



APPLICATIONS

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

FEATURES

- Size 2.0mmx1.6mmx1.0mm
- 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%	2.2	μH
Resistance	<i>R_{DC}</i>	typ	137	mΩ
Resistance _{MAX}	<i>R_{DC MAX}</i>	max	155	mΩ
Rated Current ⁽²⁾	<i>I_R</i>	typ	2.2	A
Saturation Current _{25°C} ⁽³⁾	<i>I_{SAT 25°C}</i>	typ	2.7	A
Saturation Current _{100°C} ⁽⁴⁾	<i>I_{SAT 100°C}</i>	typ	2.7	A
Resonance Frequency	<i>f_r</i>	typ	53	MHz

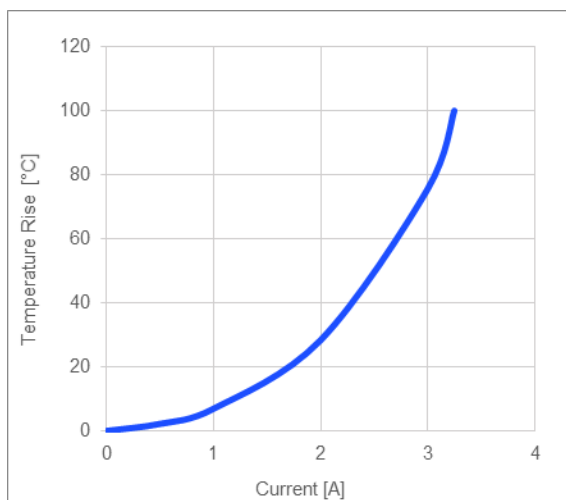
GENERAL SPECIFICATIONS

⁽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°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

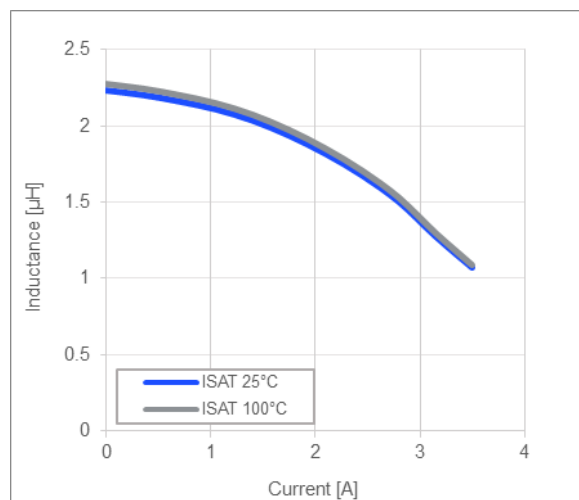
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TYPICAL PERFORMANCE CURVES

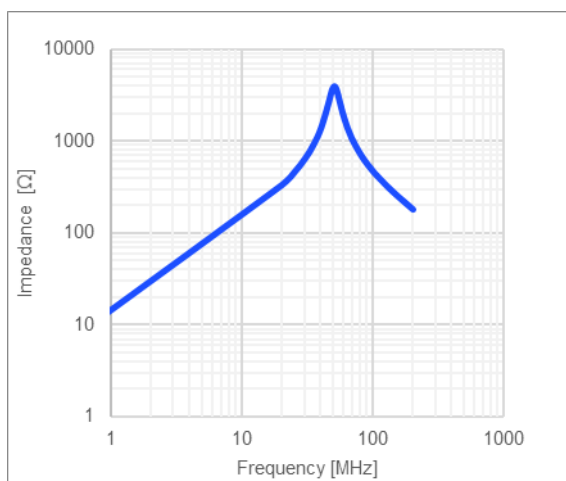
Temperature Rise vs. Current



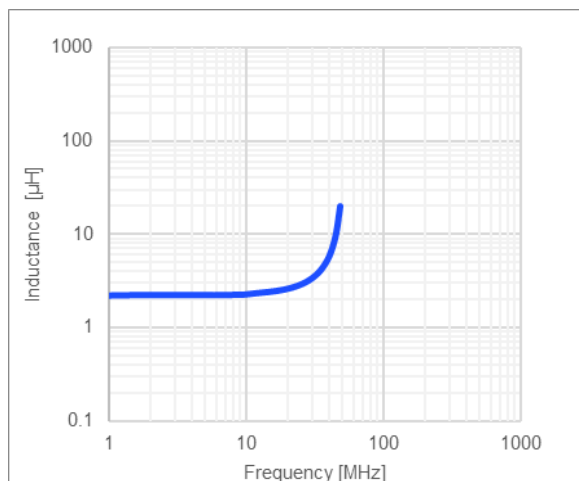
Inductance vs. Current



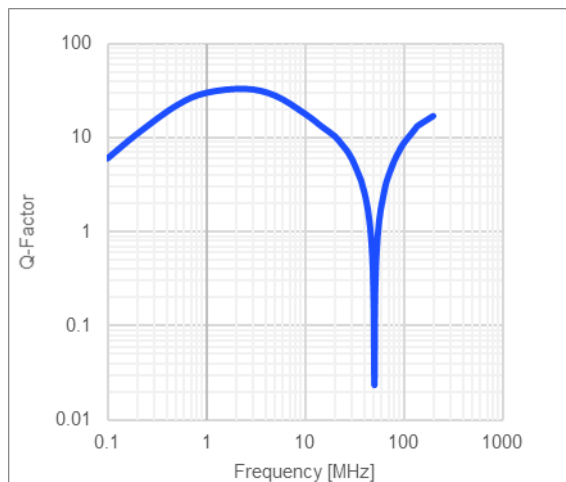
Impedance vs. Frequency



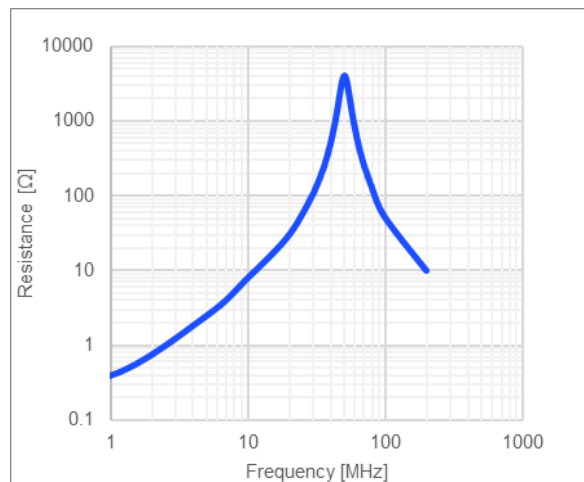
Inductance vs. Frequency



Quality Factor vs. Frequency



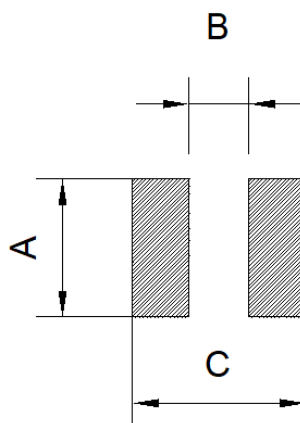
AC Resistance vs. Frequency



LAND PATTERN

Dimensions

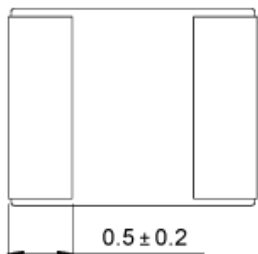
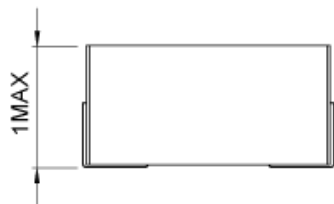
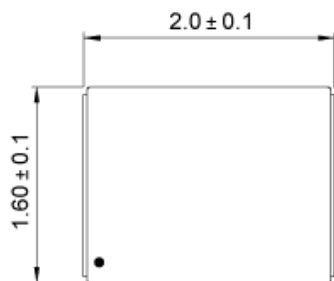
A	1.60 ref.
B	0.70 ref.
C	2.0 ref. (unit in mm)



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-AT2010-R47	0.47	27	4.4	5.7	5.7
MPL-AT2010-R68	0.68	41	3.5	4.9	4.9
MPL-AT2010-1R0	1.0	50	3.2	4.2	4.2
MPL-AT2010-1R5	1.5	97	2.4	3.2	3.2
MPL-AT2010-2R2	2.2	137	2.2	2.7	2.7
MPL-AT2010-4R7	4.7	215	1.5	1.9	1.9

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(4) Saturation Current $_{100^\circ C}$	Saturation current will cause L to drop from 30% at 100°C ambient temperature
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Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

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