

### APPLICATIONS



- Battery-powered devices
- Embedded computing
- High-current SMPS
- High-frequency SMPS
- POL converters
- FPGA

### FEATURES

- Size 6.6mmx6.4mmx5.8mm
- Low DCR
- Low AC Losses
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable Over High Temperatures
- Max Operating Temp +155°C
- RoHS/REACH-Compliant, Halogen-Free

### ELECTRICAL CHARACTERISTICS

Parameter			Value	Unit
Inductance <sup>(1)</sup>	$L$	±20%	6.8	μH
Resistance	$R_{DC}$	typ	16	mΩ
Resistance <sub>MAX</sub>	$R_{DC\ MAX}$	max	20.8	mΩ
Rated Current <sup>(2)</sup>	$I_R$	typ	8.5	A
Saturation Current <sub>25°C</sub> <sup>(3)</sup>	$I_{SAT\ 25°C}$	typ	8	A
Saturation Current <sub>100°C</sub> <sup>(4)</sup>	$I_{SAT\ 100°C}$	typ	8	A
Resonance Frequency	$f_r$	typ	14	MHz

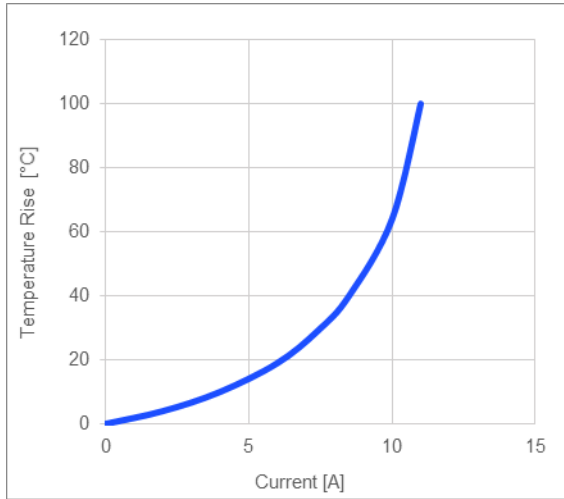
### GENERAL SPECIFICATIONS

<sup>(1)</sup> Inductance	Measured at 100kHz, 100mA
<sup>(2)</sup> 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.
<sup>(3)</sup> Saturation Current <sub>25°C</sub>	Saturation current will cause L to drop from 30% at 25°C ambient temperature
<sup>(4)</sup> Saturation Current <sub>100°C</sub>	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 +155°C (including temp rise) Should not exceed +155°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

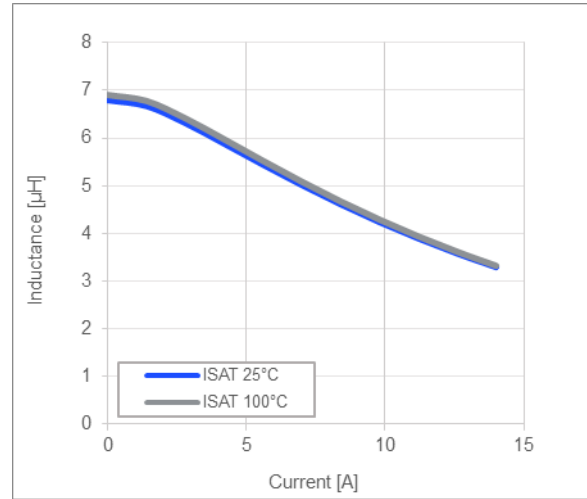
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TYPICAL PERFORMANCE CURVES

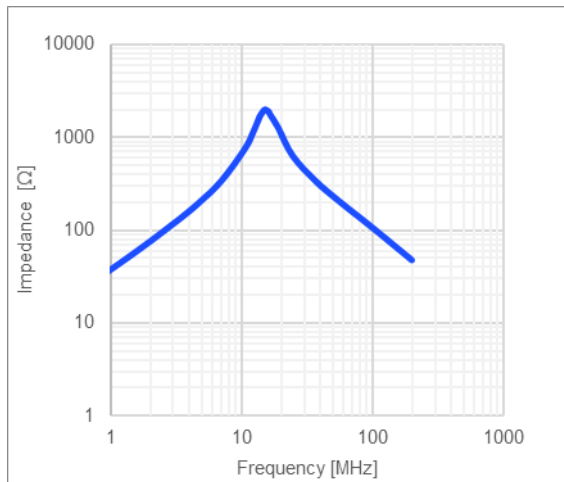
Temperature Rise vs. Current



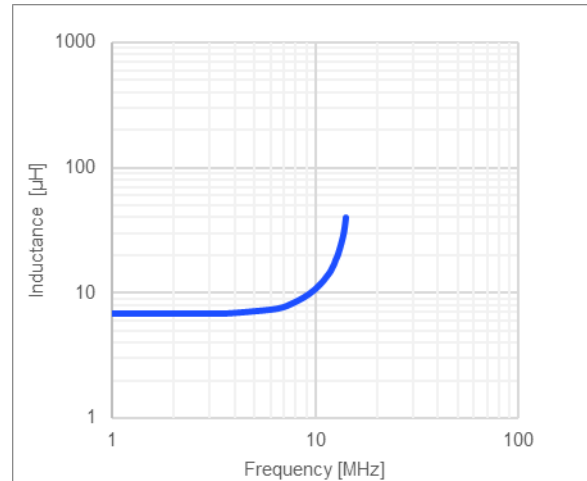
Inductance vs. Current



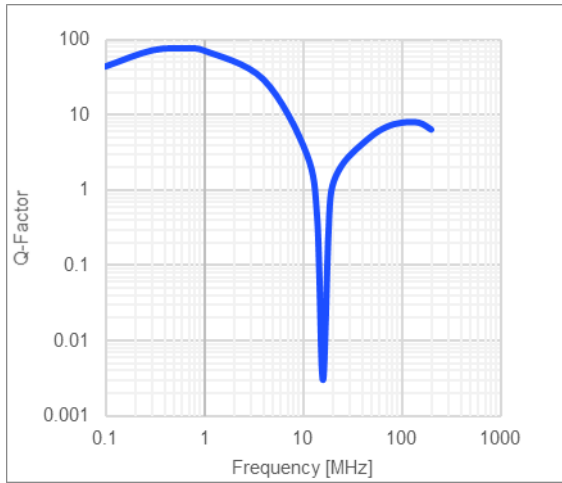
Impedance vs. Frequency



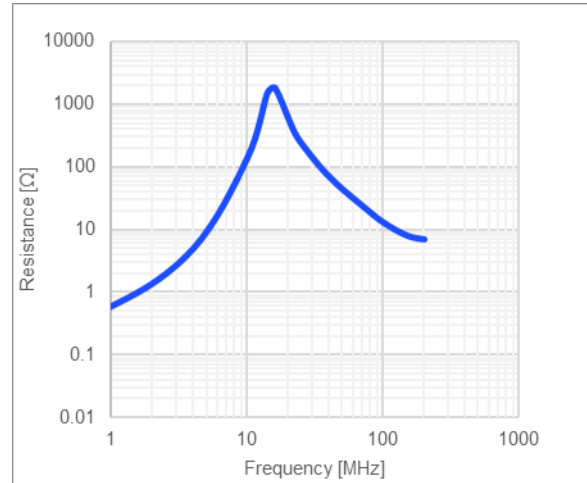
Inductance vs. Frequency



Quality Factor vs. Frequency



AC Resistance vs. Frequency



**LAND PATTERN**

Dimensions	
A	5.60 ref.
B	2.50 ref.
C	5.60 ref.

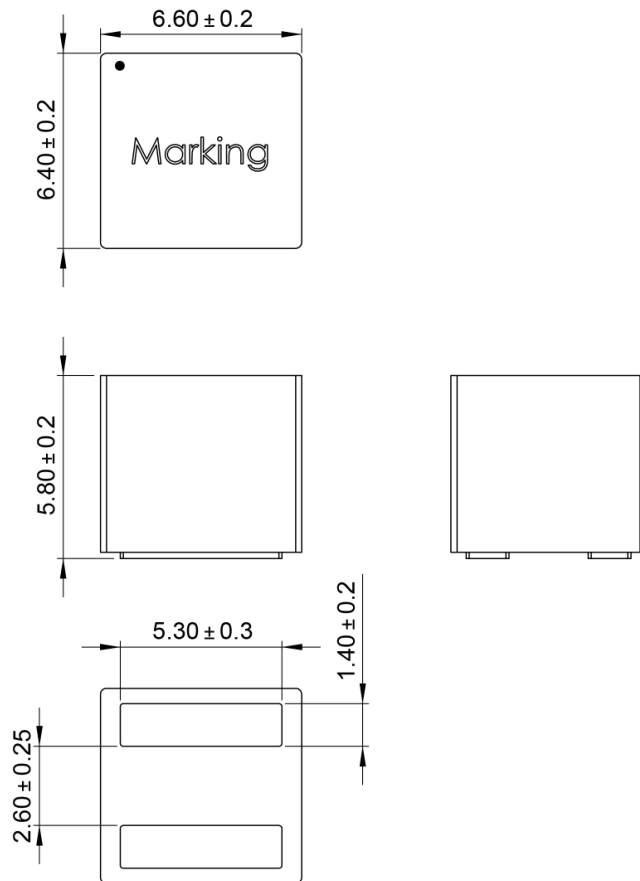
(unit in mm)



**PRODUCT PACKAGE AND DIMENSIONS**

Dimensions
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(unit in mm)



**TOP MARKING**

Marking	
Start of Winding	· (dot)
Inductance Code	6R8
MPS Code	MPS

**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-AL6060-4R7	4.7	12	10.0	9	9
MPL-AL6060-5R6	5.6	13	9.4	8.6	8.6
MPL-AL6060-6R8	6.8	16	8.5	8	8
MPL-AL6060-8R2	8.2	19	8.0	7	7
MPL-AL6060-100	10	24	6.9	6.6	6.6
MPL-AL6060-150	15	35	5.8	5.5	5.5

**GENERAL SPECIFICATIONS**

<b>(1) Inductance</b>	Measured at 100kHz, 100mA
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<b>(3) Saturation Current <math>_{25^\circ C}</math></b>	Saturation current will cause L to drop from 30% at 25°C ambient temperature
<b>(4) Saturation Current <math>_{100^\circ C}</math></b>	Saturation current will cause L to drop from 30% at 100°C ambient temperature
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<b>Operating Condition</b>	Operating temperature: -40°C to +155°C (including temp rise) Should not exceed +155°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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