

## APPLICATIONS



- Battery-Powered Devices
- High-Efficiency SMPS
- Embedded Computing
- Input Filters

## FEATURES

- Size 4mmx4mmx3mm
- Semi-Shielded Construction
- Low DCR
- Low Stray Field
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

## ELECTRICAL CHARACTERISTICS

Parameter		Value	Unit
Inductance <sup>(1)</sup>	$L$	$\pm 20\%$	0.68 $\mu$ H
Resistance	$R_{DC}$	Typ	10 m $\Omega$
Resistance MAX	$R_{DC\ MAX}$	Max	12 m $\Omega$
Rated Current <sup>(2)</sup>	$I_R$	Typ	6 A
Saturation Current $25^{\circ}\text{C}$ <sup>(3)</sup>	$I_{SAT\ 25^{\circ}\text{C}}$	Typ	7.5 A
Saturation Current $100^{\circ}\text{C}$ <sup>(4)</sup>	$I_{SAT\ 100^{\circ}\text{C}}$	Typ	6.5 A
Resonance Frequency	$f_r$	Typ	180 MHz

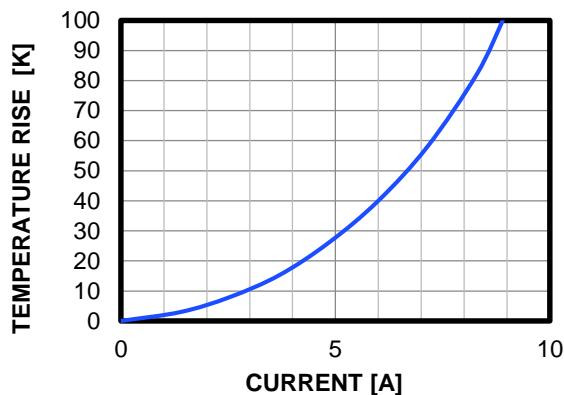
## GENERAL SPECIFICATIONS

<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><math>I_R</math> measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35<math>\mu</math>m Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.</i>
<sup>(3)</sup> Saturation Current $25^{\circ}\text{C}$	Saturation current will cause L to drop from 30% at 25°C ambient temperature
<sup>(4)</sup> Saturation Current $100^{\circ}\text{C}$	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 Humidity: <50% RH

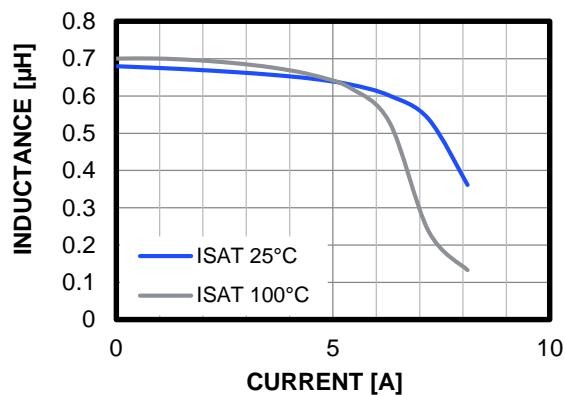
All MPS parts are lead-free, halogen-free, and adhere to the RoHS directive. For MPS green status, please visit the MPS website under Quality Assurance. "MPS", the MPS logo, and "Simple, Easy Solutions" are registered trademarks of Monolithic Power Systems, Inc. or its subsidiaries.

**TYPICAL PERFORMANCE CURVES**

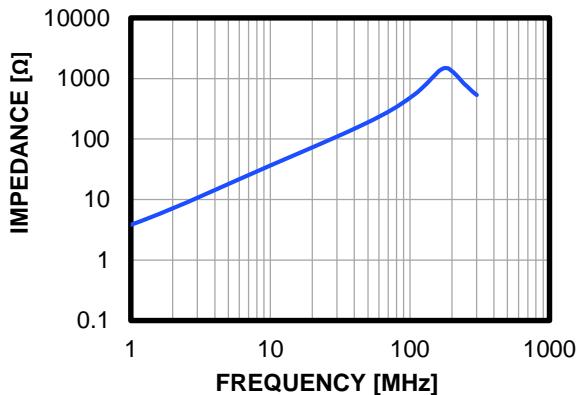
Temperature Rise vs. Current



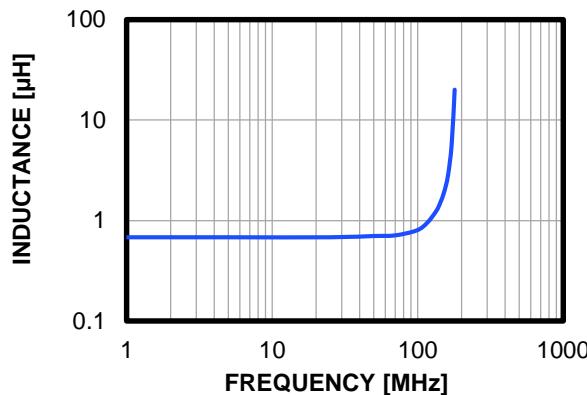
Inductance vs. Current



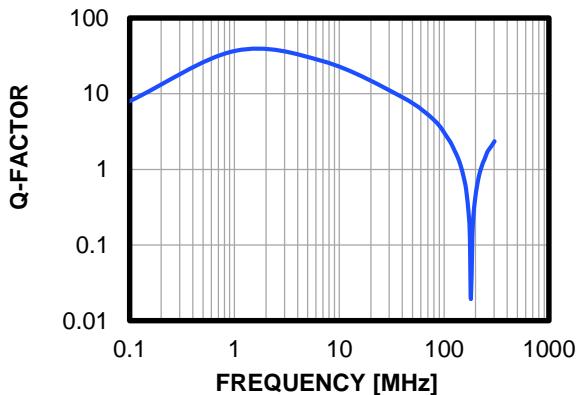
Impedance vs. Frequency



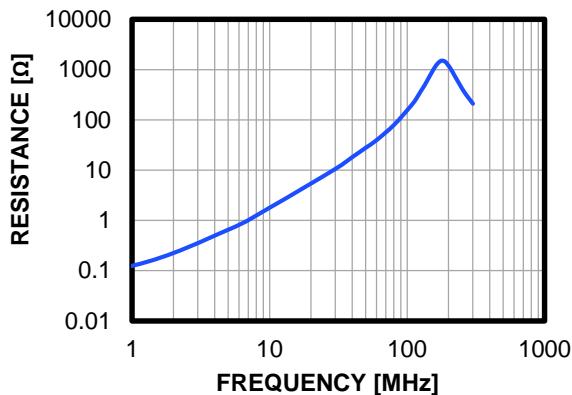
Inductance vs. Frequency



Quality Factor vs. Frequency

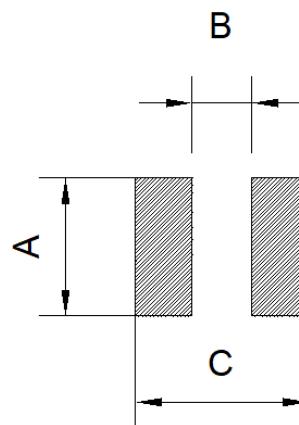


AC Resistance vs. Frequency

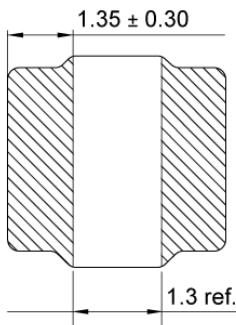
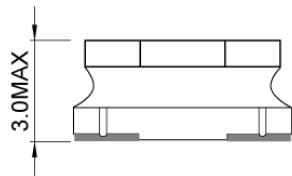
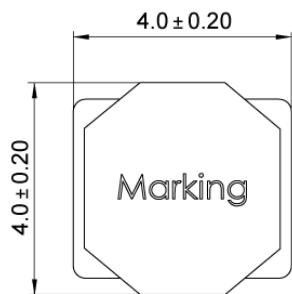


**LAND PATTERN****Dimensions**

A	4.50 ref.
B	1.50 ref.
C	4.50 ref. (units in mm)

**PRODUCT PACKAGE AND DIMENSIONS****Dimensions**

(units in mm)

**TOP MARKING****Marking**

Inductance Code

R68

## ORDERING INFORMATION

Part Number	$L$ <sup>(1)</sup>	$R_{DC}$	$I_R$ <sup>(2)</sup>	$I_{SAT\ 25^\circ C}$ <sup>(3)</sup>	$I_{SAT\ 100^\circ C}$ <sup>(4)</sup>
	$\pm 20\%$ ( $\mu H$ )	Typ (m $\Omega$ )	Typ (A)	Typ (A)	Typ (A)
MPL-SE4030-R68	0.68	10	6	7.5	6.5
MPL-SE4030-1R0	1	14	5.5	7	5.7
MPL-SE4030-2R2	2.2	30	3.7	5.5	4.2
MPL-SE4030-3R3	3.3	40	3.3	4.1	3.6
MPL-SE4030-4R7	4.7	62	2.6	3.4	2.7
MPL-SE4030-6R8	6.8	90	2.2	2.9	2.2
MPL-SE4030-100	10	100	2	2.2	1.75
MPL-SE4030-150	15	185	1.4	1.8	1.47
MPL-SE4030-220	22	220	1.3	1.5	1.12
MPL-SE4030-330	33	330	1.1	1.2	0.97
MPL-SE4030-470	47	480	0.9	1	0.82

## GENERAL SPECIFICATIONS

<sup>(1)</sup> <b>Inductance</b>	Measured at 100kHz, 100mA
<sup>(2)</sup> <b>Rated Current</b>	Rated current will cause the coil temperature rise $\Delta T$ of 40K <i><math>I_R</math> measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35<math>\mu m</math> Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.</i>
<sup>(3)</sup> <b>Saturation Current <math>25^\circ C</math></b>	Saturation current will cause L to drop from 30% at 25°C ambient temperature
<sup>(4)</sup> <b>Saturation Current <math>100^\circ C</math></b>	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
<b>Operating Condition</b>	Operating temperature: -40°C to +125°C (including temp rise) Should not exceed +125°C under worst-case operation conditions
<b>Storage Condition</b>	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

**REVISION HISTORY**

<b>Revision #</b>	<b>Revision Date</b>	<b>Description</b>	<b>Pages Updated</b>
1.0	9/19/2022	Initial Release	-

**Notice:** The information in this document is subject to change without notice. Please contact MPS for current specifications. Users should warrant and guarantee that third-party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Monolithic Power Systems \(MPS\):](#)

[MPL-SE4030-R68](#)