**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 \(\Delta T\) 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°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>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2.10 ref.</td>
</tr>
<tr>
<td>B</td>
<td>0.80 ref.</td>
</tr>
<tr>
<td>C</td>
<td>2.60 ref.</td>
</tr>
</tbody>
</table>

(unit in mm)

**PRODUCT PACKAGE AND DIMENSIONS**

[unit in mm]

- **A**: 2.50 ± 0.20
- **B**: 2.0 ± 0.2
- **C**: 0.85 ± 0.25
- **120 MAX**: 0.80 ref.
### GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>L (1)</th>
<th>R_{DC}</th>
<th>I_{R} (2)</th>
<th>I_{SAT 25°C} (3)</th>
<th>I_{SAT 100°C} (4)</th>
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</thead>
<tbody>
<tr>
<td>MPL-SE2512-R47</td>
<td>0.47</td>
<td>27</td>
<td>4.5</td>
<td>6.5</td>
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<tr>
<td>MPL-SE2512-R68</td>
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<tr>
<td>MPL-SE2512-1R0</td>
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<tr>
<td>MPL-SE2512-1R5</td>
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<td>3.2</td>
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<tr>
<td>MPL-SE2512-2R2</td>
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<tr>
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<td>158</td>
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<tr>
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<td>MPL-SE2512-100</td>
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<td>400</td>
<td>1.1</td>
<td>1.3</td>
<td>1.3</td>
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<tr>
<td>MPL-SE2512-150</td>
<td>15</td>
<td>620</td>
<td>0.85</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>MPL-SE2512-220</td>
<td>22</td>
<td>1000</td>
<td>0.70</td>
<td>0.8</td>
<td>0.8</td>
</tr>
</tbody>
</table>

**Inductance (1)**

Measure at 100kHz, 100mA

**Rated Current (2)**

Rated current will cause the coil temperature rise $\Delta T$ of 40K.

In 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.

**Saturation Current 25°C (3)**

Saturation current will cause L to drop from 30% at 25°C ambient temperature.

**Saturation Current 100°C (4)**

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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