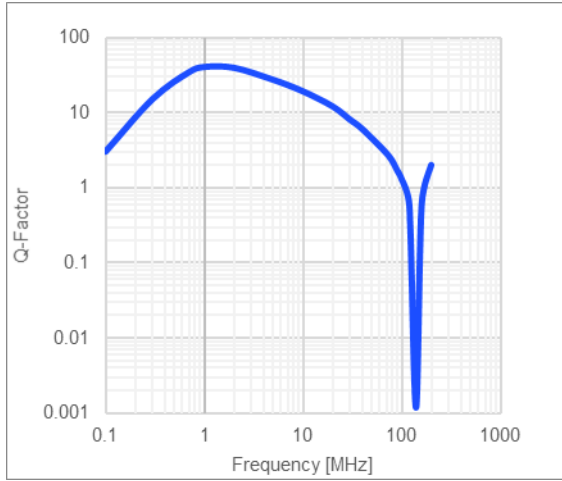
**Impedance vs. Frequency**



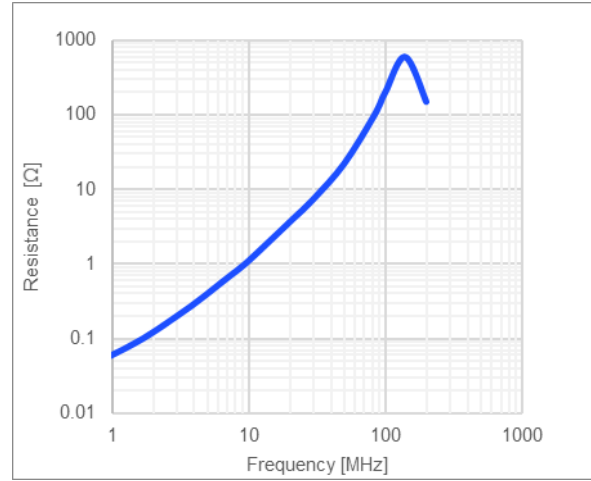
**Inductance vs. Frequency**



Quality Factor vs. Frequency



AC Resistance vs. Frequency



**LAND PATTERN**

**Dimensions**

A	2.0 ref.
B	1.20 ref.
C	2.80 ref.

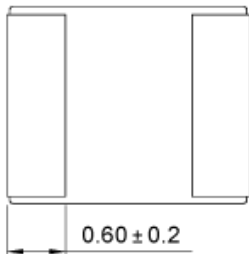
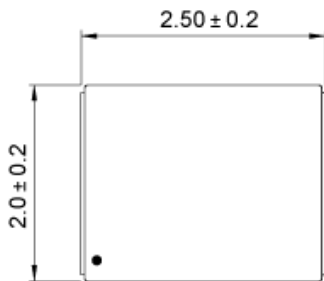
(unit in mm)



**PRODUCT PACKAGE AND DIMENSIONS**

**Dimensions**

(unit in mm)



**TOP MARKING**

**Marking**

Start of Winding · (dot)

**ORDERING INFORMATION**

Part Number	$L^{(1)}$ typ (μH)	$R_{DC}$ typ (mΩ)	$I_R^{(2)}$ typ (A)	$I_{SAT\ 25^{\circ}C}^{(3)}$ typ (A)	$I_{SAT\ 100^{\circ}C}^{(4)}$ typ (A)
MPL-AT2512-R33	0.33	13.5	6.4	8.5	8.5
MPL-AT2512-R47	0.47	19	5.5	6.4	6.4
MPL-AT2512-R68	0.68	26	4.7	6	6
MPL-AT2512-1R0	1.0	35	4.0	5.2	5.2
MPL-AT2512-1R5	1.5	56	3.2	4.2	4.2
MPL-AT2514-2R2	2.2	70	2.6	3.4	3.4
MPL-AT2512-3R3	3.3	121	2.0	2.7	2.7
MPL-AT2514-4R7	4.7	180	1.7	2.4	2.4
MPL-AT2512-6R8	6.8	280	1.4	2.2	2.2
MPL-AT2512-100	10	355	1.2	1.7	1.7

**GENERAL SPECIFICATIONS**

**(1) Inductance** Measured at 100kHz, 100mA

**(2) Rated Current** 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.

**(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 given differently

**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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