# Shielded Power Inductors – MLC1770

- Soft saturation makes them ideal for VRD/VRM applications
- Special materials eliminate all thermal aging issues.
- Saturation current up to 64 Amps

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance $\pm 20%$ (µH)</th>
<th>DCR (mΩ)</th>
<th>SRF typ (MHz)</th>
<th>Isat (A)</th>
<th>Irms (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>typ</td>
<td>max</td>
<td>10% drop</td>
<td>20% drop</td>
<td>30% drop</td>
</tr>
<tr>
<td>MLC1770-801ME</td>
<td>0.80</td>
<td>1.15</td>
<td>1.30</td>
<td>28.40</td>
<td>49.92</td>
</tr>
<tr>
<td>MLC1770-142ME</td>
<td>1.40</td>
<td>1.80</td>
<td>2.00</td>
<td>20.52</td>
<td>35.64</td>
</tr>
<tr>
<td>MLC1770-202ME</td>
<td>2.00</td>
<td>2.70</td>
<td>3.00</td>
<td>14.20</td>
<td>24.80</td>
</tr>
<tr>
<td>MLC1770-282ME</td>
<td>2.80</td>
<td>3.60</td>
<td>4.00</td>
<td>13.00</td>
<td>22.80</td>
</tr>
</tbody>
</table>

1. When ordering, please specify termination and packaging codes:

   **MLC1770-282ME**
   - **E** = RoHS compliant tin-silver over copper
   - **S** = non-RoHS tin-lead (63/37)

2. Inductance measured at 100 kHz, 0.1 Vrms, 0 Adc using a Coilcraft SMD-A fixture in an Agilent/HP 4263B LCR meter.

3. SRF measured using an Agilent/HP4291A impedance analyzer and an Agilent/HP 16193 fixture.

4. DC current at 25°C that causes the specified inductance drop from its value without current. Click for temperature derating information.

5. Current that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings. Click for temperature derating information.

6. Electrical specifications at 25°C.

   *Soft saturation makes them ideal for VRD/VRM applications*  
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   *Saturation current up to 64 Amps*  

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**Core material** Iron  
**Core and winding loss** Go to core loss calculator  
**Environmental** RoHS compliant, halogen free  
**Weight** 7.8 – 8.0 g  
**Terminations** RoHS compliant tin-silver (96.5/3.5) over copper. Other terminations available at additional cost.  
**Ambient temperature** –40°C to +85°C with $I_rms$ current  
**Maximum part temperature:** The part may be operated without damage as long its temperature (ambient + self-heating) does not exceed +125°C.  
**Storage temperature** Component: –40°C to +125°C. Tape and reel packaging: –40°C to +80°C  
**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles  
**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)  
**Failures in Time (FIT) / Mean Time Between Failures (MTBF)** 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332  
**Packaging** 400 per 13" reel Plastic tape: 24 mm wide, 0.4 mm thick, 24 mm pocket spacing, 7.0 mm pocket depth  
**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

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[Refer to Doc 362 “Soldering Surface Mount Components” before soldering. ](#)

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[Click for temperature derating information. ](#)
Shielded Power Inductors – MLC1770

L vs Current

```
<table>
<thead>
<tr>
<th>Current (A)</th>
<th>Inductance (µH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.116</td>
</tr>
<tr>
<td>1</td>
<td>0.276</td>
</tr>
<tr>
<td>10</td>
<td>0.642</td>
</tr>
<tr>
<td>100</td>
<td>0.661</td>
</tr>
</tbody>
</table>
```

L vs Frequency

```
<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Inductance (µH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>0.165</td>
</tr>
<tr>
<td>0.1</td>
<td>0.248</td>
</tr>
<tr>
<td>1</td>
<td>0.116</td>
</tr>
<tr>
<td>10</td>
<td>0.276</td>
</tr>
</tbody>
</table>
```

Part Marking

```
MLC1770 –xxxME
Coilcraft
XXXX Y
```

Recommended Land Pattern

```
0.116
2.95

0.165
4.2
```

Dimensions are in inches/mm