



# Low-Profile Molded Inductor 1.5µH

#### **APPLICATIONS**



- Battery-powered devices
- High switching frequency SMPS
- IoT
- Wearable
- Portable devices
- Input filters

#### **FEATURES**

- Size 2.0mmx1.6mmx1.0mm
- Low Profile
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable Over High Temperatures
- Low DCR
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS				
Parameter			Value	Unit
Inductance (1)	L	±20%	1.5	μH
Resistance	<b>R</b> DC	typ	97	mΩ
Resistance MAX	RDC MAX	max	110	mΩ
Rated Current (2)	<b>I</b> <sub>R</sub>	typ	2.4	Α
Saturation Current 25°C (3)	SAT 25°C	typ	3.2	Α
Saturation Current 100°C (4)	SAT 100°C	typ	3.2	Α
Resonance Frequency	fr	typ	65	MHz

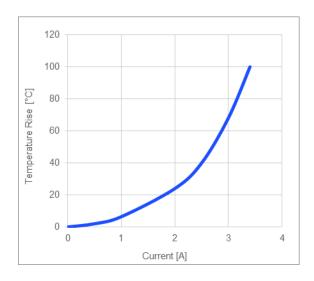
GENERAL SPECIFICATIONS	
(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise $\Delta T$ of 40K $I_R$ measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35 $\mu$ m Cu / PCB size 30x50mm. Temperature behavior dependent 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
<b>Temperature Test Condition</b>	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

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.

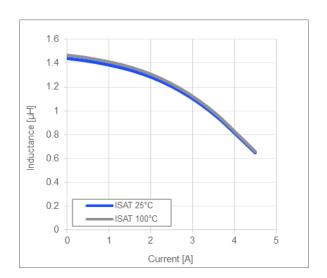


## **TYPICAL PERFORMANCE CURVES**

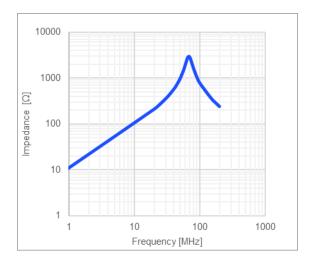
#### **Temperature Rise vs. Current**



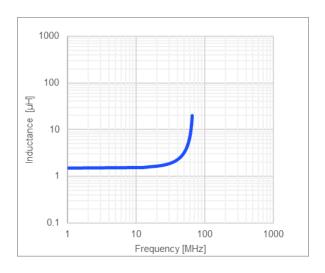
#### **Inductance vs. Current**



Impedance vs. Frequency

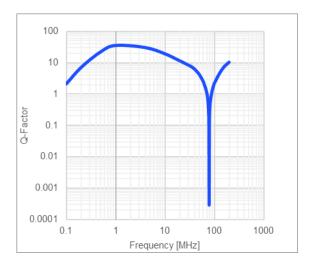


Inductance vs. Frequency

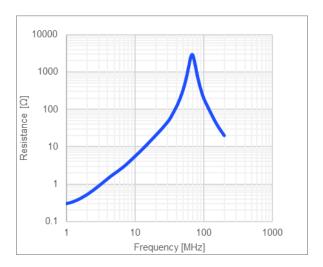




## **Quality Factor vs. Frequency**

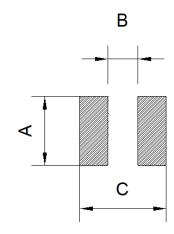


## AC Resistance vs. Frequency





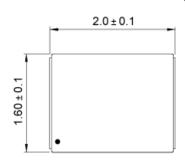
LAND PATTERN		
Dimensions		
Α	1.60 ref.	
В	0.70 ref.	
С	2.0 ref.	
	(unit in mm)	

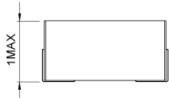


## PRODUCT PACKAGE AND DIMENSIONS

#### **Dimensions**

(unit in mm)

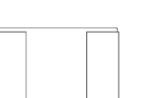






## **TOP MARKING**

TOP WARKING		
Marking	ſ	
Start of Winding	· (dot)	





ORDERING INFORMATION					
	L (1)	RDC	I <sub>R</sub> <sup>(2)</sup>	I <sub>SAT 25°C</sub> (3)	I <sub>SAT 100°C</sub> (4)
Part Number	typ (µH)	typ (mΩ)	typ (A)	typ (A)	typ (A)
MPL-AT2010-R47	0.47	27	4.4	5.7	5.7
MPL-AT2010-R68	0.68	41	3.5	4.9	4.9
MPL-AT2010-1R0	1.0	50	3.2	4.2	4.2
MPL-AT2010-1R5	1.5	97	2.4	3.2	3.2
MPL-AT2010-2R2	2.2	137	2.2	2.7	2.7
MPL-AT2010-4R7	4.7	215	1.5	1.9	1.9

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