

### 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 <sup>(1)</sup>	$L$	$\pm 20\%$	6.8	$\mu$ H
Resistance	$R_{DC}$	typ	83	m $\Omega$
Resistance <sub>MAX</sub>	$R_{DC\ MAX}$	max	115	m $\Omega$
Rated Current <sup>(2)</sup>	$I_R$	typ	2.4	A
Saturation Current <sub>25°C</sub> <sup>(3)</sup>	$I_{SAT\ 25°C}$	typ	3.3	A
Saturation Current <sub>100°C</sub> <sup>(4)</sup>	$I_{SAT\ 100°C}$	typ	3.1	A
Resonance Frequency	$f_r$	typ	35	MHz

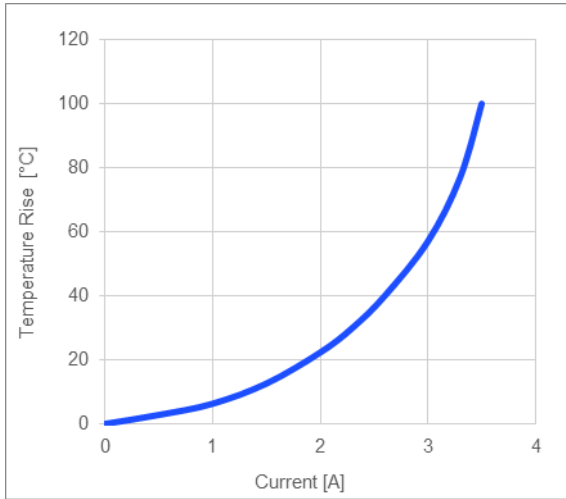
### GENERAL SPECIFICATIONS

<sup>(1)</sup> Inductance	Measured at 100kHz, 100mA
<sup>(2)</sup> Rated Current	Rated current will cause the coil temperature rise $\Delta T$ of 40K $I_R$ measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35 $\mu$ m 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 +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

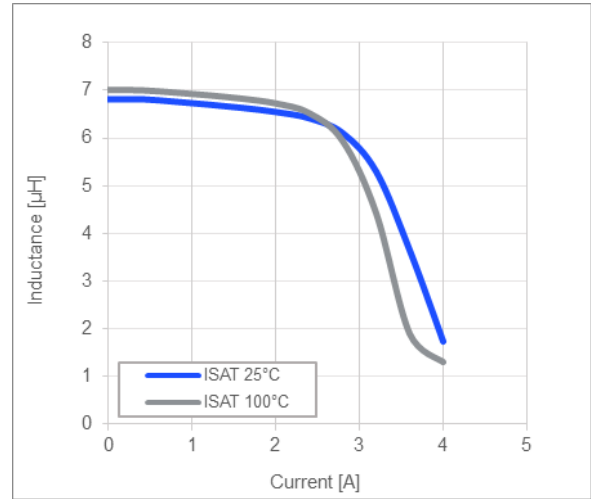
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**TYPICAL PERFORMANCE CURVES**

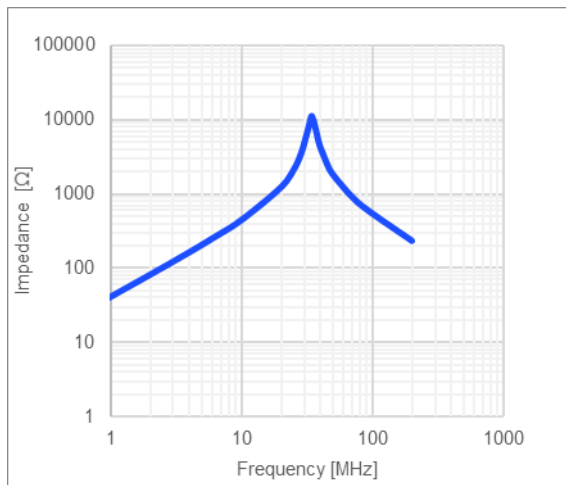
**Temperature Rise vs. Current**



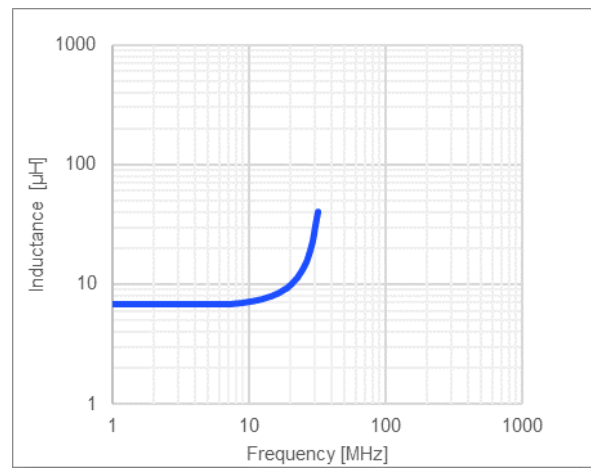
**Inductance vs. Current**



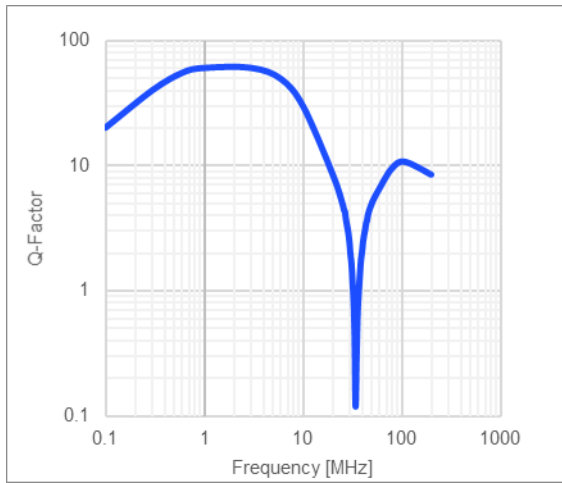
**Impedance vs. Frequency**



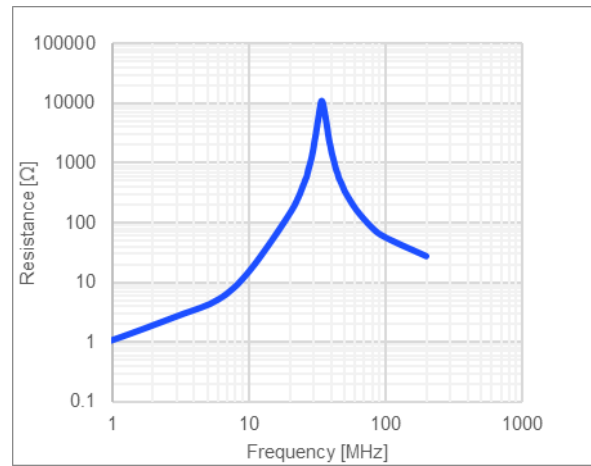
**Inductance vs. Frequency**



Quality Factor vs. Frequency



AC Resistance vs. Frequency



**LAND PATTERN**

**Dimensions**

A	3.60 ref.
B	1.80 ref.
C	4.10 ref.

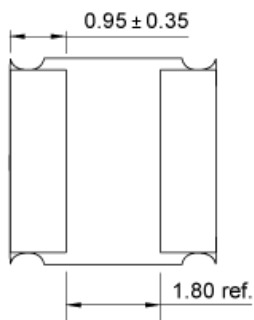
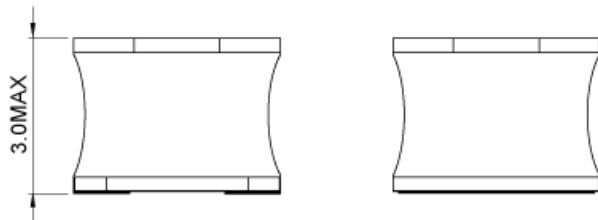
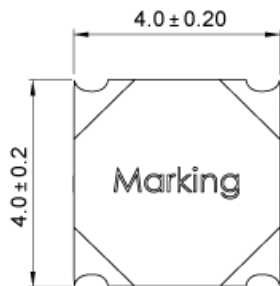
(unit in mm)



**PRODUCT PACKAGE AND DIMENSIONS**

**Dimensions**

(unit in mm)



**TOP MARKING**

**Marking**

Inductance Code	6R8
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**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

**GENERAL SPECIFICATIONS**

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<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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