MPL-AL6060-8R2
Low-Resistance Molded Inductor 8.2µH

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>L</td>
<td>±20% 8.2 µH</td>
</tr>
<tr>
<td>Resistance</td>
<td>R_{DC} typ</td>
<td>19 mΩ</td>
</tr>
<tr>
<td>Resistance_{MAX}</td>
<td>R_{DC MAX} max</td>
<td>24.8 mΩ</td>
</tr>
<tr>
<td>Rated Current (2)</td>
<td>I_{R} typ</td>
<td>8.0 A</td>
</tr>
<tr>
<td>Saturation Current 25°C (3)</td>
<td>I_{SAT 25°C} typ</td>
<td>7 A</td>
</tr>
<tr>
<td>Saturation Current 100°C (4)</td>
<td>I_{SAT 100°C} typ</td>
<td>7 A</td>
</tr>
<tr>
<td>Resonance Frequency</td>
<td>f_r typ</td>
<td>12 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

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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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</td>
<td>5.60 ref.</td>
</tr>
<tr>
<td>B</td>
<td>2.50 ref.</td>
</tr>
<tr>
<td>C</td>
<td>5.60 ref.</td>
</tr>
</tbody>
</table>

(unit in mm)

### 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>8R2</td>
</tr>
<tr>
<td>MPS Code</td>
<td>MPS</td>
</tr>
</tbody>
</table>
ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>L (µH)</th>
<th>RDC (mΩ)</th>
<th>IR (A)</th>
<th>ISAT 25°C (A)</th>
<th>ISAT 100°C (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>

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(3) Saturation Current 25°C
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(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

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