MPL-AT2514-4R7
Low-Profile Molded Inductor 4.7µH

APPLICATIONS
- Battery-powered devices
- High switching frequency SMPS
- IoT
- Wearable
- Portable devices
- Input filters

FEATURES
- Size 2.5mmx2.0mmx1.4mm
- Low Profile
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable Over High Temperatures
- Low DCR
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inductance (1)</td>
<td>±20%</td>
<td>µH</td>
</tr>
<tr>
<td>Resistance (2)</td>
<td>DC typ</td>
<td>180</td>
</tr>
<tr>
<td>Resistance MAX MAX</td>
<td>DC MAX</td>
<td>max</td>
</tr>
<tr>
<td>Rated Current (2)</td>
<td>typ</td>
<td>1.7</td>
</tr>
<tr>
<td>Saturation Current 25°C (3)</td>
<td>typ</td>
<td>2.4</td>
</tr>
<tr>
<td>Saturation Current 100°C (4)</td>
<td>typ</td>
<td>2.4</td>
</tr>
<tr>
<td>Resonance Frequency</td>
<td>fr typ</td>
<td>28</td>
</tr>
</tbody>
</table>

GENERAL SPECIFICATIONS

(1) Inductance
Measured at 100kHz, 100mA

(2) Rated Current
Rated current will cause the coil temperature rise ΔT of 40K
Ir 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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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

<table>
<thead>
<tr>
<th>Dimensions</th>
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<tbody>
<tr>
<td>A</td>
<td>2.0 ref.</td>
</tr>
<tr>
<td>B</td>
<td>1.20 ref.</td>
</tr>
<tr>
<td>C</td>
<td>2.80 ref. (unit in mm)</td>
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</tbody>
</table>

### PRODUCT PACKAGE AND DIMENSIONS

((unit in mm)

### TOP MARKING

<table>
<thead>
<tr>
<th>Marking</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Start of Winding</td>
<td>· (dot)</td>
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</tbody>
</table>

1.40 Max

0.60 ± 0.2
## ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>$L^{(1)}$ typ (µH)</th>
<th>$R_{DC}$ typ (mΩ)</th>
<th>$I_R^{(2)}$ typ (A)</th>
<th>$I_{SAT\ 25^\circ C}^{(3)}$ typ (A)</th>
<th>$I_{SAT\ 100^\circ C}^{(4)}$ typ (A)</th>
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<tbody>
<tr>
<td>MPL-AT2512-R33</td>
<td>0.33</td>
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<td>MPL-AT2514-4R7</td>
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<td>355</td>
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<td>1.7</td>
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</tbody>
</table>

## GENERAL SPECIFICATIONS

**Inductance**  
(1) Measured at 100kHz, 100mA

**Rated Current**  
Rated current will cause the coil temperature rise $\Delta T$ 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.

**Saturation Current**  
(3) 25°C Saturation current will cause $L$ to drop from 30% at 25°C ambient temperature

(4) 100°C Saturation current will cause $L$ to drop from 30% at 100°C ambient temperature

**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

**Temperature Test Condition**  
Electrical specifications measured at 25°C, 35% RH if not given differently

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