



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⁾	<i>L</i>	±20%	22	μH
Resistance	<i>R_{DC}</i>	Typ	220	mΩ
Resistance _{MAX}	<i>R_{DC MAX}</i>	Max	270	mΩ
Rated Current ⁽²⁾	<i>I_R</i>	Typ	1.3	A
Saturation Current _{25°C} ⁽³⁾	<i>I_{SAT 25°C}</i>	Typ	1.5	A
Saturation Current _{100°C} ⁽⁴⁾	<i>I_{SAT 100°C}</i>	Typ	1.12	A
Resonance Frequency	<i>f_r</i>	Typ	20	MHz

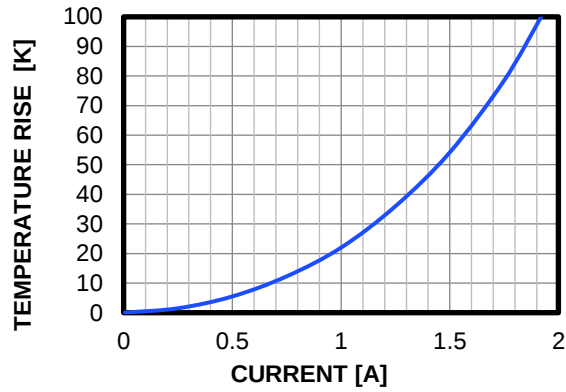
GENERAL SPECIFICATIONS

⁽¹⁾ Inductance	Measured at 100kHz, 100mA
⁽²⁾ Rated Current	Rated current will cause the coil temperature rise ΔT of 40K <i>I_R</i> 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

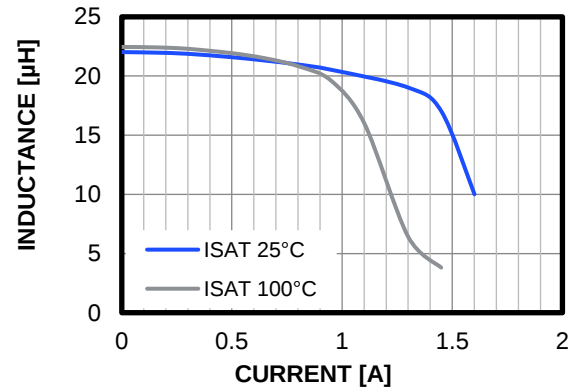
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TYPICAL PERFORMANCE CURVES

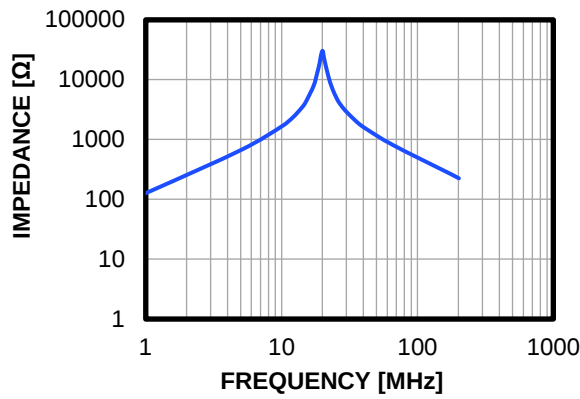
Temperature Rise vs. Current



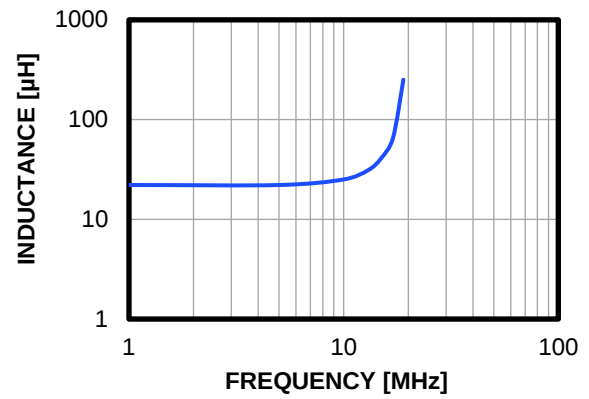
Inductance vs. Current



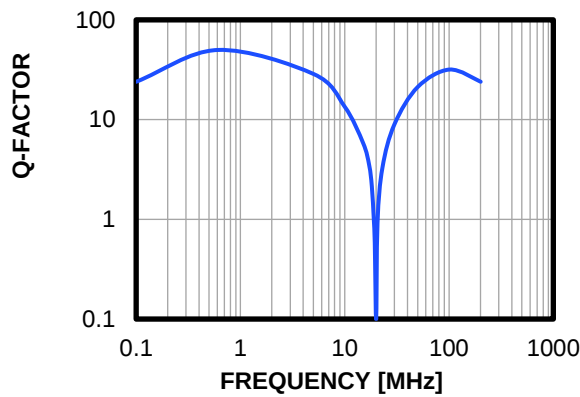
Impedance vs. Frequency



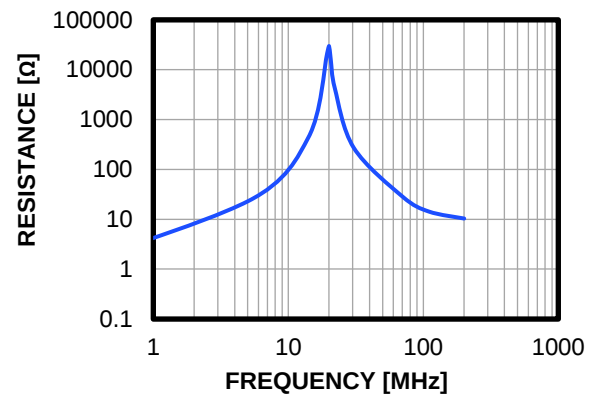
Inductance vs. Frequency



Quality Factor vs. Frequency



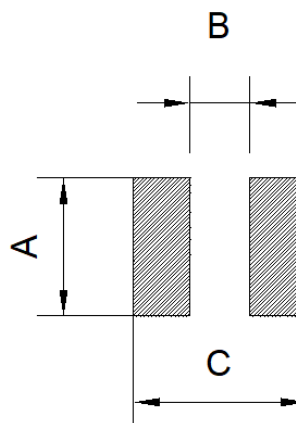
AC Resistance vs. Frequency



LAND PATTERN

Dimensions

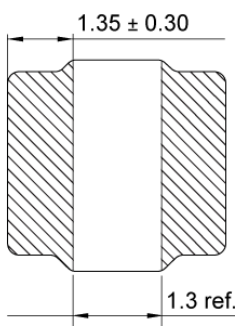
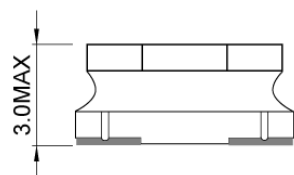
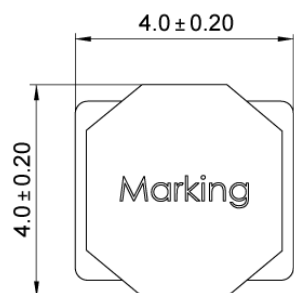
A	4.50 ref.
B	1.50 ref.
C	4.50 ref. (units in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(units in mm)



TOP MARKING

Marking

Inductance Code	220
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ORDERING INFORMATION

Part Number	$L^{(1)}$ $\pm 20\%$ (μ H)	R_{DC} Typ ($m\Omega$)	$I_R^{(2)}$ Typ (A)	$I_{SAT\ 25^\circ C}^{(3)}$ Typ (A)	$I_{SAT\ 100^\circ C}^{(4)}$ Typ (A)
MPL-SE4030-R68	0.68	10	6	7.5	6.5
MPL-SE4030-1R0	1	14	5.5	7	5.7
MPL-SE4030-2R2	2.2	30	3.7	5.5	4.2
MPL-SE4030-3R3	3.3	40	3.3	4.1	3.6
MPL-SE4030-4R7	4.7	62	2.6	3.4	2.7
MPL-SE4030-6R8	6.8	90	2.2	2.9	2.2
MPL-SE4030-100	10	100	2	2.2	1.75
MPL-SE4030-150	15	185	1.4	1.8	1.47
MPL-SE4030-220	22	220	1.3	1.5	1.12
MPL-SE4030-330	33	330	1.1	1.2	0.97
MPL-SE4030-470	47	480	0.9	1	0.82

GENERAL SPECIFICATIONS

(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise ΔT of 40K <i>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.</i>
(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

REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	7/12/2019	Initial Release	-
1.1	7/31/2019	Updated Impedance vs. Frequency Curve	2
1.2	3/15/2021	1. Corrected RDC MAX from 28mΩ to 283mΩ. 2. Modified Temperature Rise vs. Current and Inductance vs. Frequency curves to show a clean curve	1-2
1.3	9/19/2022	Updated Electrical Characteristics	1
		Updated Typical Performance Curves	2
		Updated Land Pattern and Product Package Dimensions	3
		Updated Ordering Information	4
		Grammar and formatting updates	All

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