MPL-AT2010-R68
Low-Profile Molded Inductor 0.68µH

APPLICATIONS

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

FEATURES

- Size 2.0mmx1.6mmx1.0mm
- 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>L</td>
<td>±20%</td>
</tr>
<tr>
<td>Resistance</td>
<td>R_{DC}typ</td>
<td>41</td>
</tr>
<tr>
<td>Resistance MAX</td>
<td>R_{DC MAX}max</td>
<td>50</td>
</tr>
<tr>
<td>Rated Current (2)</td>
<td>I_Rtyp</td>
<td>3.5</td>
</tr>
<tr>
<td>Saturation Current 25°C (3)</td>
<td>I_{SAT 25°C}typ</td>
<td>4.9</td>
</tr>
<tr>
<td>Saturation Current 100°C (4)</td>
<td>I_{SAT 100°C}typ</td>
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</tr>
<tr>
<td>Resonance Frequency</td>
<td>f_rtyp</td>
<td>125</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

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
**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>
<th></th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>1.60 ref.</td>
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<tr>
<td>B</td>
<td>0.70 ref.</td>
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<tr>
<td>C</td>
<td>2.0 ref.</td>
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</table>

(unit in mm)

PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)

TOP MARKING

<table>
<thead>
<tr>
<th>Marking</th>
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<tbody>
<tr>
<td>Start of Winding</td>
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**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>L (1) typ (µH)</th>
<th>R&lt;sub&gt;DC&lt;/sub&gt; typ (mΩ)</th>
<th>I&lt;sub&gt;R&lt;/sub&gt; (2) typ (A)</th>
<th>I&lt;sub&gt;SAT 25°C&lt;/sub&gt; (3) typ (A)</th>
<th>I&lt;sub&gt;SAT 100°C&lt;/sub&gt; (4) typ (A)</th>
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<tbody>
<tr>
<td>MPL-AT2010-R47</td>
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<td>1.9</td>
</tr>
</tbody>
</table>

**GENERAL SPECIFICATIONS**

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