



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
Inductance ⁽¹⁾	<i>L</i>	±20%	1.0 μH
Resistance	<i>R_{DC}</i>	typ	35 mΩ
Resistance _{MAX}	<i>R_{DC MAX}</i>	max	42 mΩ
Rated Current ⁽²⁾	<i>I_R</i>	typ	4.0 A
Saturation Current _{25°C} ⁽³⁾	<i>I_{SAT 25°C}</i>	typ	5.2 A
Saturation Current _{100°C} ⁽⁴⁾	<i>I_{SAT 100°C}</i>	typ	5.2 A
Resonance Frequency	<i>f_r</i>	typ	64 MHz

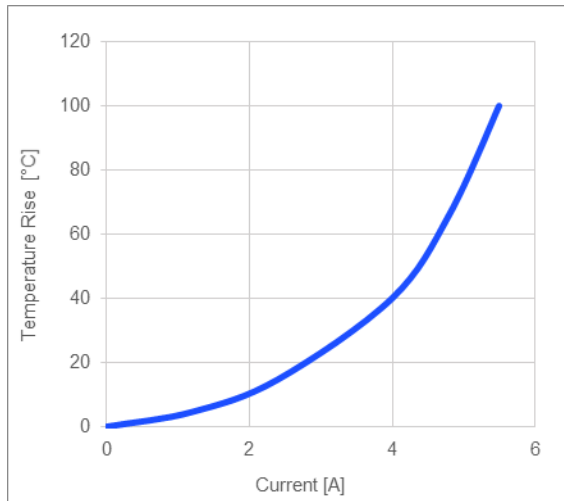
GENERAL SPECIFICATIONS

(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise ΔT of 40K <i>I_R</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.
(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

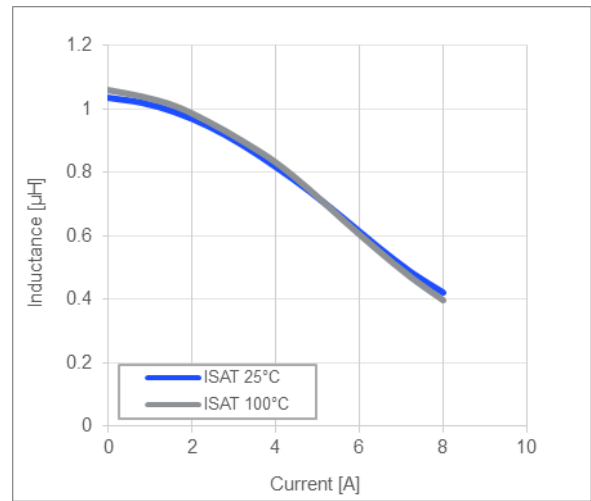
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TYPICAL PERFORMANCE CURVES

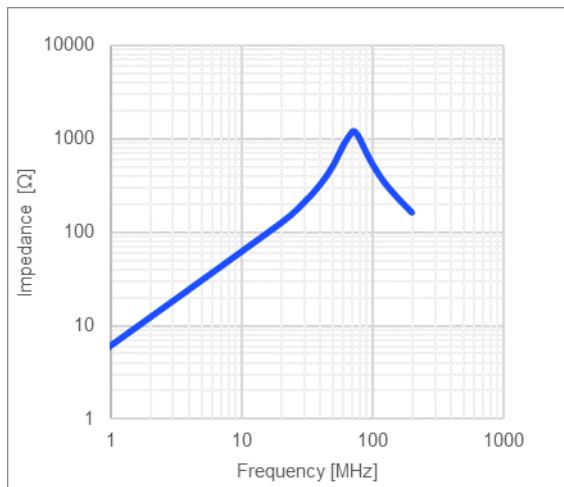
Temperature Rise vs. Current



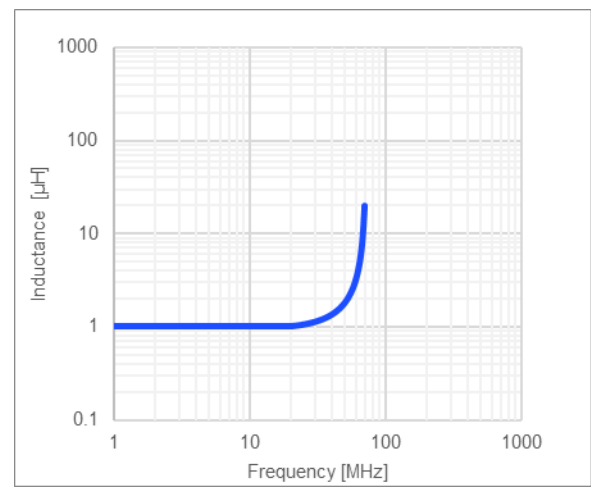
Inductance vs. Current



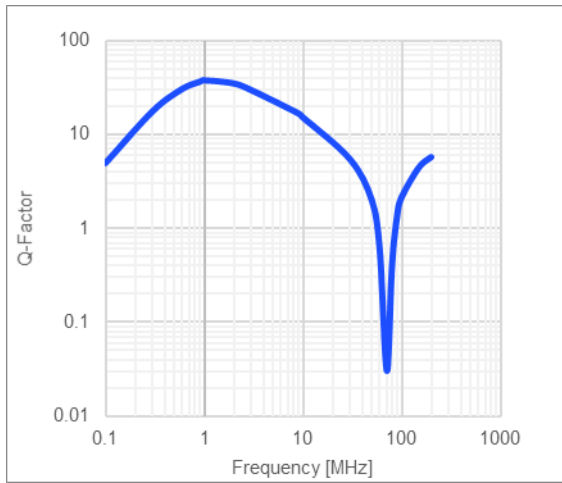
Impedance vs. Frequency



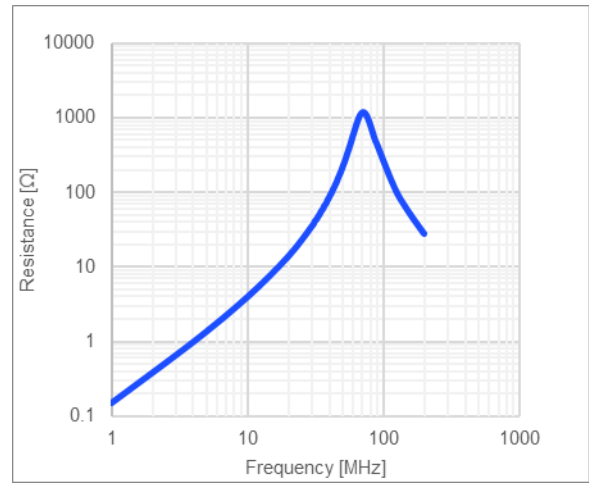
Inductance vs. Frequency



Quality Factor vs. Frequency

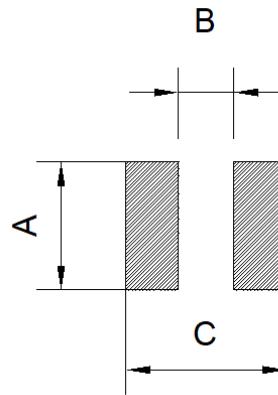


AC Resistance vs. Frequency



LAND PATTERN

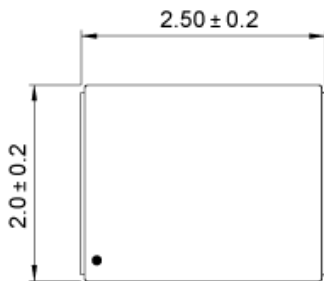
Dimensions	
A	2.0 ref.
B	1.20 ref.
C	2.80 ref. (unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

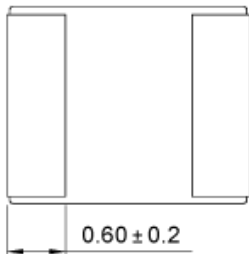
Dimensions	
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(unit in mm)



TOP MARKING

Marking	
Start of Winding	· (dot)



ORDERING INFORMATION

Part Number	$L^{(1)}$	R_{DC}	$I_R^{(2)}$	$I_{SAT\ 25^\circ C}^{(3)}$	$I_{SAT\ 100^\circ C}^{(4)}$
	typ (μH)	typ (mΩ)	typ (A)	typ (A)	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 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 $_{25^\circ C}$

Saturation current will cause L to drop from 30% at 25°C ambient temperature

(4) Saturation Current $_{100^\circ C}$

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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