MPL-AL5030-R56

Low-Resistance Molded Inductor 0.56µH

APPLICATIONS

- Battery-powered devices
- Embedded computing
- High-current SMPS
- High-frequency SMPS
- POL converters
- FPGA

FEATURES

- Size 5.5mmx5.3mmx2.9mm
- Low DCR
- Low AC Losses
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable Over High Temperatures
- Max Operating Temp +155°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

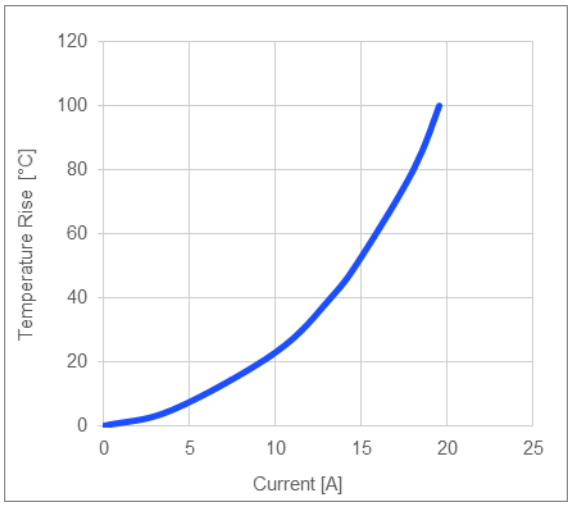
Parameter			Value	Unit
Inductance (1)	L	±20%	0.56	µH
Resistance	R_{DC}	typ	3.92	mΩ
Resistance MAX	$R_{DC\ MAX}$	max	4.55	mΩ
Rated Current (2)	I_R	typ	13.2	A
Saturation Current 25°C (3)	$I_{SAT\ 25°C}$	typ	22	A
Saturation Current 100°C (4)	$I_{SAT\ 100°C}$	typ	22	A
Resonance Frequency	f_r	typ	67	MHz

GENERAL SPECIFICATIONS

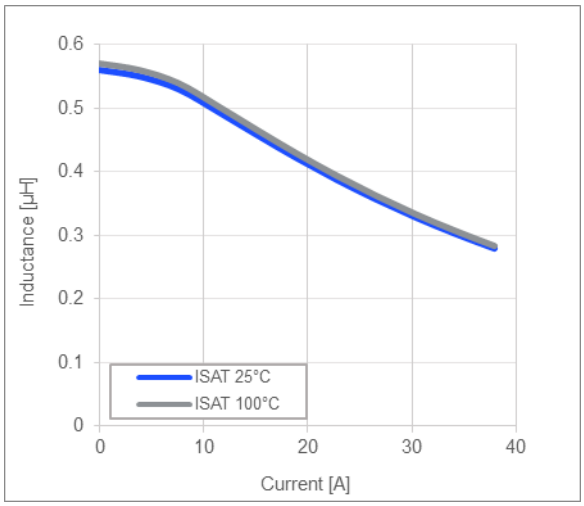
(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise ΔT of 40K *I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35µm Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity 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 +155°C (including temp rise) Should not exceed +155°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

TYPICAL PERFORMANCE CURVES

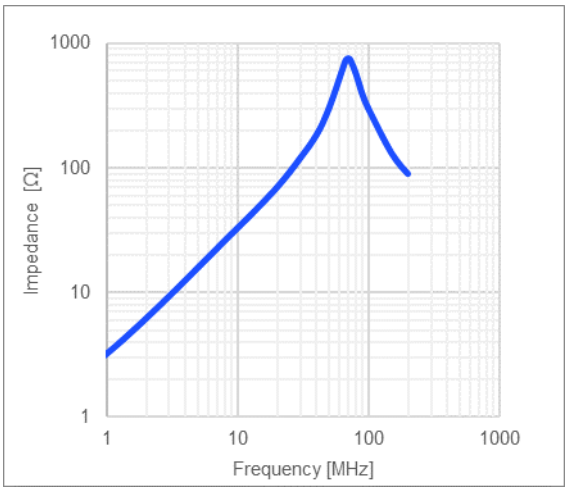
Temperature Rise vs. Current



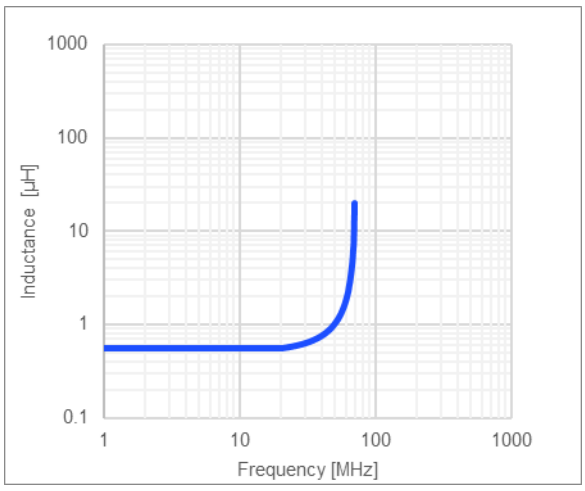
Inductance vs. Current



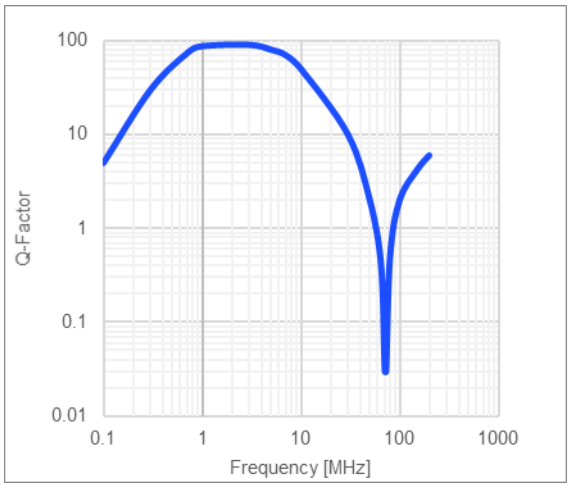
Impedance vs. Frequency



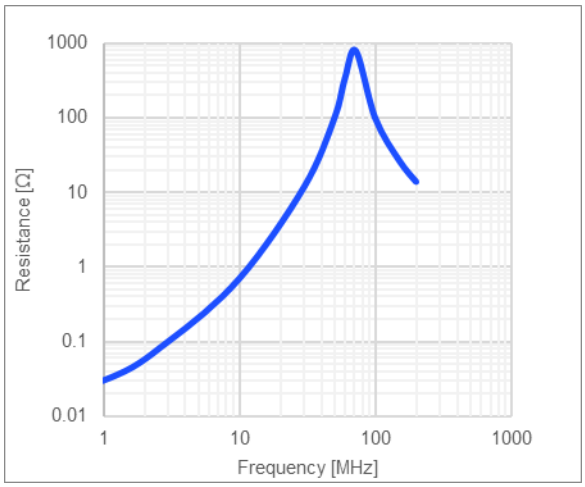
Inductance vs. Frequency



Quality Factor vs. Frequency

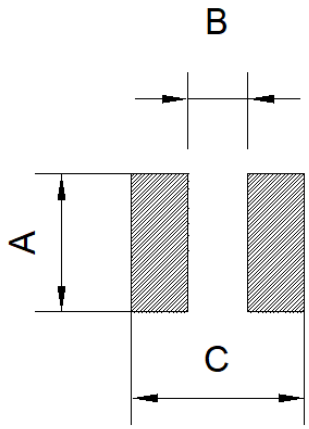


AC Resistance vs. Frequency



LAND PATTERN

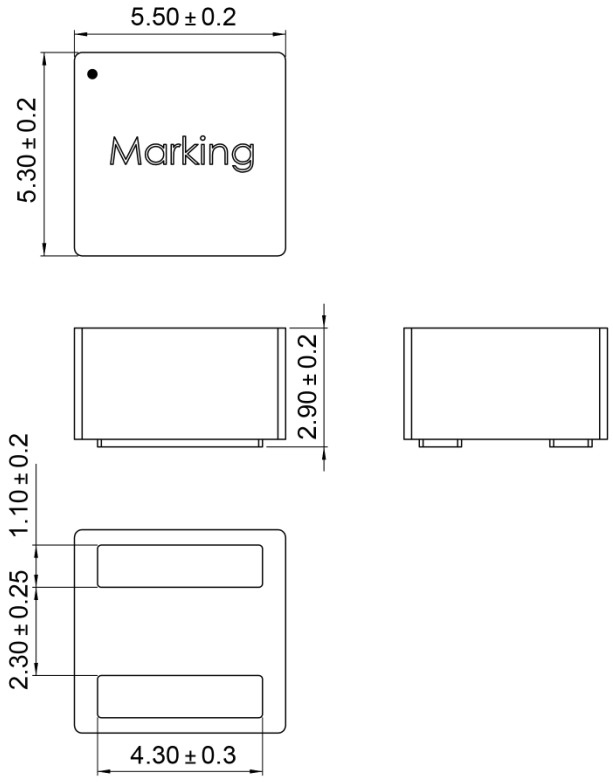
Dimensions	
A	4.70 ref.
B	2.0 ref.
C	4.50 ref.
	(unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



TOP MARKING

Marking	
Start of Winding	· (dot)
Inductance Code	R56
MPS Code	MPS

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-AL5030-R47	0.47	3.78	13.6	26.5	26.5
MPL-AL5030-R56	0.56	3.92	13.2	22	22
MPL-AL5030-R82	0.82	5.0	12.8	18	18
MPL-AL5030-1R0	1.0	6.5	11.2	16	16
MPL-AL5030-1R2	1.2	8.0	10.0	14	14
MPL-AL5030-1R5	1.5	9.7	9.0	12.5	12.5
MPL-AL5030-1R8	1.8	10.5	8.8	12	12
MPL-AL5030-2R2	2.2	12.3	8.2	11	11
MPL-AL5030-3R3	3.3	21	6.0	10	10
MPL-AL5030-4R7	4.7	33	5.3	8	8

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