

### APPLICATIONS



- Battery-Powered Devices
- High Switching Frequency SMPS
- IoT
- Wearables
- Portable Devices
- Input Filters

### FEATURES

- Size 2.5mmx2mmx1.2mm
- Low Profile
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable across High Temperatures
- Low DCR
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

### ELECTRICAL CHARACTERISTICS

Parameter		Value	Unit
Inductance <sup>(1)</sup>	<i>L</i>	±20% 4.7	μH
Resistance	<i>R<sub>DC</sub></i>	Typ 170	mΩ
Resistance <sub>MAX</sub>	<i>R<sub>DC MAX</sub></i>	Max 205	mΩ
Rated Current <sup>(2)</sup>	<i>I<sub>R</sub></i>	Typ 1.8	A
Saturation Current <sub>25°C</sub> <sup>(3)</sup>	<i>I<sub>SAT 25°C</sub></i>	Typ 2.4	A
Saturation Current <sub>100°C</sub> <sup>(4)</sup>	<i>I<sub>SAT 100°C</sub></i>	Typ 2.4	A
Resonance Frequency	<i>f<sub>r</sub></i>	Typ 28	MHz

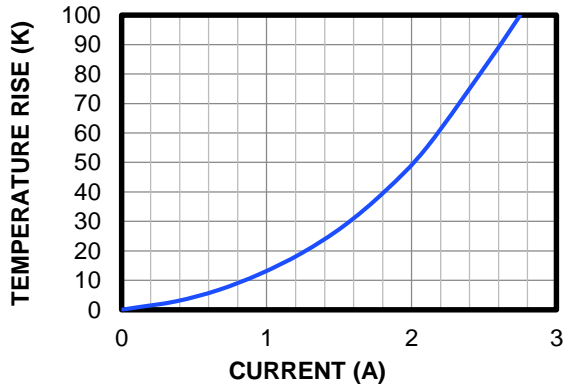
### GENERAL SPECIFICATIONS

<sup>(1)</sup> Inductance	Measured at 100kHz, 100mA
<sup>(2)</sup> Rated Current	The rated current causes a coil temperature rise ΔT of 40K. <i>I<sub>R</sub></i> is measured with the inductor soldered in a 1-layer PCB, with a copper layer thickness of 35μm Cu, and a PCB size of 30mmx50mm. The temperature behavior is dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.
<sup>(3)</sup> Saturation Current <sub>25°C</sub>	The saturation current causes L to drop 30% at a 25°C ambient temperature
<sup>(4)</sup> Saturation Current <sub>100°C</sub>	The saturation current causes L to drop 30% at a 100°C ambient temperature
Temperature Test Condition	Electrical specifications measured at 25°C, 35% relative humidity (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

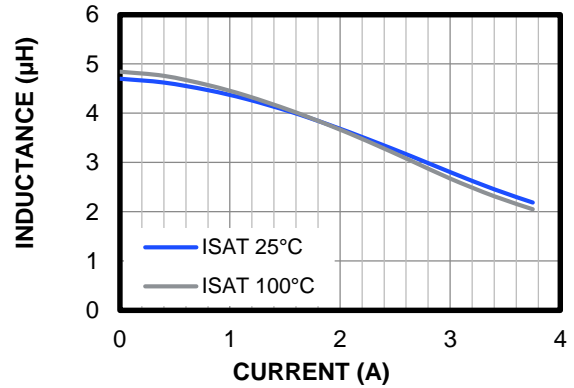
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TYPICAL PERFORMANCE CURVES

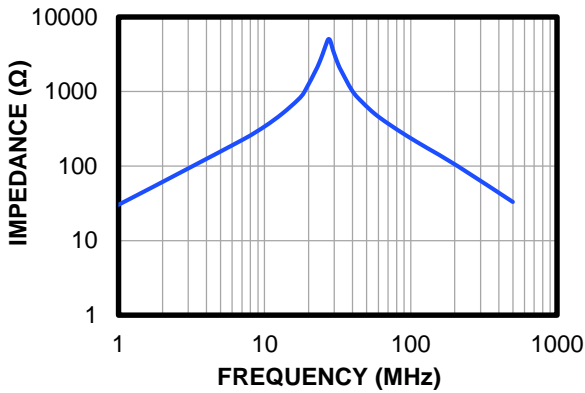
Temperature Rise vs. Current



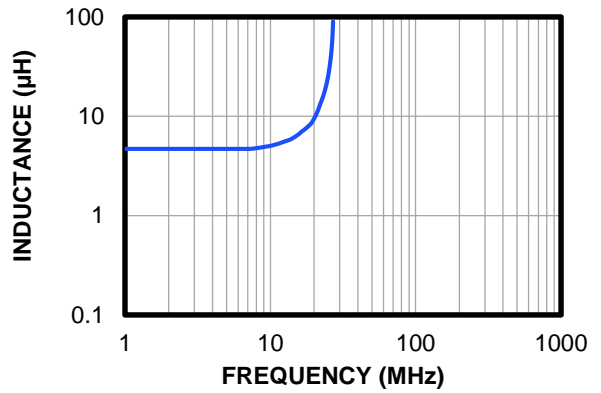
Inductance vs. Current



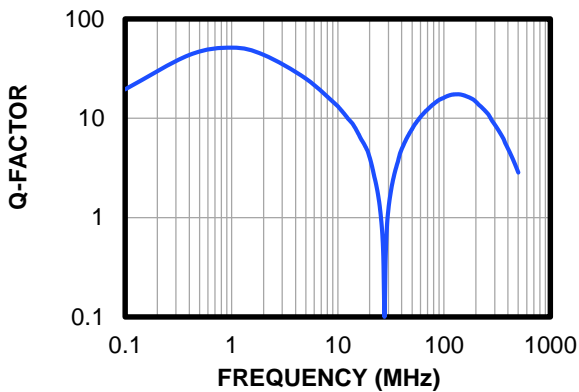
Impedance vs. Frequency



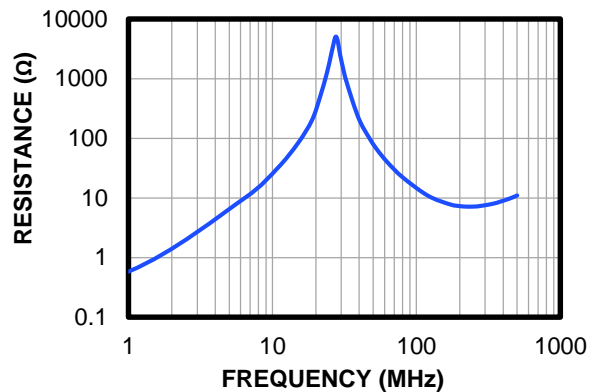
Inductance vs. Frequency



Quality Factor vs. Frequency

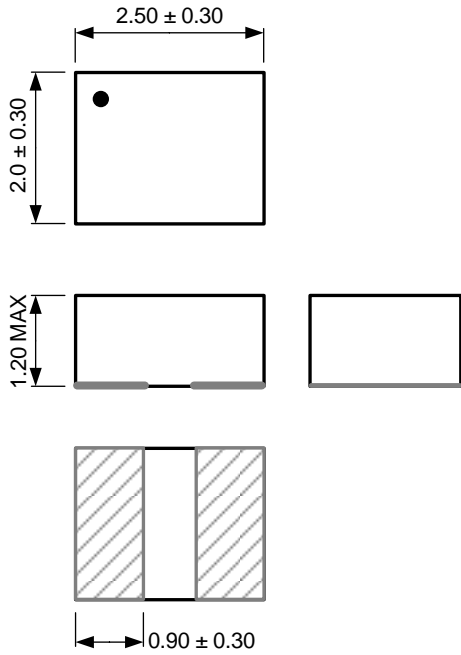


AC Resistance vs. Frequency



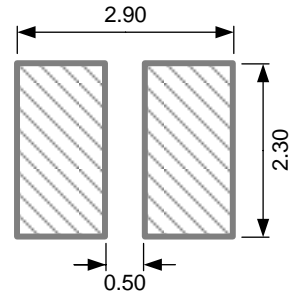
**DIMENSIONS**

**PRODUCT PACKAGE**



(units in mm)

**RECOMMENDED LAND PATTERN**



(units in mm)

**TOP MARKING**

**Marking**

Start of Winding . (dot)

**ORDERING INFORMATION**

Part Number	$L^{(1)}$	$R_{DC}$	$I_R^{(2)}$	$I_{SAT\ 25^\circ C}^{(3)}$	$I_{SAT\ 100^\circ C}^{(4)}$
	±20% (μH)	Typ (mΩ)	Typ (A)	Typ (A)	Typ (A)
MPL-AT2512-R33	0.33	13	6.4	7.8	7.8
MPL-AT2512-R47	0.47	14	5.8	6.4	6.4
MPL-AT2512-R68	0.68	23	4.8	6.0	6.0
MPL-AT2512-1R0	1.0	33	4.1	5.2	5.2
MPL-AT2512-1R5	1.5	43	3.4	4.2	4.2
MPL-AT2512-2R2	2.2	68	2.8	3.4	3.4
MPL-AT2512-3R3	3.3	116	2.2	3.0	3.0
MPL-AT2512-4R7	4.7	170	1.8	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

## REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	9/22/2023	Initial Release	-

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