

MPL-AL5050-5R6

Low-Resistance Molded Inductor 5.6µH

APPLICATIONS



Battery-powered devices

- Embedded computing
- High-current SMPS
- High-frequency SMPS
- POL converters
- FPGA

FEATURES

- Size 5.5mmx5.3mmx4.8mm
- 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

GENERAL SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

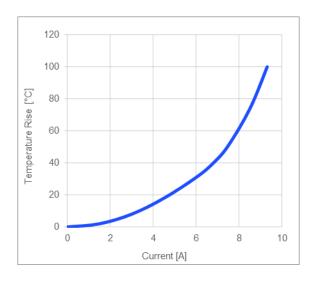
Parameter			Value	Unit
Inductance ⁽¹⁾	L	±20%	5.6	μH
Resistance	RDC	typ	20	mΩ
Resistance MAX	RDC MAX	max	24.2	mΩ
Rated Current ⁽²⁾	I R	typ	6.8	Α
Saturation Current 25°C (3)	ISAT 25°C	typ	8	Α
Saturation Current 100°C (4)	I SAT 100℃	typ	8	Α
Resonance Frequency	fr	typ	19	MHz

⁽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

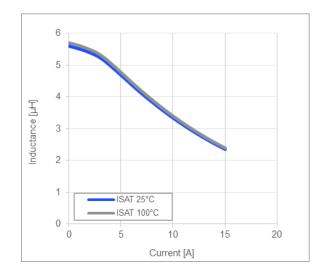
All MPS parts are lead-free, halogen-free, and adhere to the RoHS directive. For MPS green status, please visit the MPS website under Quality Assurance. "MPS", the MPS logo, and "Simple, Easy Solutions" are registered trademarks of Monolithic Power Systems, Inc. or its subsidiaries.



TYPICAL PERFORMANCE CURVES

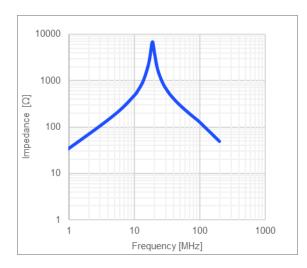


Temperature Rise vs. Current

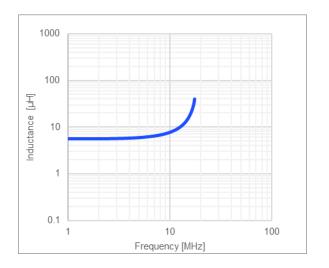


Inductance vs. Current

Impedance vs. Frequency



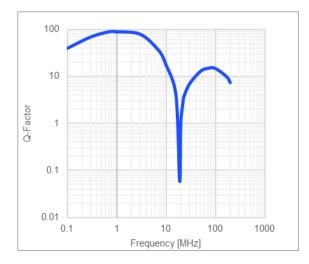
Inductance vs. Frequency

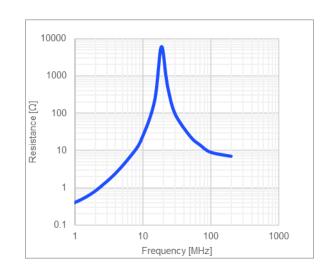




Quality Factor vs. Frequency

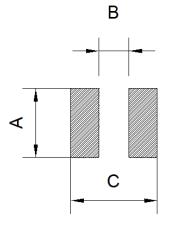
AC Resistance vs. Frequency





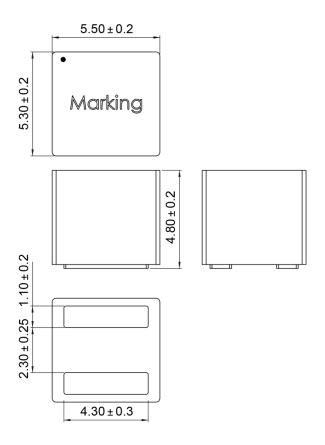


LAND PATTERN		
Dimensions		
A	4.70 ref.	
В	2.0 ref.	
С	4.50 ref.	
	(unit in mm)	



PRODUCT PACKAGE AND DIMENSIONS Dimensions

(unit in mm)



TOP MARKING		
Marking		
Start of Winding	· (dot)	
Inductance Code	5R6	
MPS Code	MPS	



ORDERING INFORMATION

Part Number	L (1)	R _D c	I _R ⁽²⁾	Isat 25°C ⁽³⁾	Isat 100°C ⁽⁴⁾
	typ (µH)	typ (mΩ)	typ (A)	typ (A)	typ (A)
MPL-AL5050-5R6	5.6	20	6.8	8	8
MPL-AL5050-6R8	6.8	25	6.1	7.6	7.6
MPL-AL5050-8R2	8.2	28	5.8	7.2	7.2
MPL-AL5050-100	10	37	4.8	5.5	5.5

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