MPL-AL6060-150
Low-Resistance Molded Inductor 15µH

APPLICATIONS

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

FEATURES

- Size 6.6mmx6.4mmx4.8mm
- 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>L</td>
<td>±20%</td>
</tr>
<tr>
<td>Resistance</td>
<td>R_{DC}</td>
<td>typ</td>
</tr>
<tr>
<td>Resistance MAX</td>
<td>R_{DC MAX}</td>
<td>max</td>
</tr>
<tr>
<td>Rated Current (2)</td>
<td>I_R</td>
<td>typ</td>
</tr>
<tr>
<td>Saturation Current 25°C (3)</td>
<td>I_{SAT 25°C}</td>
<td>typ</td>
</tr>
<tr>
<td>Saturation Current 100°C (4)</td>
<td>I_{SAT 100°C}</td>
<td>typ</td>
</tr>
<tr>
<td>Resonance Frequency</td>
<td>f_r</td>
<td>typ</td>
</tr>
</tbody>
</table>

(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

GENERAL SPECIFICATIONS

(1) Inductance Measured at 100kHz, 100mA

(2) Rated Current

(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 +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

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.
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>
</tr>
</thead>
<tbody>
<tr>
<td>A 5.60 ref.</td>
<td></td>
</tr>
<tr>
<td>B 2.50 ref.</td>
<td></td>
</tr>
<tr>
<td>C 5.60 ref.</td>
<td></td>
</tr>
<tr>
<td>(unit in mm)</td>
<td></td>
</tr>
</tbody>
</table>

**PRODUCT PACKAGE AND DIMENSIONS**

(unit in mm)

**TOP MARKING**

<table>
<thead>
<tr>
<th>Marking</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of Winding</td>
<td>· (dot)</td>
</tr>
<tr>
<td>Inductance Code</td>
<td>150</td>
</tr>
<tr>
<td>MPS Code</td>
<td>MPS</td>
</tr>
</tbody>
</table>
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>
</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>
</tr>
<tr>
<td>MPL-AL6060-6R8</td>
<td>6.8</td>
<td>16</td>
<td>8.5</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>MPL-AL6060-8R2</td>
<td>8.2</td>
<td>19</td>
<td>8.0</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>MPL-AL6060-100</td>
<td>10</td>
<td>24</td>
<td>6.9</td>
<td>6.6</td>
<td>6.6</td>
</tr>
<tr>
<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: Rated current will cause the coil temperature rise ΔT of 40K. 
I<sub>R</sub> 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 +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

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.