

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

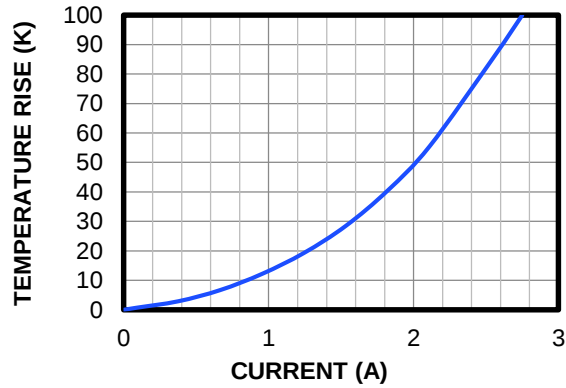
Parameter			Value	Unit
Inductance ⁽¹⁾	<i>L</i>	±20%	4.7	μH
Resistance	<i>R_{DC}</i>	Typ	170	mΩ
Resistance _{MAX}	<i>R_{DC MAX}</i>	Max	205	mΩ
Rated Current ⁽²⁾	<i>I_R</i>	Typ	1.8	A
Saturation Current _{25°C} ⁽³⁾	<i>I_{SAT 25°C}</i>	Typ	2.4	A
Saturation Current _{100°C} ⁽⁴⁾	<i>I_{SAT 100°C}</i>	Typ	2.4	A
Resonance Frequency	<i>f_r</i>	Typ	28	MHz

GENERAL SPECIFICATIONS

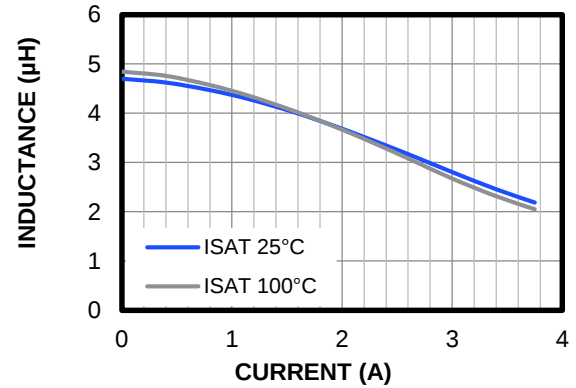
⁽¹⁾ Inductance	Measured at 100kHz, 100mA
⁽²⁾ Rated Current	The rated current causes a coil temperature rise ΔT of 40K. <i>I_R</i> is measured with the inductor soldered in a 1-layer PCB, with a copper layer thickness of 35μm Cu, and a PCB size of 30mmx50mm. The temperature behavior is dependent on circuit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

TYPICAL PERFORMANCE CURVES

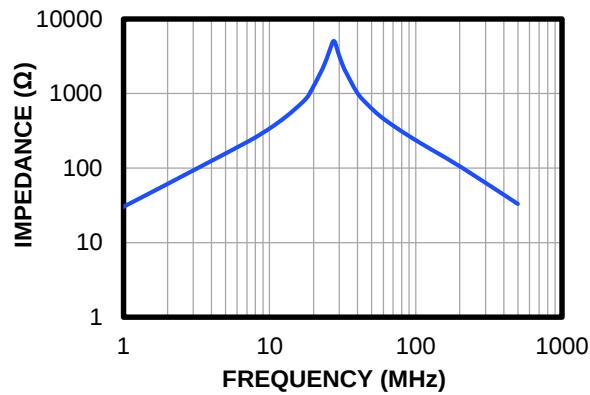
Temperature Rise vs. Current



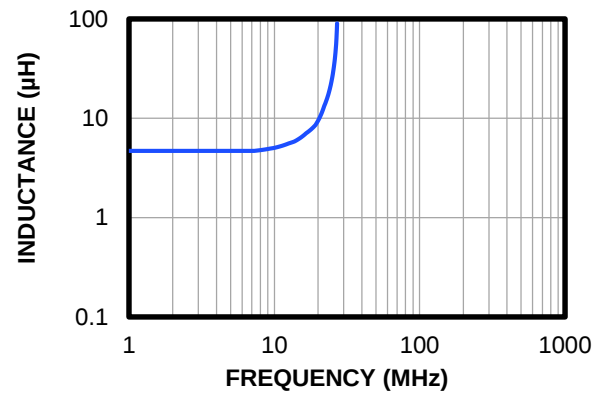
Inductance vs. Current



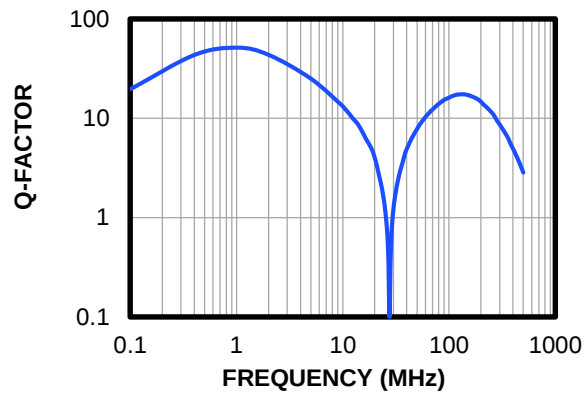
Impedance vs. Frequency



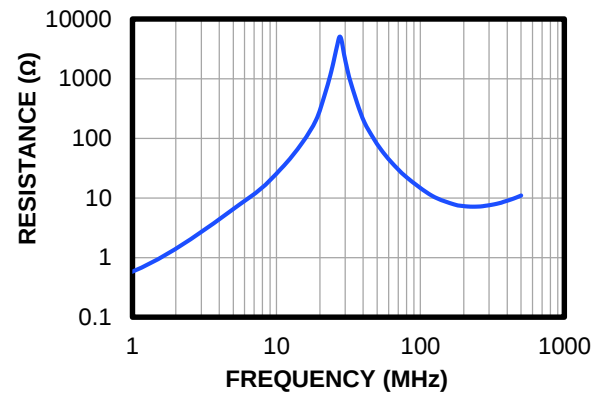
Inductance vs. Frequency



Quality Factor vs. Frequency

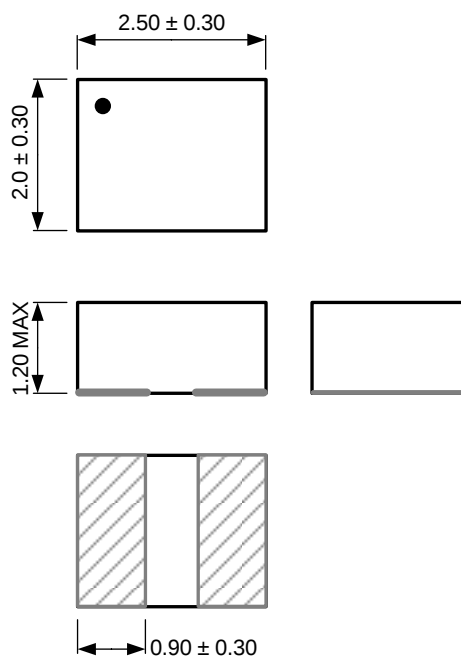


AC Resistance vs. Frequency



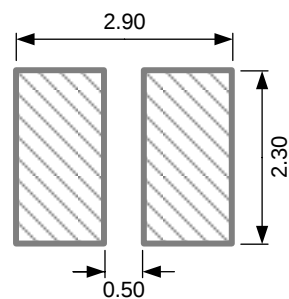
DIMENSIONS

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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