

### 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 <sup>(1)</sup>	<i>L</i>	±20%	4.7	μH
Resistance	<i>R<sub>DC</sub></i>	typ	215	mΩ
Resistance <sub>MAX</sub>	<i>R<sub>DC MAX</sub></i>	max	252	mΩ
Rated Current <sup>(2)</sup>	<i>I<sub>R</sub></i>	typ	1.5	A
Saturation Current <sub>25°C</sub> <sup>(3)</sup>	<i>I<sub>SAT 25°C</sub></i>	typ	1.9	A
Saturation Current <sub>100°C</sub> <sup>(4)</sup>	<i>I<sub>SAT 100°C</sub></i>	typ	1.9	A
Resonance Frequency	<i>f<sub>r</sub></i>	typ	29	MHz

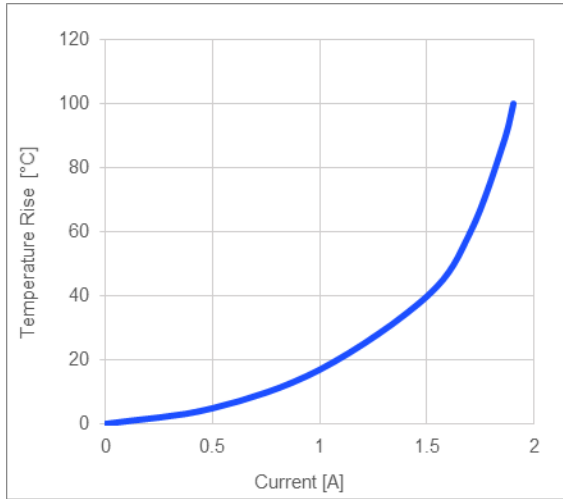
### GENERAL SPECIFICATIONS

<b>(1) Inductance</b>	Measured at 100kHz, 100mA
<b>(2) Rated Current</b>	Rated current will cause the coil temperature rise ΔT of 40K <i>I<sub>R</sub></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.
<b>(3) Saturation Current <sub>25°C</sub></b>	Saturation current will cause L to drop from 30% at 25°C ambient temperature
<b>(4) Saturation Current <sub>100°C</sub></b>	Saturation current will cause L to drop from 30% at 100°C ambient temperature
<b>Temperature Test Condition</b>	Electrical specifications measured at 25°C, 35% RH if not given differently
<b>Operating Condition</b>	Operating temperature: -40°C to +125°C (including temp rise) Should not exceed +125°C under worst-case operation conditions
<b>Storage Condition</b>	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

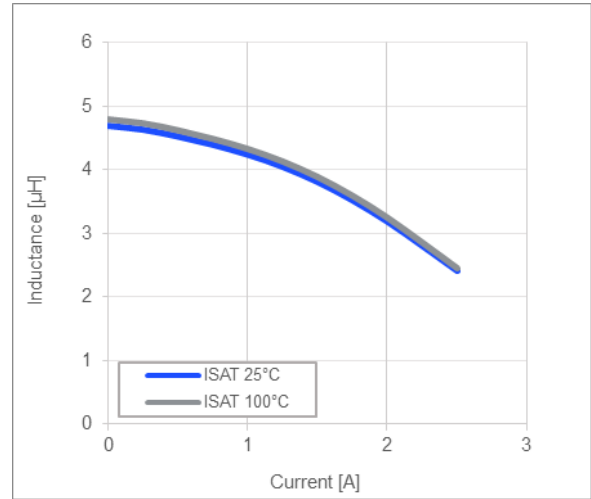
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TYPICAL PERFORMANCE CURVES

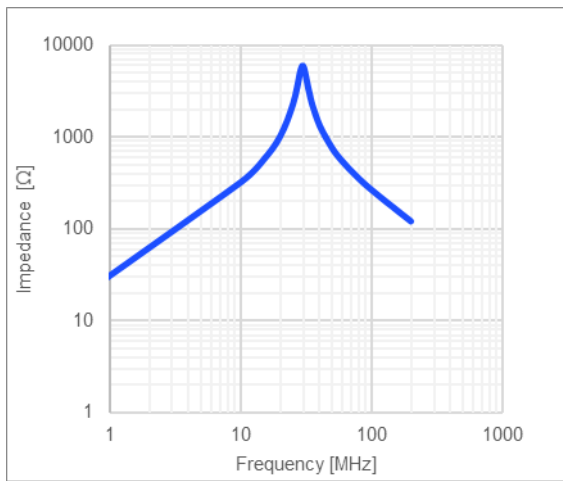
Temperature Rise vs. Current



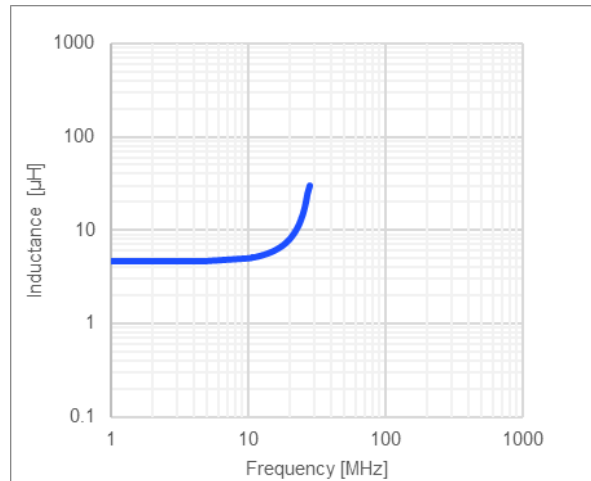
Inductance vs. Current



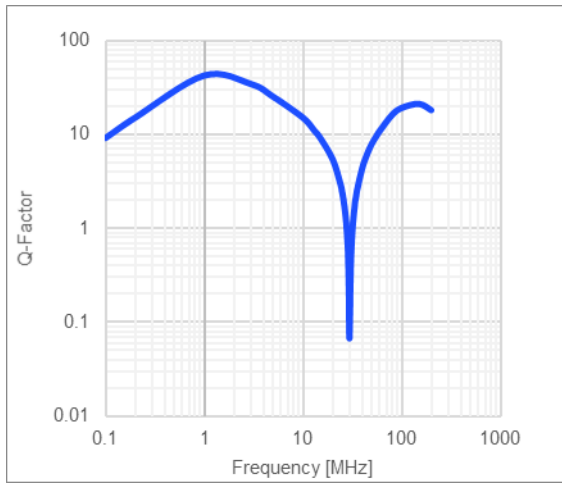
Impedance vs. Frequency



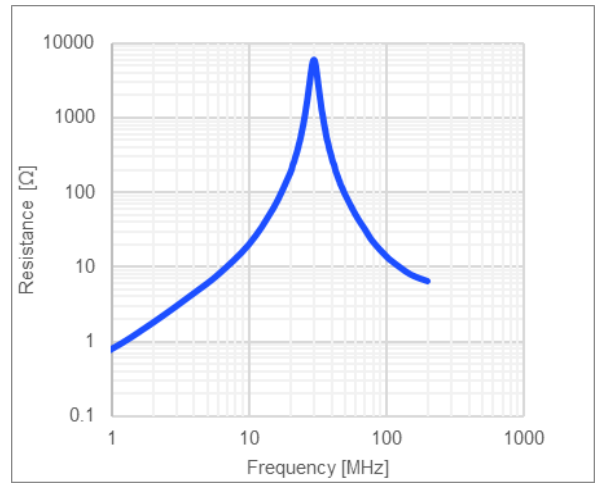
Inductance vs. Frequency



**Quality Factor vs. Frequency**



**AC Resistance vs. Frequency**



**LAND PATTERN**

**Dimensions**

A	1.6 ref.
B	0.50 ref.
C	2.0 ref.

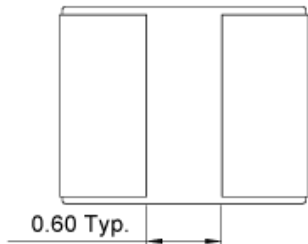
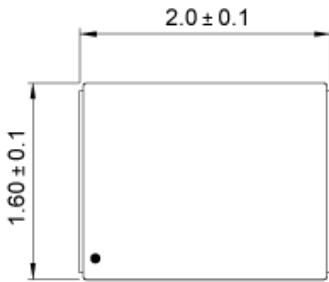
(unit in mm)



**PRODUCT PACKAGE AND DIMENSIONS**

**Dimensions**

(unit in mm)



**TOP MARKING**

**Marking**

Start of Winding      · (dot)

**ORDERING INFORMATION**

Part Number	$L$ <sup>(1)</sup>	$R_{DC}$	$I_R$ <sup>(2)</sup>	$I_{SAT\ 25^\circ C}$ <sup>(3)</sup>	$I_{SAT\ 100^\circ C}$ <sup>(4)</sup>
	typ ( $\mu$ H)	typ (m $\Omega$ )	typ (A)	typ (A)	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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