



Molded Inductor 0.47µH

APPLICATIONS



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

FEATURES

- Size 3.5mmx3.2mmx1.8mm
- Molded Construction
- Low Audible Noise
- Soft Saturation
- Stable Over High Temperatures
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS				
Parameter			Value	Unit
Inductance (1)	L	±20%	0.47	μH
Resistance	R _{DC}	typ	19.5	mΩ
Resistance MAX	R _{DC MAX}	max	24	mΩ
Rated Current (2)	I _R	typ	6.3	Α
Saturation Current _{25°C} (3)	I _{SAT 25°C}	typ	9	Α
Saturation Current 100°C (4)	I _{SAT 100°C}	typ	9	Α
Resonance Frequency	f _r	typ	120	MHz

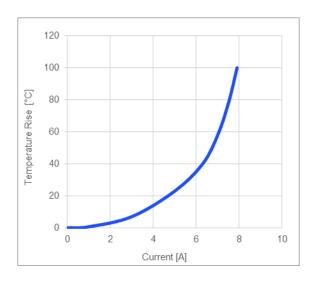
GENERAL SPECIFICATIONS	
(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise ΔT of 40K I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35 μ m Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.
(3) Saturation Current _{25°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
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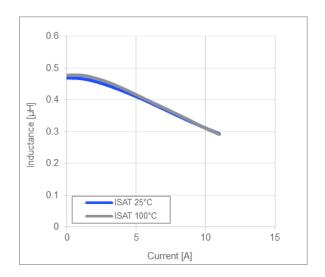


TYPICAL PERFORMANCE CURVES

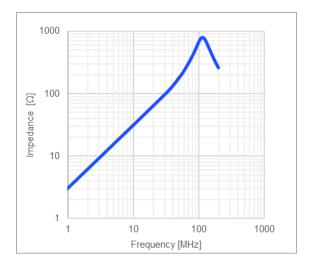
Temperature Rise vs. Current



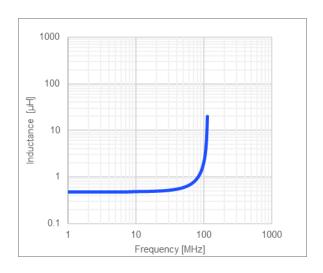
Inductance vs. Current



Impedance vs. Frequency

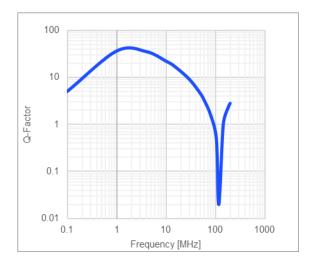


Inductance vs. Frequency

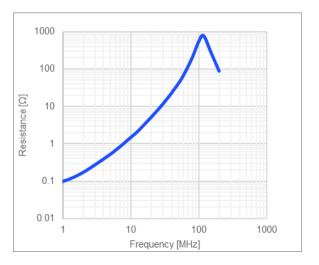




Quality Factor vs. Frequency

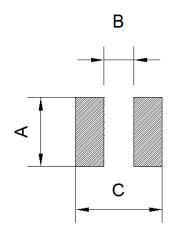


AC Resistance vs. Frequency





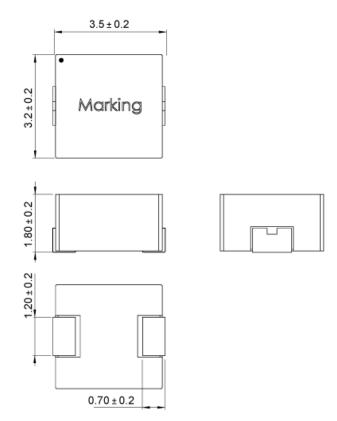
LAND PATTERN		
Dimensions		
Α	1.45 ref.	
В	1.90 ref.	
С	4.10 ref.	
	(unit in mm)	



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



TOP MARKING

Marking		
Start of Winding	· (dot)	
Inductance Code	.47	



ORDERING INFORMATION					
Part Number	<u>L</u> (1)	RDC	<i>I</i> _R ⁽²⁾	I _{SAT 25°C} (3)	I _{SAT 100°C} (4)
	typ (µH)	typ (mΩ)	typ (A)	typ (A)	typ (A)
MPL-AY3020-R47	0.47	19.5	6.3	9	9
MPL-AY3020-R68	0.68	26	5.15	8.6	8.6
MPL-AY3020-R82	0.82	28	4.7	8	8
MPL-AY3020-1R0	1.0	30	4.3	6.2	6.2
MPL-AY3020-1R5	1.5	35	3.4	5.9	5.9
MPL-AY3020-2R2	2.2	64	3.0	5.3	5.3
MPL-AY3020-3R3	3.3	121	2.5	3.7	3.7
MPL-AY3020-4R7	4.7	173	2.0	3.1	3.1
MPL-AY3020-5R6	5.6	209	1.8	2.8	2.8
MPL-AY3020-6R8	6.8	250	1.65	2.6	2.6
MPL-AY3020-8R2	8.2	345	1.4	1.95	1.95
MPL-AY3020-100	10	370	1.3	1.75	1.75

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Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

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