



Molded Inductor 1.8µH



### **APPLICATIONS**

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

# **FEATURES**

- Size 13.5mmx12.6mmx6.2mm
- Molded Construction
- Low Audible Noise
- 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%	1.8	μH
Resistance	<b>R</b> <sub>DC</sub>	typ	3.3	mΩ
Resistance MAX	RDC MAX	max	3.7	mΩ
Rated Current (2)	<b>I</b> <sub>R</sub>	typ	20	Α
Saturation Current 25°C (3)	SAT 25°C	typ	29	Α
Saturation Current 100°C (4)	ISAT 100°C	typ	29	Α
Resonance Frequency	fr	typ	25	MHz

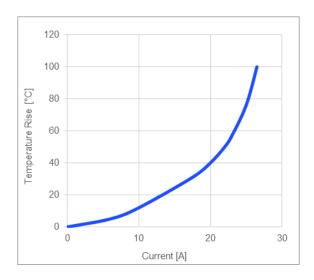
GENERAL SPECIFICATIONS		
(1) Inductance	Measured at 100kHz, 100mA	
(2) Rated Current	Rated current will cause the coil temperature rise $\Delta T$ of 40K $I_R$ measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35 $\mu$ m Cu / PCB size 30x50mm. Temperature behavior dependent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

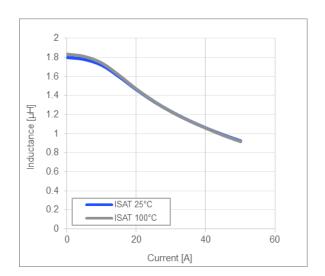


# **TYPICAL PERFORMANCE CURVES**

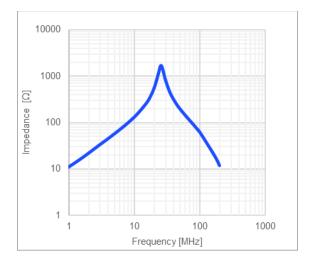
## **Temperature Rise vs. Current**



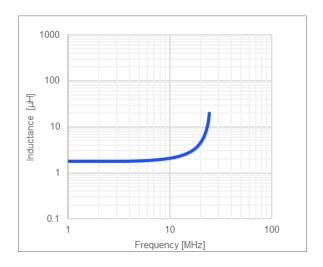
### **Inductance vs. Current**



Impedance vs. Frequency

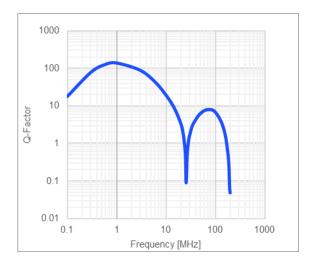


Inductance vs. Frequency

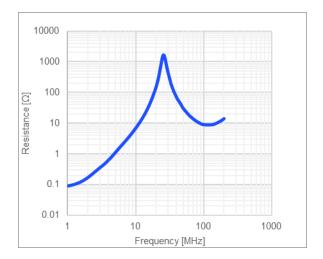




## **Quality Factor vs. Frequency**



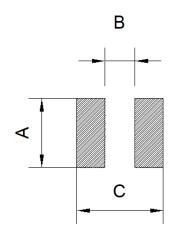
# **AC Resistance vs. Frequency**



3



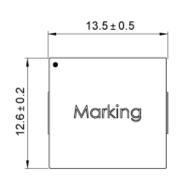
LAND PATTERN		
Dimensions		
Α	5.0 ref.	
В	8.0 ref.	
С	14.50 ref.	
	(unit in mm)	

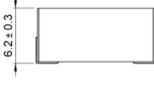


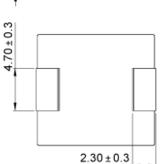
# PRODUCT PACKAGE AND DIMENSIONS

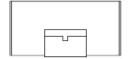
## **Dimensions**

(unit in mm)









TOP MARKING		
Marking		
Start of Winding	· (dot)	
Inductance Code	1R8	
MPS Code	MPS	
Date Code	YYWW	



ORDERING INFORMATION					
Part Number	L (1)	RDC	<i>I</i> <sub>R</sub> <sup>(2)</sup>	I <sub>SAT 25°C</sub> (3)	I <sub>SAT 100°C</sub> (4)
	typ (µH)	typ (mΩ)	typ (A)	typ (A)	typ (A)
MPL-AY1265-R47	0.47	0.89	33	64	64
MPL-AY1265-R56	0.56	1.1	31	58	58
MPL-AY1265-R68	0.68	1.25	29	51	51
MPL-AY1265-R82	0.82	1.3	27	46	46
MPL-AY1265-1R0	1.0	1.5	25.5	43	43
MPL-AY1265-1R2	1.2	1.8	24	37	37
MPL-AY1265-1R5	1.5	2.3	22	34	34
MPL-AY1265-1R8	1.8	3.3	20	29	29
MPL-AY1265-2R2	2.2	3.7	17	26.5	26.5
MPL-AY1265-3R3	3.3	5.5	16	25	25
MPL-AY1265-4R7	4.7	7.0	14	23	23
MPL-AY1265-5R6	5.6	8.6	13	20	20
MPL-AY1265-6R8	6.8	9.9	12	19.5	19.5
MPL-AY1265-8R2	8.2	12.5	11.5	18	18
MPL-AY1265-100	10	13.3	10.7	16	16
MPL-AY1265-150	15	21.8	8.5	12	12
MPL-AY1265-220	22	31.4	7	9	9

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