



APPLICATIONS

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

FEATURES

- Size 6mmx6mmx4mm
- 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	$\pm 20\%$	10	μH
Resistance	R_{DC}	typ	41	m Ω
Resistance _{MAX}	$R_{DC\ MAX}$	max	49	m Ω
Rated Current ⁽²⁾	I_R	typ	3.8	A
Saturation Current _{25°C} ⁽³⁾	$I_{SAT\ 25^\circ\text{C}}$	typ	3.4	A
Saturation Current _{100°C} ⁽⁴⁾	$I_{SAT\ 100^\circ\text{C}}$	typ	2.8	A
Resonance Frequency	f_r	typ	21	MHz

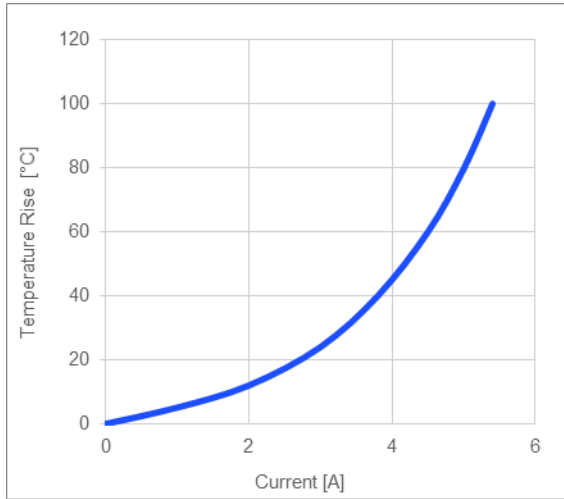
GENERAL SPECIFICATIONS

⁽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 35 μm 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

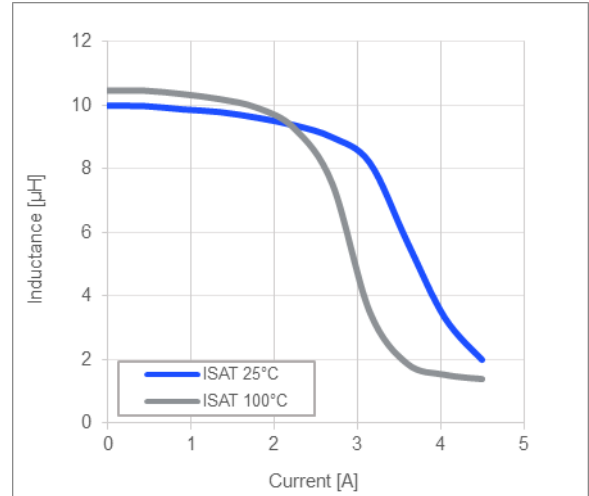
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TYPICAL PERFORMANCE CURVES

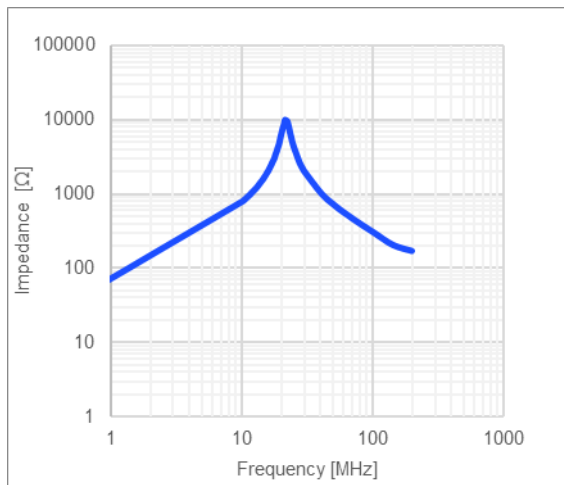
Temperature Rise vs. Current



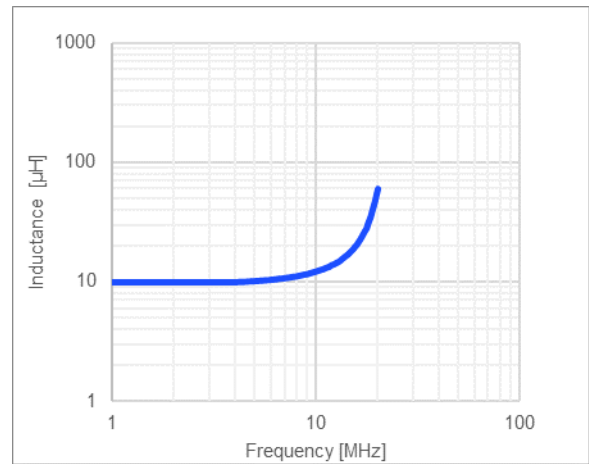
Inductance vs. Current



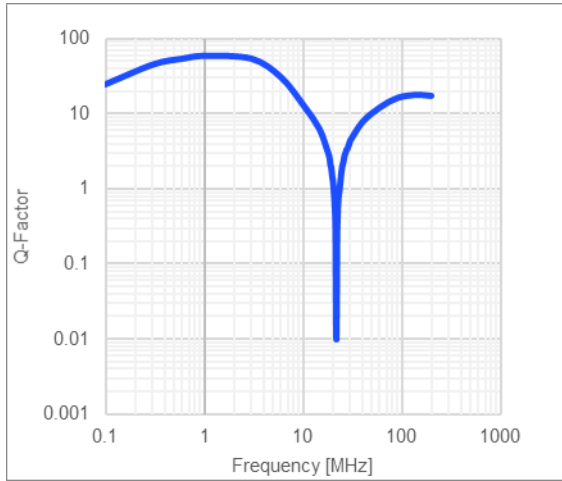
Impedance vs. Frequency



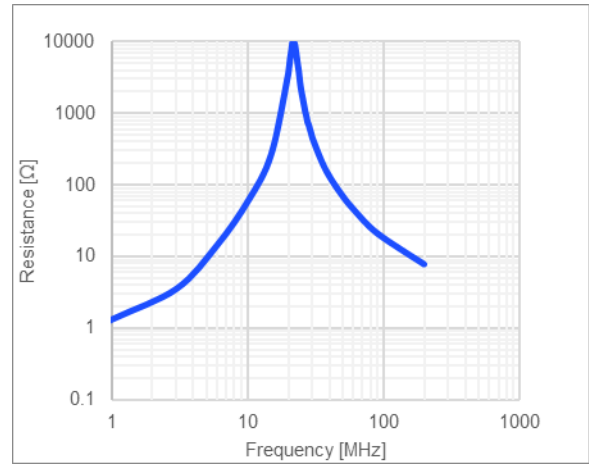
Inductance vs. Frequency



Quality Factor vs. Frequency



AC Resistance vs. Frequency



LAND PATTERN

Dimensions

A	4.50 ref.
B	2.20 ref.
C	6.50 ref.

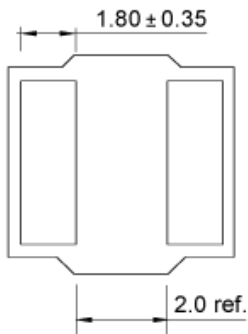
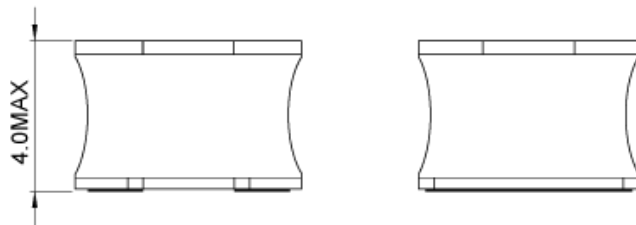
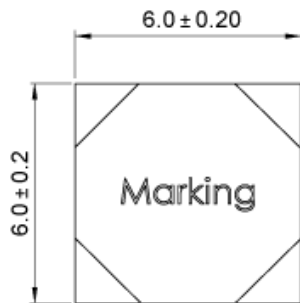
(unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



TOP MARKING

Marking

Inductance Code	100
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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 (μ H)	typ (m Ω)	typ (A)	typ (A)	typ (A)
MPL-SE6040-1R5	1.5	11.5	6.8	8.9	7.8
MPL-SE6040-2R2	2.2	14.5	6.3	7.2	6.7
MPL-SE6040-3R3	3.3	19.5	5.6	5.6	4.9
MPL-SE6040-4R7	4.7	23	5.2	5	4.5
MPL-SE6040-6R8	6.8	33	4.4	4.1	3.7
MPL-SE6040-8R2	8.2	39	4.0	3.6	3.2
MPL-SE6040-100	10	41	3.8	3.4	2.8
MPL-SE6040-150	15	70	2.8	2.7	2.4
MPL-SE6040-220	22	97	2.35	2.25	2

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 35 μ m Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.

(3) Saturation Current $_{25^{\circ}C}$

 Saturation current will cause L to drop from 30% at 25 $^{\circ}C$ ambient temperature

(4) Saturation Current $_{100^{\circ}C}$

 Saturation current will cause L to drop from 30% at 100 $^{\circ}C$ ambient temperature

Temperature Test Condition

 Electrical specifications measured at 25 $^{\circ}C$, 35% RH if not given differently

Operating Condition

Operating temperature: -40 $^{\circ}C$ to +125 $^{\circ}C$ (including temp rise)
 Should not exceed +125 $^{\circ}C$ under worst-case operation conditions

Storage Condition

Tape and Reel packaging: -10 $^{\circ}C$ to +40 $^{\circ}C$
 Humidity: <50% RH

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