Shielded Power Inductors – XAL1010

- High current – up to 98.8 A; very low DCR – 0.45 mOhms
- AEC-Q200 Grade 1 qualified (−40°C to +125°C ambient)
- Soft saturation makes them ideal for VRM/VRD applications.

Core material: Composite
Core and winding loss: See www.coilcraft.com/coreloss
Environmental: RoHS compliant, halogen free
Terminations: RoHS compliant tin-silver (96.5/3.5) over copper. Other terminations available at additional cost.

Weight: 5.7 – 6.3 g
Operating voltage: 0 – 55 V
Ambient temperature: −40°C to +125°C with (40°C rise) Irms current.
Maximum part temperature: +165°C (ambient + temp rise). Derating.
Storage temperature: Component: −55°C to +165°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: 300/13” reel Plastic tape: 24 mm wide, 0.4 mm thick, 16 mm pocket spacing, 10.21 mm pocket depth

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance typ</th>
<th>DCR (mOhms)</th>
<th>SRF typ</th>
<th>Isat</th>
<th>Irms (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XAL1010-221ME</td>
<td>0.22</td>
<td>0.45</td>
<td>0.50</td>
<td>115</td>
<td>98.8</td>
</tr>
<tr>
<td>XAL1010-451ME</td>
<td>0.45</td>
<td>0.65</td>
<td>0.72</td>
<td>66</td>
<td>70.5</td>
</tr>
<tr>
<td>XAL1010-681ME</td>
<td>0.68</td>
<td>0.87</td>
<td>0.96</td>
<td>53</td>
<td>62.0</td>
</tr>
<tr>
<td>XAL1010-102ME</td>
<td>1.00</td>
<td>1.00</td>
<td>1.10</td>
<td>42</td>
<td>55.0</td>
</tr>
<tr>
<td>XAL1010-152ME</td>
<td>1.50</td>
<td>1.60</td>
<td>1.76</td>
<td>33</td>
<td>36.6</td>
</tr>
<tr>
<td>XAL1010-222ME</td>
<td>2.20</td>
<td>2.55</td>
<td>2.80</td>
<td>22</td>
<td>34.0</td>
</tr>
<tr>
<td>XAL1010-332ME</td>
<td>3.30</td>
<td>3.70</td>
<td>4.10</td>
<td>21</td>
<td>27.4</td>
</tr>
<tr>
<td>XAL1010-472ME</td>
<td>4.70</td>
<td>5.20</td>
<td>5.70</td>
<td>19</td>
<td>25.4</td>
</tr>
<tr>
<td>XAL1010-562ME</td>
<td>5.60</td>
<td>6.30</td>
<td>6.93</td>
<td>16</td>
<td>23.6</td>
</tr>
<tr>
<td>XAL1010-682ME</td>
<td>6.80</td>
<td>8.10</td>
<td>8.90</td>
<td>14</td>
<td>21.8</td>
</tr>
<tr>
<td>XAL1010-822ME</td>
<td>8.20</td>
<td>11.70</td>
<td>12.90</td>
<td>12</td>
<td>18.3</td>
</tr>
<tr>
<td>XAL1010-103ME</td>
<td>10.00</td>
<td>13.40</td>
<td>14.75</td>
<td>11</td>
<td>17.5</td>
</tr>
<tr>
<td>XAL1010-153ME</td>
<td>15.00</td>
<td>16.90</td>
<td>18.60</td>
<td>9</td>
<td>15.5</td>
</tr>
</tbody>
</table>

1. When ordering, please specify termination and packaging coded:
XAL1010-153MED
Termination: E = RoHS compliant tin-silver over copper.
Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).
Packaging: D = 13” machine-ready reel. EIA-481 embossed plastic tape (300 parts per full reel).
B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added ($25 charge), use code letter D instead.

2. Inductance tested at 1 MHz, 0.1 Vrms, 0 Adc.
3. DCR measured on a micro-ohmmeter.
4. SRF measured using Agilent/HP 4395A or equivalent.
5. DC current at 25°C that causes an inductance drop of 30% (typ) from its value without current.
6. Click for temperature derating information.
7. Electrical specifications at 25°C.

Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

I rms Testing
I rms testing was performed on 0.75 inch wide x 0.25 inch thick copper traces in still air.
Temperature rise is highly dependent on many factors including pcb land pattern, trace size, and proximity to other components. Therefore temperature rise should be verified in application conditions.

High current – up to 98.8 A; very low DCR – 0.45 mOhms
AEC-Q200 Grade 1 qualified (−40°C to +125°C ambient)
Soft saturation makes them ideal for VRM/VRD applications.
Shielded Power Inductors – XAL1010

Typical L vs Current

- Inductance (µH) vs Current (A) graphs for different inductance values:
  - 0.22 µH
  - 0.45 µH
  - 0.68 µH
  - 1.0 µH
  - 1.5 µH
  - 2.2 µH
  - 3.3 µH
  - 4.7 µH

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.
HIGH TEMPERATURE

Shielded Power Inductors – XAL1010

Typical L vs Current

- 5.6 µH
- 6.8 µH
- 8.2 µH
- 10 µH
- 15 µH

This product may not be used in medical or high risk applications without prior Coilcraft approval.
Specification subject to change without notice.
Please check web site for latest information.
**HIGH TEMPERATURE**

Shielded Power Inductors – XAL1010

**Typical L vs Frequency**

![Graph showing typical inductance vs frequency](image)

**Recommended Land Pattern**

![Image of recommended land pattern](image)

**Terminal thickness typ (in / mm)**

<table>
<thead>
<tr>
<th>Dash number</th>
<th>Terminal thickness typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>-221</td>
<td>0.0394 / 1.0</td>
</tr>
<tr>
<td>-451</td>
<td>0.0394 / 1.0</td>
</tr>
<tr>
<td>-681</td>
<td>0.0394 / 1.0</td>
</tr>
<tr>
<td>-102</td>
<td>0.0394 / 1.0</td>
</tr>
<tr>
<td>-152</td>
<td>0.0315 / 0.80</td>
</tr>
<tr>
<td>-222</td>
<td>0.0236 / 0.60</td>
</tr>
<tr>
<td>-332</td>
<td>0.0157 / 0.40</td>
</tr>
<tr>
<td>-472</td>
<td>0.0157 / 0.40</td>
</tr>
<tr>
<td>-562</td>
<td>0.0157 / 0.40</td>
</tr>
<tr>
<td>-682</td>
<td>0.0118 / 0.30</td>
</tr>
<tr>
<td>-822</td>
<td>0.0079 / 0.20</td>
</tr>
<tr>
<td>-103</td>
<td>0.0079 / 0.20</td>
</tr>
<tr>
<td>-153</td>
<td>0.0079 / 0.20</td>
</tr>
</tbody>
</table>

*For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.005 inch / 0.13 mm*

**Note:**
Parts manufactured prior to March, 2014 may have a raised circular portion on top. The maximum height is the same for all parts.

*Dimensions are in inches / mm*