FEATURES

- Size 2mmx2.5mmx1.2mm
- Semi-Shielded Construction
- Low DCR
- Low Profile
- Low Stray Field
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

APPLICATIONS

- Battery-powered devices
- IoT
- Wearable
- Portable devices
- Input filters

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>

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

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

![Temperature Rise vs. Current Graph]

Inductance vs. Current

![Inductance vs. Current Graph]

Impedance vs. Frequency

![Impedance vs. Frequency Graph]

Inductance vs. Frequency

![Inductance vs. Frequency Graph]
Quality Factor vs. Frequency

AC Resistance vs. Frequency
**LAND PATTERN**

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

*(unit in mm)*

**PRODUCT PACKAGE AND DIMENSIONS**

*Dimensions*

*unit in mm*
## 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-SE2512-R47</td>
<td>0.47 typ (µH)</td>
<td>27 typ (mΩ)</td>
<td>4.5 typ (A)</td>
<td>6.5 typ (A)</td>
<td>6.5 typ (A)</td>
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<tr>
<td>MPL-SE2512-R68</td>
<td>0.68 typ (µH)</td>
<td>33 typ (mΩ)</td>
<td>3.8 typ (A)</td>
<td>4.3 typ (A)</td>
<td>4.3 typ (A)</td>
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<tr>
<td>MPL-SE2512-1R0</td>
<td>1.0 typ (µH)</td>
<td>45 typ (mΩ)</td>
<td>3.35 typ (A)</td>
<td>4.2 typ (A)</td>
<td>4.2 typ (A)</td>
</tr>
<tr>
<td>MPL-SE2512-1R5</td>
<td>1.5 typ (µH)</td>
<td>62 typ (mΩ)</td>
<td>2.9 typ (A)</td>
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<td>3.2 typ (A)</td>
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<tr>
<td>MPL-SE2512-2R2</td>
<td>2.2 typ (µH)</td>
<td>92 typ (mΩ)</td>
<td>2.5 typ (A)</td>
<td>2.7 typ (A)</td>
<td>2.7 typ (A)</td>
</tr>
<tr>
<td>MPL-SE2512-3R3</td>
<td>3.3 typ (µH)</td>
<td>158 typ (mΩ)</td>
<td>1.8 typ (A)</td>
<td>2.4 typ (A)</td>
<td>2.4 typ (A)</td>
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<tr>
<td>MPL-SE2512-4R7</td>
<td>4.7 typ (µH)</td>
<td>205 typ (mΩ)</td>
<td>1.6 typ (A)</td>
<td>1.9 typ (A)</td>
<td>1.9 typ (A)</td>
</tr>
<tr>
<td>MPL-SE2512-100</td>
<td>10 typ (µH)</td>
<td>400 typ (mΩ)</td>
<td>1.1 typ (A)</td>
<td>1.3 typ (A)</td>
<td>1.3 typ (A)</td>
</tr>
<tr>
<td>MPL-SE2512-150</td>
<td>15 typ (µH)</td>
<td>620 typ (mΩ)</td>
<td>0.85 typ (A)</td>
<td>0.9 typ (A)</td>
<td>0.9 typ (A)</td>
</tr>
<tr>
<td>MPL-SE2512-220</td>
<td>22 typ (µH)</td>
<td>1000 typ (mΩ)</td>
<td>0.70 typ (A)</td>
<td>0.8 typ (A)</td>
<td>0.8 typ (A)</td>
</tr>
</tbody>
</table>

## GENERAL SPECIFICATIONS

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

(2) **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.

(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 +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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