

Semi-Shielded Inductor 3.3µH



APPLICATIONS

- Battery-powered devices
- IoT
- Wearable
- Portable devices
- Input filters

FEATURES

• Size 2mmx2.5mmx1.2mm

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

ELECTRICAL CHARACTERISTICS

| Parameter | | | Value | Unit |
|------------------------------|-----------------|-------------|-------|------|
| Inductance ⁽¹⁾ | L | ±20% | 3.3 | μH |
| Resistance | R _{DC} | typ | 158 | mΩ |
| Resistance MAX | R DC MAX | max | 189 | mΩ |
| Rated Current ⁽²⁾ | I _R | typ | 1.8 | Α |
| Saturation Current 25°C (3) | ISAT 25°C | typ | 2.4 | Α |
| Saturation Current 100°C (4) | ISAT 100°C | typ | 2.4 | Α |
| Resonance Frequency | f _r | typ | 49 | MHz |

GENERAL SPECIFICATIONS

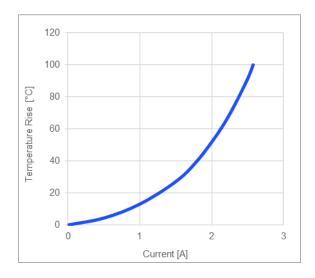
| asured at 100kHz, 100mA |
|--|
| ed current will cause the coil temperature rise ΔT of 40K neasured with the inductor soldered in a single-layer PCB. Copper layer thickness m Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, B layout, proximity to other components, and trace dimensions and thickness. |
| uration current will cause L to drop from 30% at 25°C ambient temperature |
| uration current will cause L to drop from 30% at 100°C ambient temperature |
| ctrical specifications measured at 25°C, 35% RH if not given differently |
| erating temperature: -40°C to +125°C (including temp rise) |
| uld not exceed +125°C under worst-case operation conditions |
| e and Reel packaging: -10°C to +40°C nidity: <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.

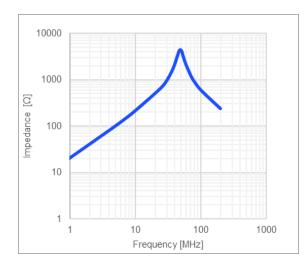
MPL-SE2512-3R3 – SEMI-SHIELDED INDUCTOR 3.3µH

TYPICAL PERFORMANCE CURVES





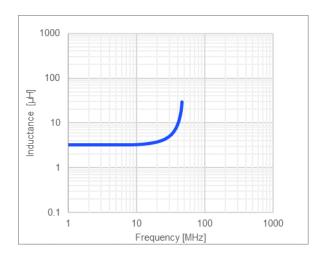
Impedance vs. Frequency

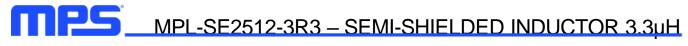


4 3.5 3 2.5 Inductance [µH] 2 1.5 1 0.5 ISAT 25°C ISAT 100°C 0 0 2 3 5 4 1 Current [A]

Inductance vs. Current

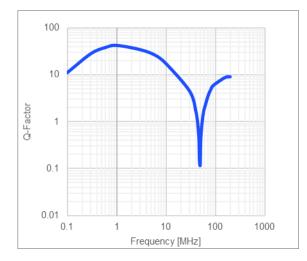
Inductance vs. Frequency

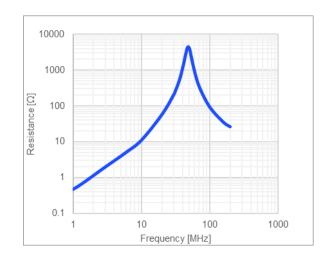




Quality Factor vs. Frequency

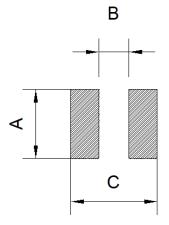
AC Resistance vs. Frequency





MPL-SE2512-3R3 – SEMI-SHIELDED INDUCTOR 3.3µH

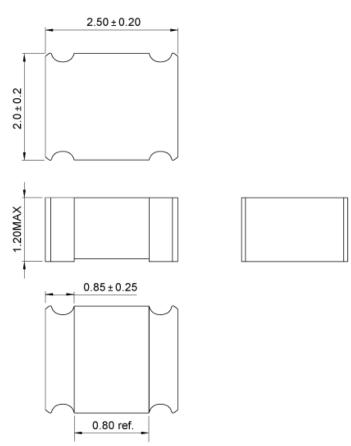
| LAND PATTERN | | | |
|--------------|--------------|--|--|
| Dimensions | | | |
| A | 2.10 ref. | | |
| В | 0.80 ref. | | |
| С | 2.60 ref. | | |
| | (unit in mm) | | |



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



ORDERING INFORMATION L (1) $I_{R}^{(2)}$ ISAT 25°C (3) ISAT 100°C (4) **R**_Dc **Part Number** typ (A) typ (A) typ (µH) typ (mΩ) typ (A) MPL-SE2512-R47 0.47 27 4.5 6.5 6.5 MPL-SE2512-R68 0.68 33 3.8 4.3 4.3 MPL-SE2512-1R0 1.0 45 3.35 4.2 4.2 MPL-SE2512-1R5 62 2.9 3.2 3.2 1.5 92 2.7 2.7 MPL-SE2512-2R2 2.2 2.5 MPL-SE2512-3R3 158 2.4 2.4 3.3 1.8 MPL-SE2512-4R7 4.7 205 1.6 1.9 1.9 MPL-SE2512-100 10 400 1.1 1.3 1.3 MPL-SE2512-150 620 0.85 0.9 0.9 15 MPL-SE2512-220 22 1000 0.70 0.8 0.8

GENERAL SPECIFICATIONS

| ⁽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 +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 |

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