



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

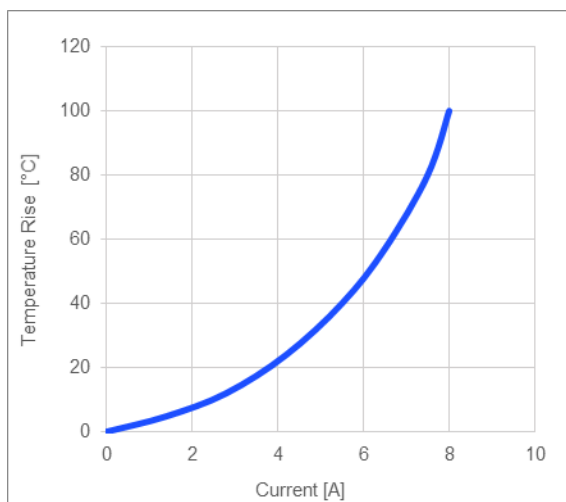
Parameter			Value	Unit
Inductance ⁽¹⁾	L	±20%	0.47	μH
Resistance	R_{DC}	typ	19	mΩ
Resistance $_{MAX}$	$R_{DC MAX}$	max	27	mΩ
Rated Current ⁽²⁾	I_R	typ	5.5	A
Saturation Current $_{25^{\circ}C}$ ⁽³⁾	$I_{SAT 25^{\circ}C}$	typ	6.4	A
Saturation Current $_{100^{\circ}C}$ ⁽⁴⁾	$I_{SAT 100^{\circ}C}$	typ	6.4	A
Resonance Frequency	f_r	typ	98	MHz

GENERAL SPECIFICATIONS

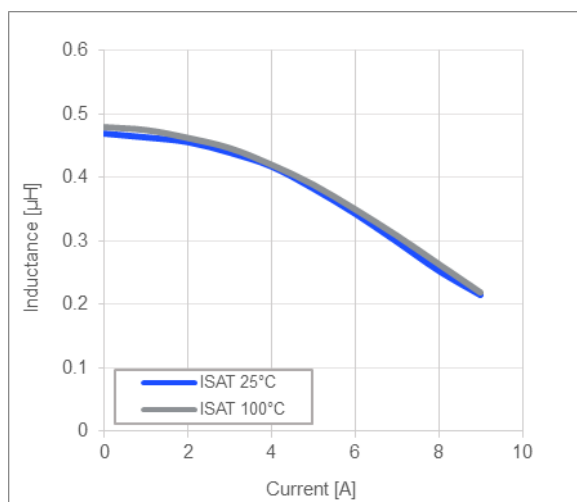
⁽¹⁾ Inductance	Measured at 100kHz, 100mA
⁽²⁾ Rated Current	Rated current will cause the coil temperature rise ΔT of 40K <i>I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35μm Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.</i>
⁽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

TYPICAL PERFORMANCE CURVES

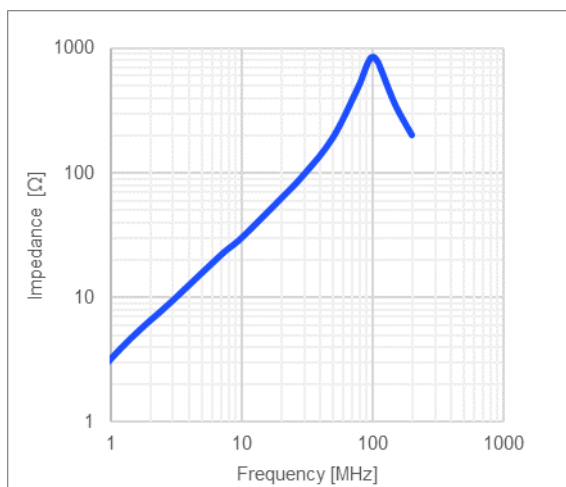
Temperature Rise vs. Current



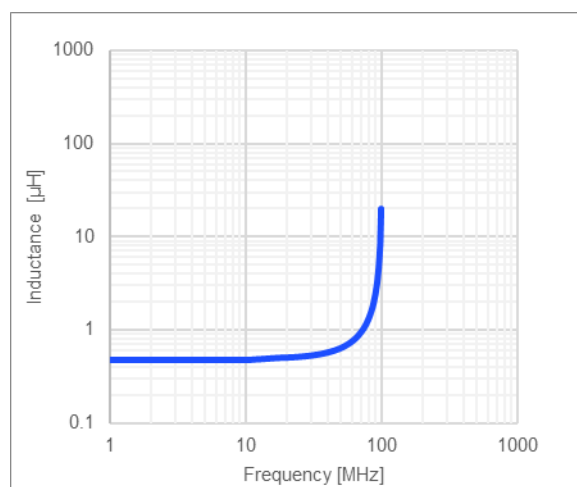
Inductance vs. Current



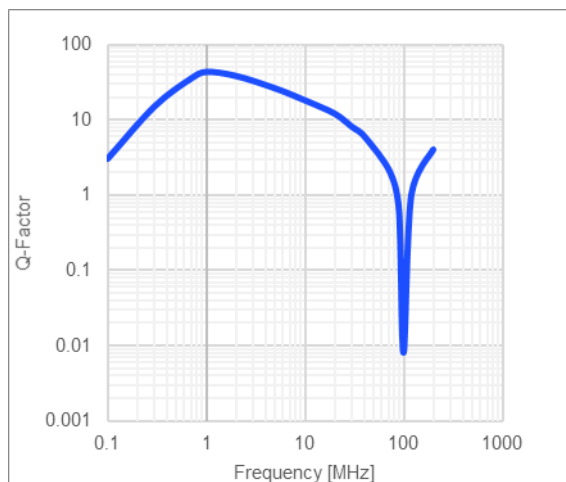
Impedance vs. Frequency



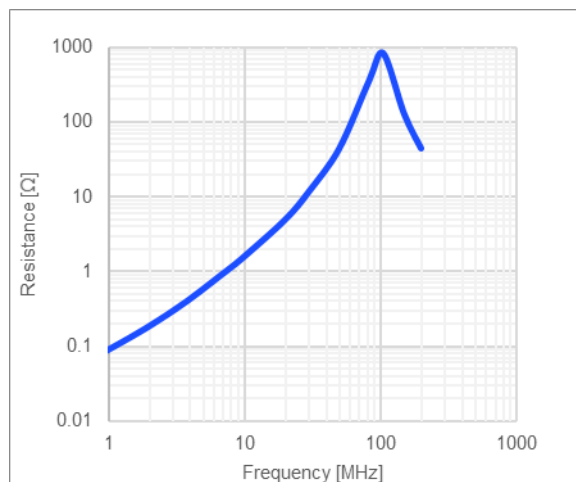
Inductance vs. Frequency



Quality Factor vs. Frequency



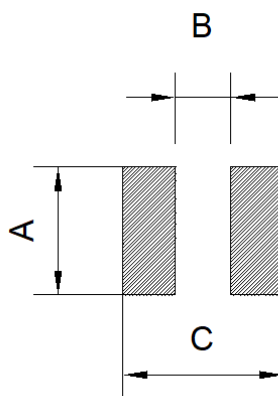
AC Resistance vs. Frequency



LAND PATTERN

Dimensions

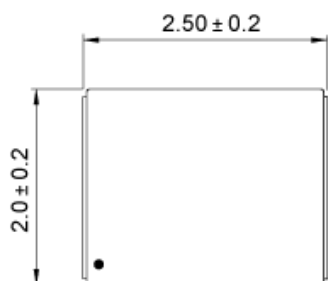
A	2.0 ref.
B	1.20 ref.
C	2.80 ref. (unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

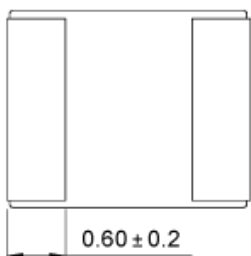
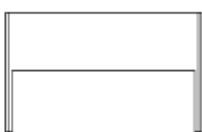
(unit in mm)



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 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 $25^{\circ}C$ ambient temperature

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

Saturation current will cause L to drop from 30% at $100^{\circ}C$ ambient temperature

Temperature Test Condition

Electrical specifications measured at $25^{\circ}C$, 35% RH if not given differently

Operating Condition

Operating temperature: $-40^{\circ}C$ to $+125^{\circ}C$ (including temp rise)
Should not exceed $+125^{\circ}C$ under worst-case operation conditions

Storage Condition

Tape and Reel packaging: $-10^{\circ}C$ to $+40^{\circ}C$
Humidity: <50% RH

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