

## Molded Inductor 8.2µH



#### **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 <sup>(1)</sup>	L	<b>±20%</b>	8.2	μH
Resistance	RDC	typ	12.5	mΩ
Resistance MAX	RDC MAX	max	13.9	mΩ
Rated Current <sup>(2)</sup>	<b>I</b> R	typ	11.5	Α
Saturation Current 25°C (3)	ISAT 25°C	typ	18	Α
Saturation Current 100°C (4)	ISAT 100°C	typ	18	Α
<b>Resonance Frequency</b>	fr	typ	8	MHz

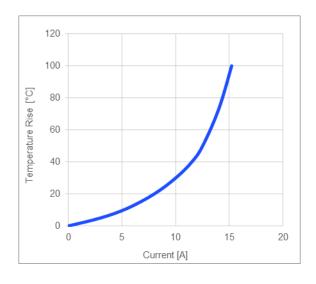
GENERAL	<b>SPECIFICAT</b>	IONS

<sup>(1)</sup> Inductance	Measured at 100kHz, 100mA
<sup>(2)</sup> 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 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)
Operating Condition	Should not exceed +155°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

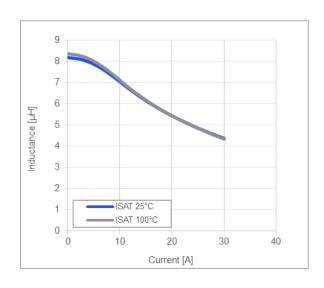
All MPS parts are lead-free, halogen-free, and adhere to the RoHS directive. For MPS green status, please visit the MPS website under Quality Assurance. "MPS", the MPS logo, and "Simple, Easy Solutions" are registered trademarks of Monolithic Power Systems, Inc. or its subsidiaries.



### **TYPICAL PERFORMANCE CURVES**

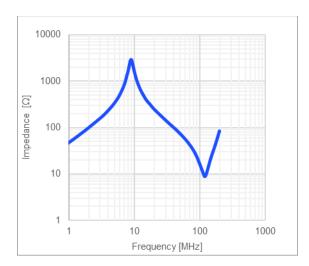


Temperature Rise vs. Current

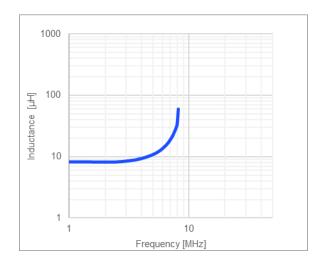


Inductance vs. Current

#### Impedance vs. Frequency



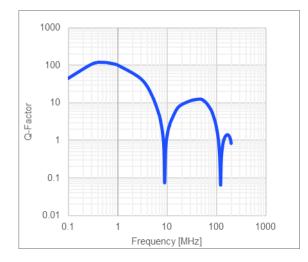
Inductance vs. Frequency

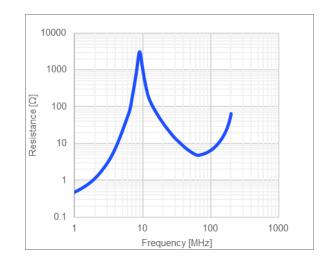




#### **Quality Factor vs. Frequency**

AC Resistance vs. Frequency

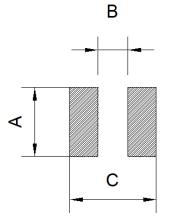






LAND PATTERN			
Dimensions			
А	5.0		
В	8.0		

С



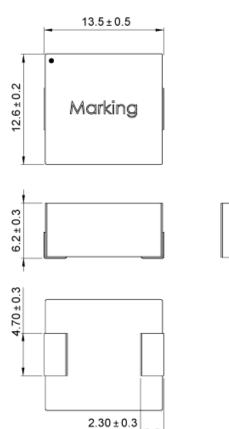
## **PRODUCT PACKAGE AND DIMENSIONS**



(unit in mm)

ref. ref.

14.50 ref. (unit in mm)



TOP MARKING			
Marking			
Start of Winding	· (dot)		
Inductance Code	8R2		
MPS Code	MPS		
Date Code	YYWW		



#### **ORDERING INFORMATION**

Part Number	L <sup>(1)</sup>	R <sub>D</sub> c	<b>I</b> <sub>R</sub> <sup>(2)</sup>	I <sub>SAT 25°C</sub> <sup>(3)</sup>	ISAT 100°C <sup>(4)</sup>
	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

#### **GENERAL SPECIFICATIONS** <sup>(1)</sup> Inductance Measured at 100kHz, 100mA Rated current will cause the coil temperature rise $\Delta T$ of 40K IR measured with the inductor soldered in a single-layer PCB. Copper layer thickness <sup>(2)</sup> Rated Current 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 temperature: -40°C to +155°C (including temp rise) **Operating Condition** Should not exceed +155°C under worst-case operation conditions Tape and Reel packaging: -10°C to +40°C **Storage Condition** Humidity: <50% RH

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