# MPL-AT2512-R47C

## Low-Profile Molded Inductor, 0.47µH

## APPLICATIONS

- Battery-Powered Devices
- High-Frequency Switched-Mode Power Supplies (SMPS)
- Internet of Things (IoT)
- Wearables
- Portable Devices
- Input Filters

## FEATURES

- Size: 2.5mmx2mmx1.2mm
- Low Profile
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable across High Temperatures
- Low DCR
- Max Operating Temp: +125°C
- RoHS/REACH-Compliant, Halogen-Free

## ELECTRICAL CHARACTERISTICS

| Parameter | | | Value | Units |
|---|---|---|---|---|
| Inductance (1) | L | ±20% | 0.47 | µH |
| Resistance | $R_{DC}$ | Typ | 14 | mΩ |
| Resistance MAX | $R_{DC\ MAX}$ | Max | 19 | mΩ |
| Rated Current (2) | $I_R$ | Typ | 5.8 | A |
| Saturation Current 25°C (3) | $I_{SAT\ 25°C}$ | Typ | 6.8 | A |
| Saturation Current 100°C (4) | $I_{SAT\ 100°C}$ | Typ | 6.8 | A |
| Resonance Frequency | $f_R$ | Typ | 89 | MHz |
| Operating Voltage | $V_{DC}$ | Max | 40 | V |

## GENERAL SPECIFICATIONS

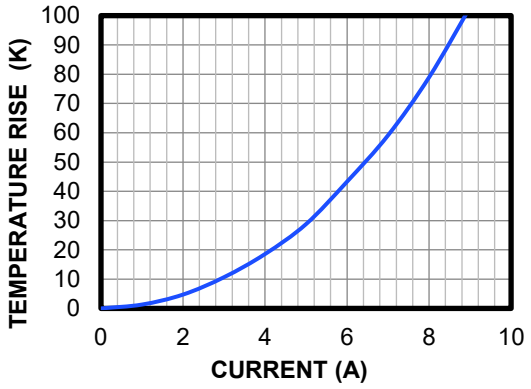
| | |
|---|---|
| (1) Inductance | Measured at 100kHz, 100mA |
| (2) Rated Current | The rated current causes a coil temperature rise ΔT of 40K.<br>$I_R$ is measured with the inductor soldered in a single-layer PCB, with a copper layer thickness of 35µm Cu, and a PCB size of 30mmx50mm. The temperature behavior is dependent on circuit design, PCB layout, proximity to other components, as well as trace dimensions and thickness. |
| (3) Saturation Current 25°C | The saturation current causes L to drop 30% at a 25°C ambient temperature. |
| (4) Saturation Current 100°C | The saturation current causes L to drop 30% at a 100°C ambient temperature. |
| Temperature Test Conditions | Electrical specifications measured at 25°C, 35% relative humidity (RH) if not given differently. |
| Operating Conditions | Operating temperature: -40°C to +125°C (including temp rise)<br>Should not exceed +125°C under worst-case operation conditions. |
| Storage Conditions | Tape and Reel packaging: -10°C to +40°C<br>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.

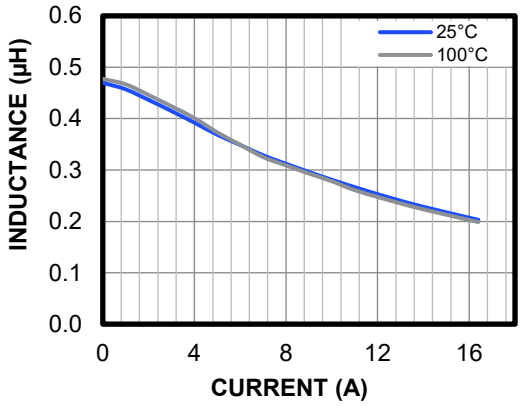

MPS Proprietary Information. Patent Protected. Unauthorized Photocopy and Duplication Prohibited.
© 2026 MPS. All Rights Reserved.

## TYPICAL PERFORMANCE CURVES

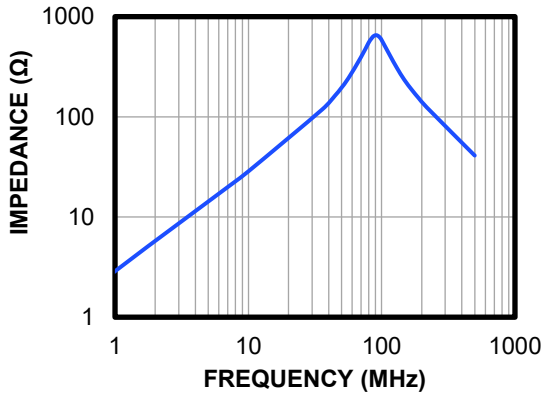
Temperature Rise vs. Current



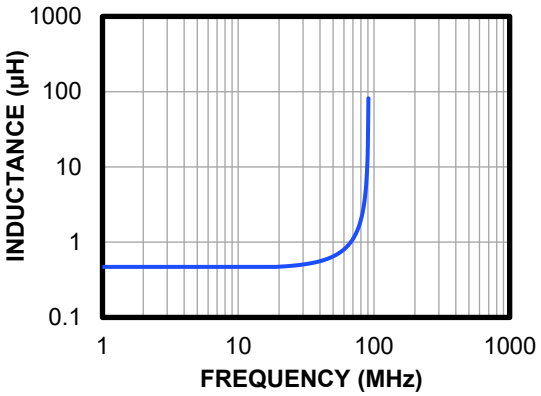

Inductance vs. Current



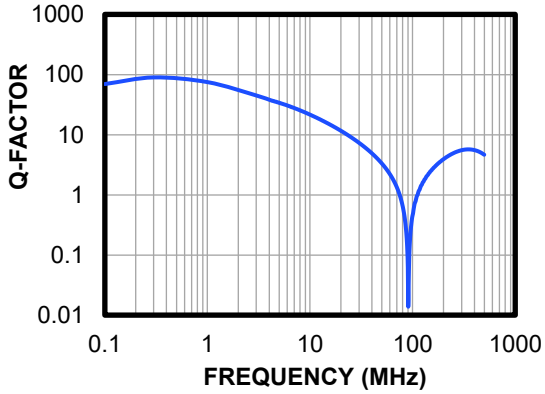

Impedance vs. Frequency



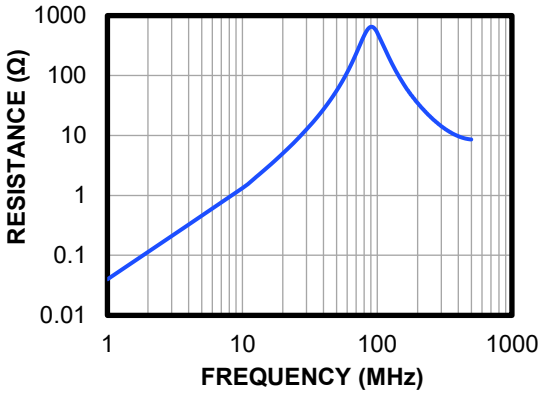

Inductance vs. Frequency




Quality Factor vs. Frequency




AC Resistance vs. Frequency

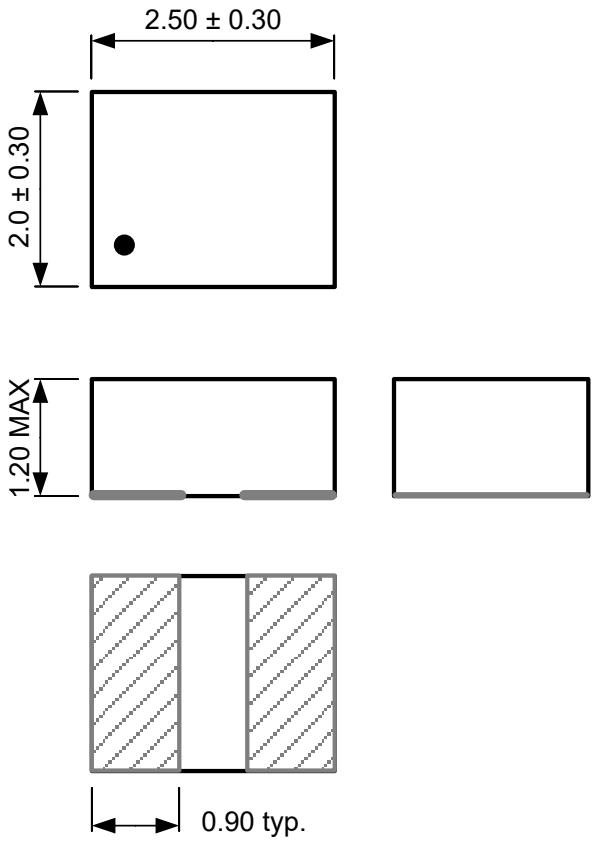




MPS Proprietary Information. Patent Protected. Unauthorized Photocopy and Duplication Prohibited.
© 2026 MPS. All Rights Reserved.

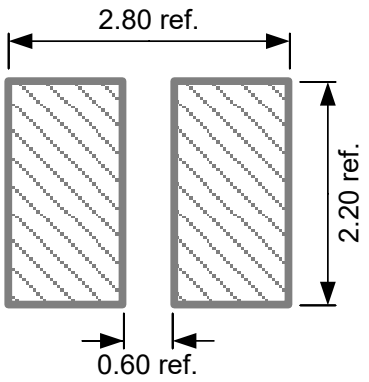
## DIMENSIONS

### PRODUCT PACKAGE




(units in mm)

### RECOMMENDED LAND PATTERN




(units in mm)

## TOP MARKING

| Marking | |
|---|---|
| Start of Winding | . (dot) |


MPS Proprietary Information. Patent Protected. Unauthorized Photocopy and Duplication Prohibited.
© 2026 MPS. All Rights Reserved.

## REVISION HISTORY

| Revision # | Revision Date | Description | Pages Updated |
|---|---|---|---|
| 1.0 | 6/10/2026 | 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.


MPS Proprietary Information. Patent Protected. Unauthorized Photocopy and Duplication Prohibited.
© 2026 MPS. All Rights Reserved.