# MPL-SE4030-2R2

## Semi-Shielded Inductor 2.2µH


## 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

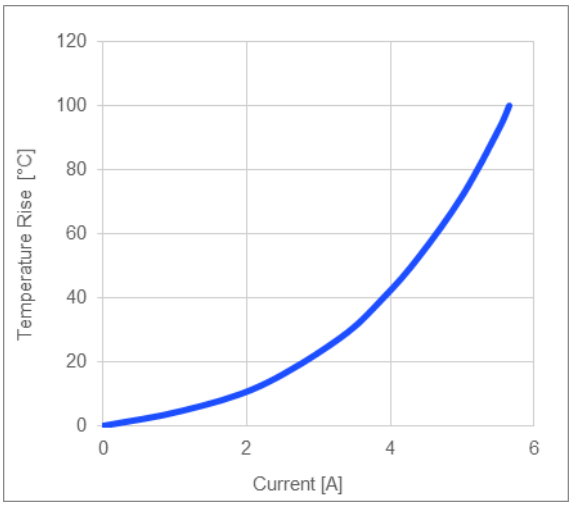
| Parameter | | | Value | Unit |
|---|---|---|---|---|
| Inductance (1) | $L$ | ±20% | 2.2 | µH |
| Resistance | $R_{DC}$ | typ | 30 | mΩ |
| Resistance MAX | $R_{DC\ MAX}$ | max | 37 | mΩ |
| Rated Current (2) | $I_R$ | typ | 3.9 | A |
| Saturation Current 25°C (3) | $I_{SAT\ 25°C}$ | typ | 5.5 | A |
| Saturation Current 100°C (4) | $I_{SAT\ 100°C}$ | typ | 5.1 | A |
| Resonance Frequency | $f_r$ | typ | 60 | MHz |

## GENERAL SPECIFICATIONS

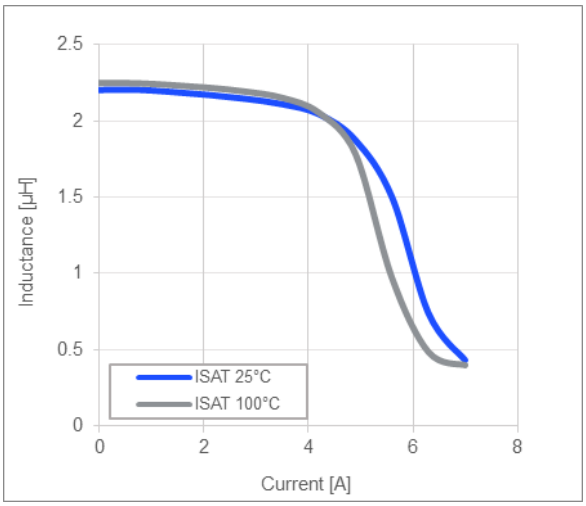
| | |
|---|---|
| (1) Inductance | Measured at 100kHz, 100mA |
| (2) Rated Current | Rated current will cause the coil temperature rise ΔT of 40K<br>*$I_R$ measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35µm Cu / PCB size 30x50mm. Temperature behavior dependent on circuit 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 +125°C (including temp rise)<br>Should not exceed +125°C under worst-case operation conditions |
| Storage Condition | Tape and Reel packaging: -10°C to +40°C<br>Humidity: <50% RH |

## TYPICAL PERFORMANCE CURVES

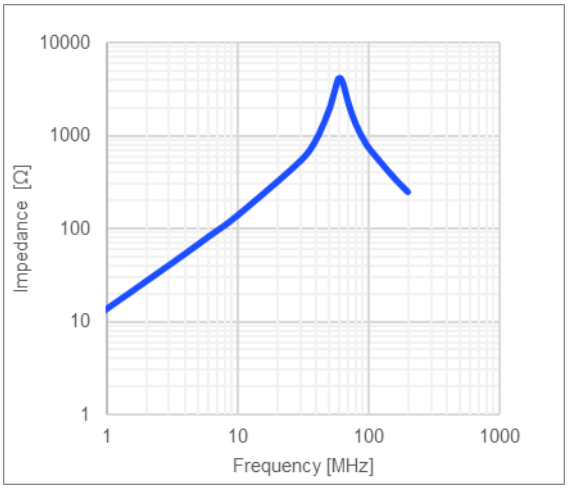
### Temperature Rise vs. Current



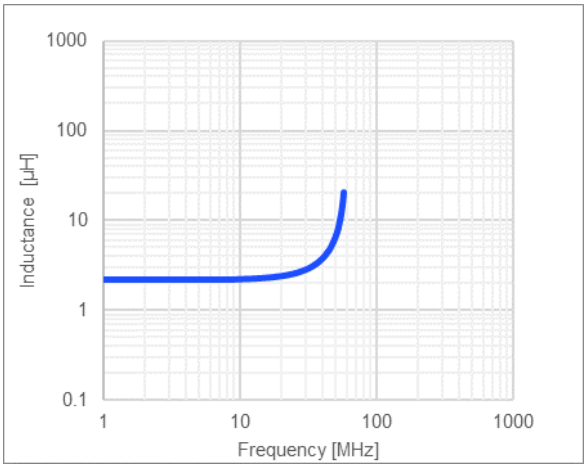

### Inductance vs. Current



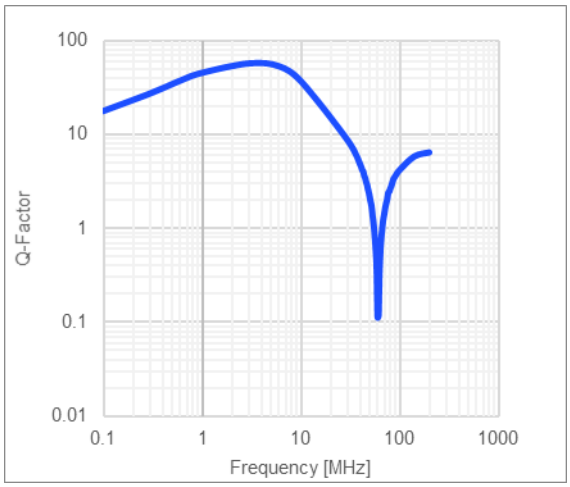

### Impedance vs. Frequency



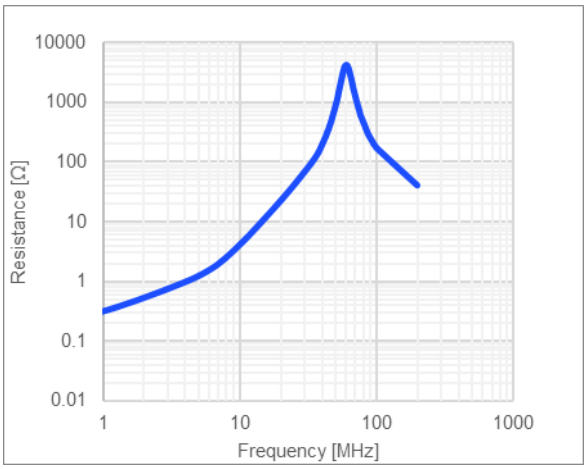

### Inductance vs. Frequency



**Quality Factor vs. Frequency**

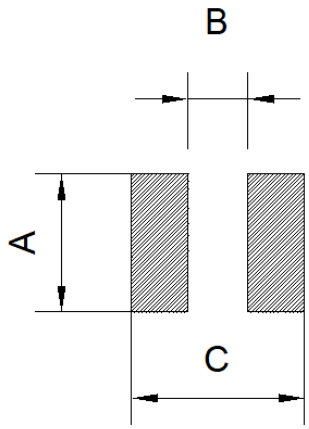



**AC Resistance vs. Frequency**



## LAND PATTERN

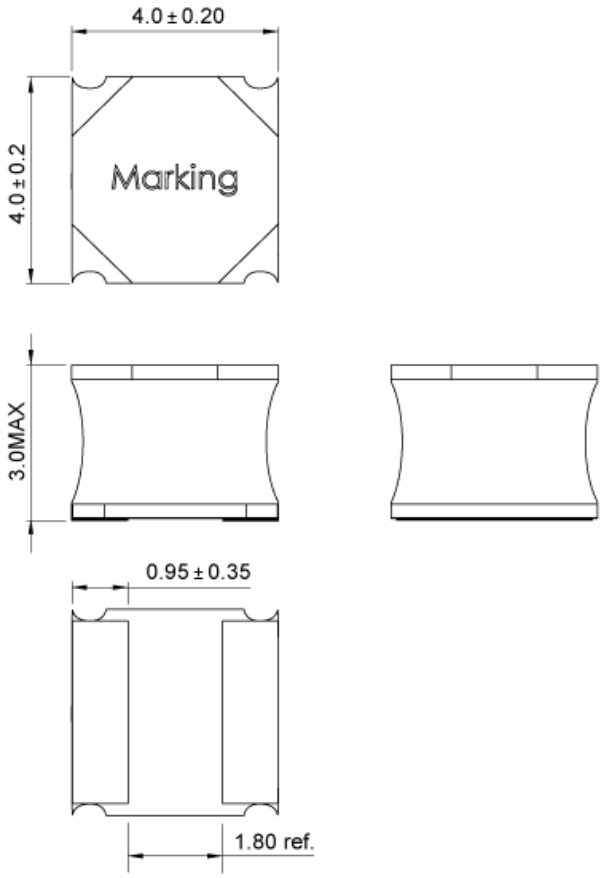
| Dimensions | |
|---|---|
| A | 3.60 ref. |
| B | 1.80 ref. |
| C | 4.10 ref. |
| | (unit in mm) |




## PRODUCT PACKAGE AND DIMENSIONS

**Dimensions**

(unit in mm)




## TOP MARKING

| Marking | |
|---|---|
| Inductance Code | 2R2 |

## ORDERING INFORMATION

| Part Number | $L$ (1) typ (µH) | $R_{DC}$ typ (mΩ) | $I_R$ (2) typ (A) | $I_{SAT\ 25°C}$ (3) typ (A) | $I_{SAT\ 100°C}$ (4) typ (A) |
|---|---|---|---|---|---|
| MPL-SE4030-1R0 | 1.0 | 12.5 | 6.3 | 7.5 | 7.2 |
| MPL-SE4030-2R2 | 2.2 | 30 | 3.9 | 5.5 | 5.1 |
| MPL-SE4030-3R3 | 3.3 | 39.8 | 3.45 | 4.1 | 3.7 |
| MPL-SE4030-4R7 | 4.7 | 63 | 2.6 | 3.7 | 3.4 |
| MPL-SE4030-6R8 | 6.8 | 83 | 2.4 | 3.3 | 3.1 |
| MPL-SE4030-100 | 10 | 97 | 2.2 | 2.4 | 2 |
| MPL-SE4030-150 | 15 | 185 | 1.6 | 1.95 | 1.85 |
| MPL-SE4030-220 | 22 | 219 | 1.5 | 1.65 | 1.5 |

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