MPL-AL6060-4R7
Low-Resistance Molded Inductor 4.7µH

APPLICATIONS

- Battery-powered devices
- Embedded computing
- High-current SMPS
- High-frequency SMPS
- POL converters
- FPGA

FEATURES

- Size 6.6mmx6.4mmx5.8mm
- Low DCR
- Low AC Losses
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable Over High Temperatures
- Max Operating Temp +155°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>4.7</td>
<td>µH</td>
</tr>
<tr>
<td>Resistance</td>
<td>12</td>
<td>mΩ</td>
</tr>
<tr>
<td>Resistance MAX</td>
<td>14.4</td>
<td>mΩ</td>
</tr>
<tr>
<td>Rated Current (2)</td>
<td>10</td>
<td>A</td>
</tr>
<tr>
<td>Saturation Current 25°C (3)</td>
<td>9</td>
<td>A</td>
</tr>
<tr>
<td>Saturation Current 100°C (4)</td>
<td>9</td>
<td>A</td>
</tr>
<tr>
<td>Resonance Frequency</td>
<td>19</td>
<td>MHz</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

Operating Condition

Operating temperature: -40°C to +155°C (including temp rise)
Should not exceed +155°C under worst-case operation conditions

Storage Condition

Tape and Reel packaging: -10°C to +40°C
Humidity: <50% RH

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MPL-AL6060-4R7 – LOW-RESISTANCE MOLDED INDUCTOR 4.7µH

TYPICAL PERFORMANCE CURVES

Temperature Rise vs. Current

Inductance vs. Current

Impedance vs. Frequency

Inductance vs. Frequency

TYPICAL PERFORMANCE CURVES

Temperature Rise vs. Current

Inductance vs. Current

Impedance vs. Frequency

Inductance vs. Frequency
Quality Factor vs. Frequency

AC Resistance vs. Frequency
## ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>$L^{(1)}$</th>
<th>$R_{DC}$</th>
<th>$I_R^{(2)}$</th>
<th>$I_{SAT,25,^\circ C}^{(3)}$</th>
<th>$I_{SAT,100,^\circ C}^{(4)}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPL-AL6060-4R7</td>
<td>4.7</td>
<td>12</td>
<td>10.0</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>MPL-AL6060-5R6</td>
<td>5.6</td>
<td>13</td>
<td>9.4</td>
<td>8.6</td>
<td>8.6</td>
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<td>MPL-AL6060-6R8</td>
<td>6.8</td>
<td>16</td>
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<td>MPL-AL6060-8R2</td>
<td>8.2</td>
<td>19</td>
<td>8.0</td>
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<tr>
<td>MPL-AL6060-100</td>
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<td>24</td>
<td>6.9</td>
<td>6.6</td>
<td>6.6</td>
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<td>MPL-AL6060-150</td>
<td>15</td>
<td>35</td>
<td>5.8</td>
<td>5.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

## GENERAL SPECIFICATIONS

1. **Inductance**
   - Measured at 100kHz, 100mA

2. **Rated Current**
   - $I_R$ 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 $25\,^\circ C$**
   - Saturation current will cause $L$ to drop from 30% at 25°C ambient temperature

4. **Saturation Current $100\,^\circ C$**
   - 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 +155°C (including temp rise)
- Should not exceed +155°C under worst-case operation conditions

**Storage Condition**
- Tape and Reel packaging: -10°C to +40°C
- Humidity: <50% RH

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