MPL-SE6040-100

Semi-Shielded Inductor 10µH

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	±20%	10	µH
Resistance	R_{DC}	typ	41	mΩ
Resistance MAX	$R_{DC\ MAX}$	max	49	mΩ
Rated Current (2)	I_R	typ	3.8	A
Saturation Current 25°C (3)	$I_{SAT\ 25°C}$	typ	3.4	A
Saturation Current 100°C (4)	$I_{SAT\ 100°C}$	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 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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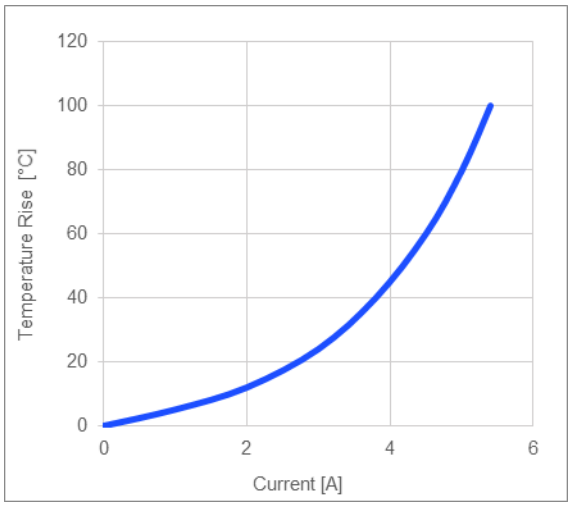
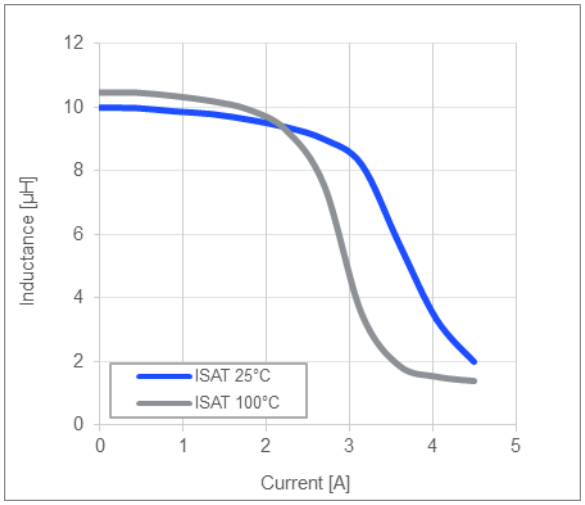
TYPICAL PERFORMANCE CURVES

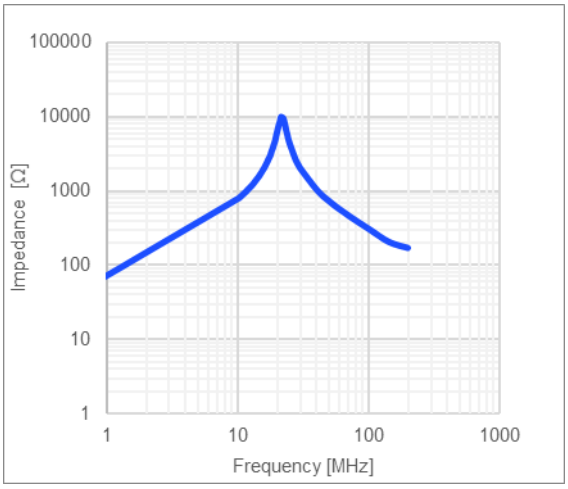
Temperature Rise vs. Current



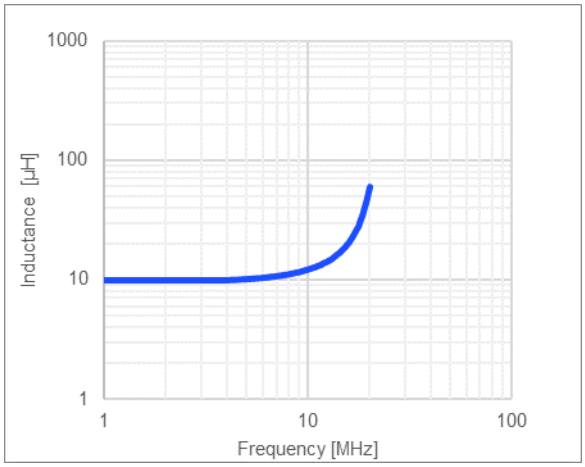
Inductance vs. Current



Impedance vs. Frequency



Inductance vs. Frequency



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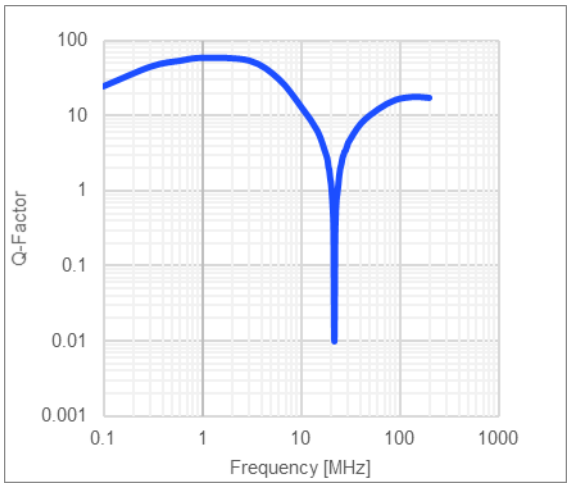
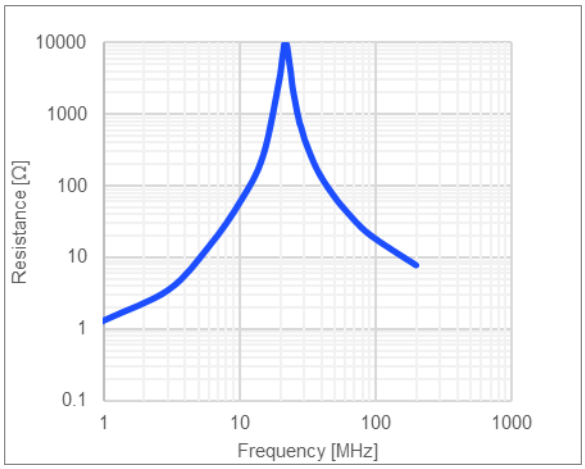
Quality Factor vs. Frequency



AC Resistance vs. Frequency



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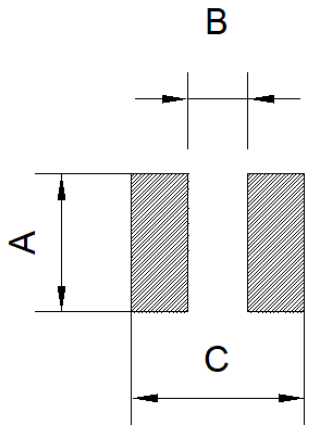
LAND PATTERN

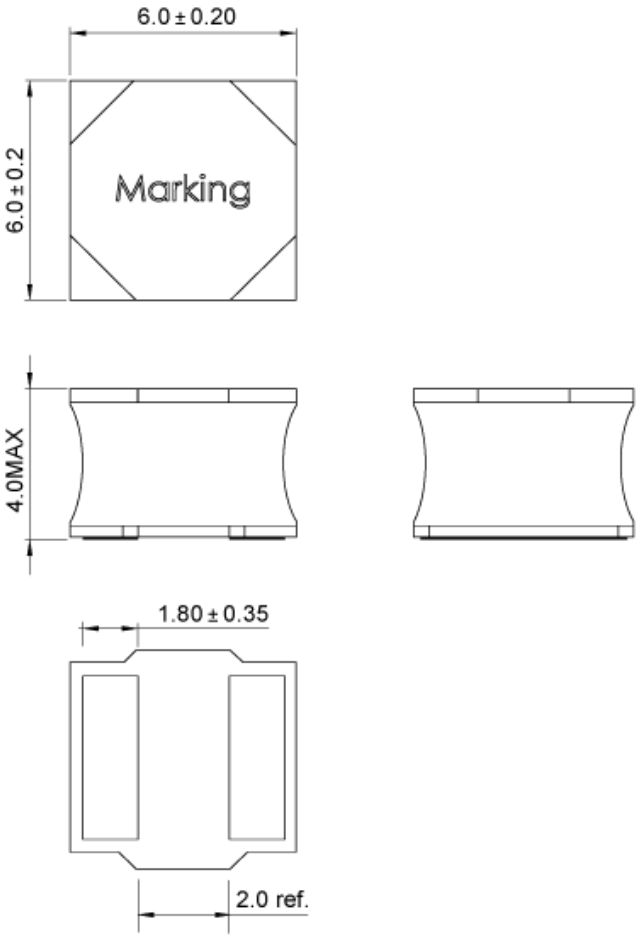
Dimensions	
A	4.50 ref.
B	2.20 ref.
C	6.50 ref.
	(unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



TOP MARKING

Marking	
Inductance Code	100

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ORDERING INFORMATION

Part Number	L (1) typ (µH)	R_{DC} typ (mΩ)	I_R (2) typ (A)	$I_{SAT\ 25°C}$ (3) typ (A)	$I_{SAT\ 100°C}$ (4) 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 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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