



APPLICATIONS

- Battery-powered devices
- High-efficiency SMPS
- Embedded computing
- Input filters

FEATURES

- Size 4mmx4mmx3mm
- Semi-Shielded Construction
- Low DCR
- Low Stray Field
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

Parameter			Value	Unit
Inductance ⁽¹⁾	L	±20%	1.0	μH
Resistance	R_{DC}	typ	12.5	mΩ
Resistance _{MAX}	$R_{DC\ MAX}$	max	15	mΩ
Rated Current ⁽²⁾	I_R	typ	6.3	A
Saturation Current _{25°C} ⁽³⁾	$I_{SAT\ 25°C}$	typ	7.5	A
Saturation Current _{100°C} ⁽⁴⁾	$I_{SAT\ 100°C}$	typ	7.2	A
Resonance Frequency	f_r	typ	90	MHz

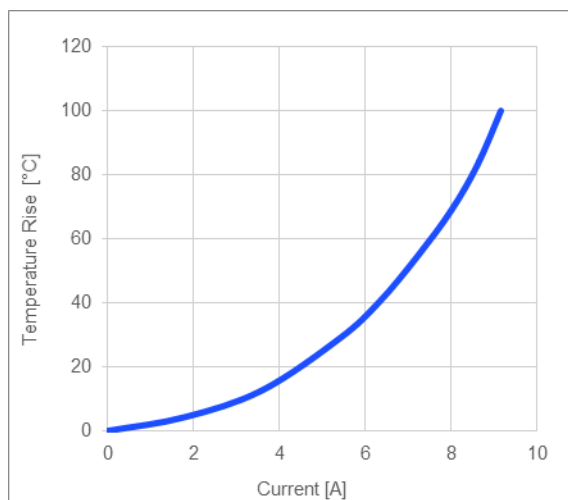
GENERAL SPECIFICATIONS

⁽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°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

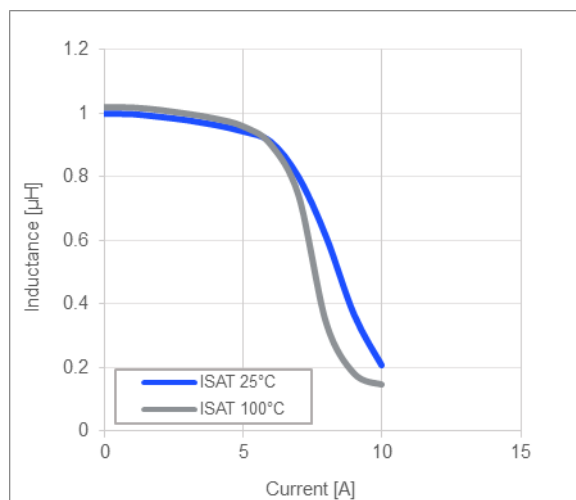
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TYPICAL PERFORMANCE CURVES

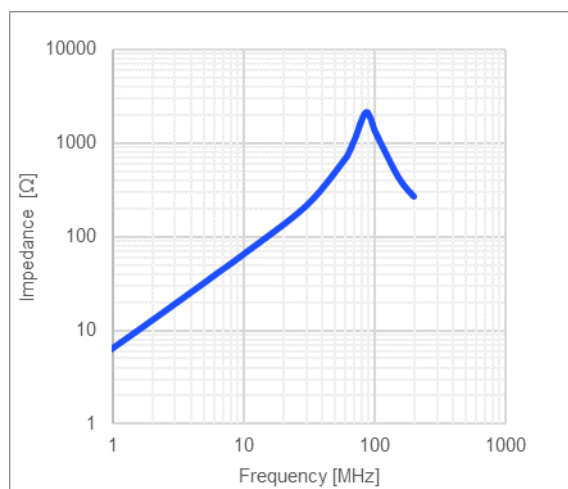
Temperature Rise vs. Current



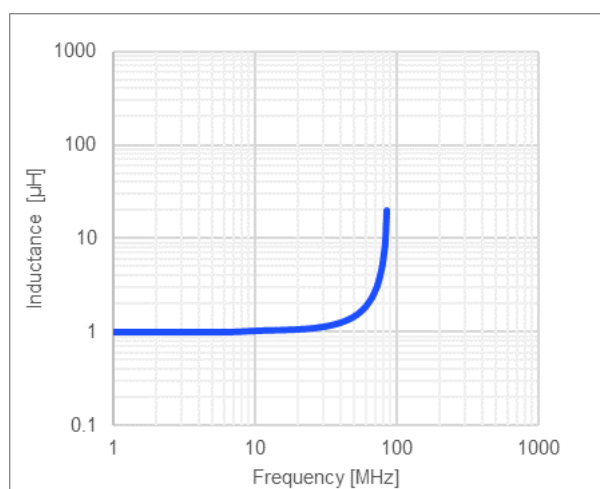
Inductance vs. Current



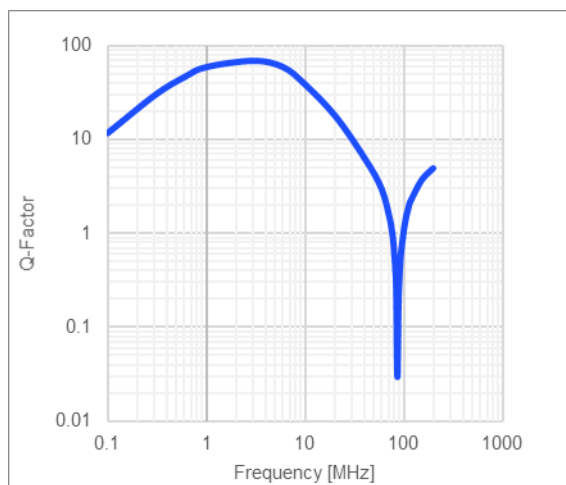
Impedance vs. Frequency



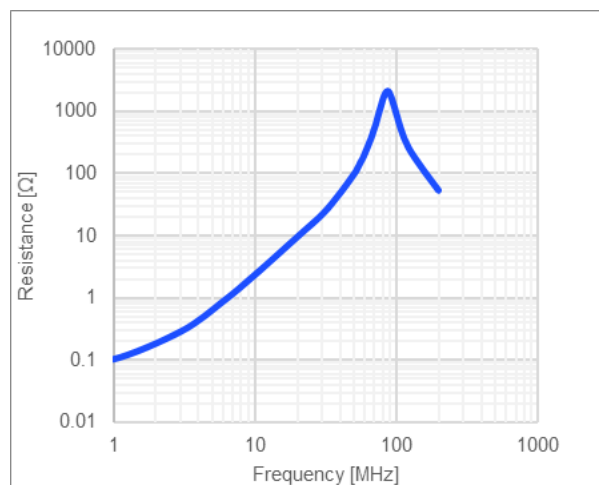
Inductance vs. Frequency



Quality Factor vs. Frequency



AC Resistance vs. Frequency



LAND PATTERN

Dimensions

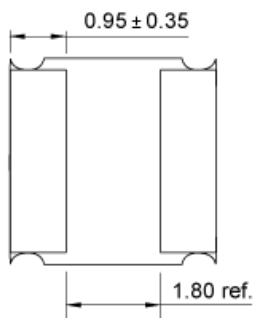
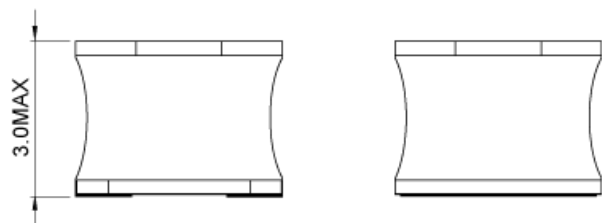
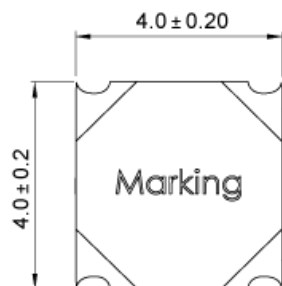
A	3.60 ref.
B	1.80 ref.
C	4.10 ref. (unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



TOP MARKING

Marking

Inductance Code 1R0

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-SE4030-1R0	1.0	12.5	6.3	7.5	7.2
MPL-SE4030-2R2	2.2	30	3.9	5.5	5.1
MPL-SE4030-3R3	3.3	39.8	3.45	4.1	3.7
MPL-SE4030-4R7	4.7	63	2.6	3.7	3.4
MPL-SE4030-6R8	6.8	83	2.4	3.3	3.1
MPL-SE4030-100	10	97	2.2	2.4	2
MPL-SE4030-150	15	185	1.6	1.95	1.85
MPL-SE4030-220	22	219	1.5	1.65	1.5

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(3) Saturation Current $_{25^{\circ}C}$	Saturation current will cause L to drop from 30% at 25°C ambient temperature
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