

MPL-AL4020-2R2

Unit

μH

mΩ

mΩ

Low-Resistance Molded Inductor 2.2µH

APPLICATIONS

Battery-powered devices

- Embedded computing
- **High-current SMPS**
- **High-frequency SMPS**

ELECTRICAL CHARACTERISTICS

- POL converters
- FPGA

FEATURES

- Size 4.1mmx4.1mmx1.9mm .
- Low DCR •

(4) -

- Low AC Losses •
- Low Audible Noise •
- Molded Construction •
- Soft Saturation •
- Stable Over High Temperatures •
- Max Operating Temp +155°C •
- RoHS/REACH-Compliant, • Halogen-Free

Parameter			Value	
Inductance ⁽¹⁾	L	±20%	2.2	
Resistance	RDC	typ	21.5	
Resistance MAX	R DC MAX	max	23.7	
Rated Current ⁽²⁾	le.	typ	5.5	

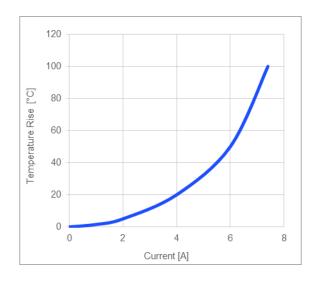
Rated Current ⁽²⁾	IR	typ	5.5	Α
Saturation Current _{25°C} ⁽³⁾	ISAT 25°C	typ	6.2	Α
Saturation Current 100°C (4)	ISAT 100°C	typ	6.2	Α
Resonance Frequency	fr	typ	37	MHz

⁽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)
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

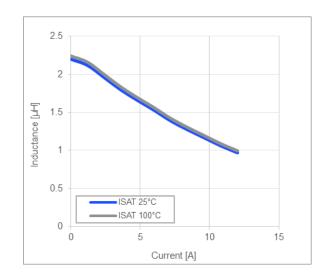
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TYPICAL PERFORMANCE CURVES

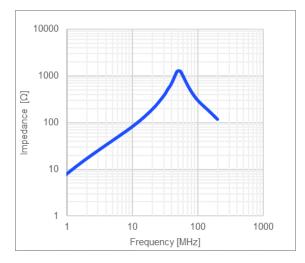


Temperature Rise vs. Current

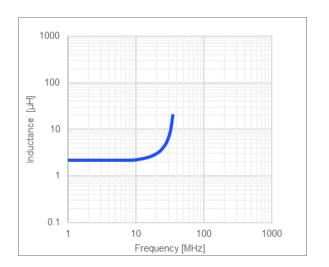


Inductance vs. Current

Impedance vs. Frequency



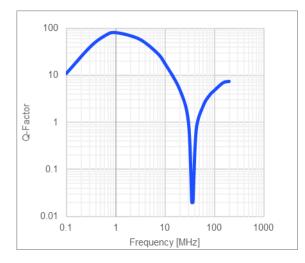
Inductance vs. Frequency

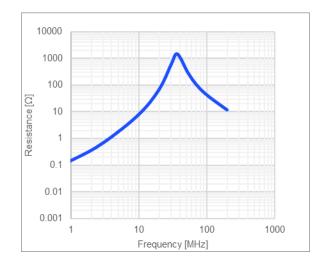




Quality Factor vs. Frequency

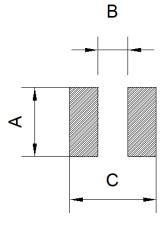
AC Resistance vs. Frequency





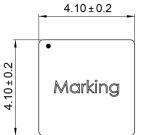


LAND PATTERN			
Dimensions			
A	3.80 ref.		
В	1.40 ref.		
С	3.40 ref.		
	(unit in mm)		



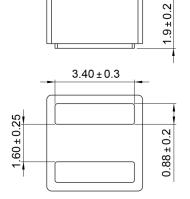
PRODUCT PACKAGE AND DIMENSIONS Dimensions

(unit in mm)









8/6/2019



TOP MARKING		
Marking		
Start of Winding	· (dot)	
Inductance Code	2R2	
MPS Code	MPS	



ORDERING INFORMATION

Part Number	L ⁽¹⁾	R _D c	I _R ⁽²⁾	I _{SAT 25°C} ⁽³⁾	ISAT 100°C ⁽⁴⁾
	typ (µH)	typ (mΩ)	typ (A)	typ (A)	typ (A)
MPL-AL4020-R47	0.47	6.2	9.2	12.5	12.5
MPL-AL4020-R68	0.68	7.5	8.7	11	11
MPL-AL4020-R82	0.82	9.0	8.4	9.5	9.5
MPL-AL4020-1R0	1.0	10.1	7.9	8.6	8.6
MPL-AL4020-1R2	1.2	12.2	7.4	7.5	7.5
MPL-AL4020-1R5	1.5	14.5	6.4	7.1	7.1
MPL-AL4020-2R2	2.2	21.5	5.5	6.2	6.2
MPL-AL4020-3R3	3.3	34.5	4.4	5.2	5.2
MPL-AL4020-4R7	4.7	52.2	3.65	4.2	4.2

GENERAL SPECIFICATIONS

⁽¹⁾ Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise ΔT of 40K <i>I</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.
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	Should not exceed +155°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C
	Humidity: <50% RH

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