Shielded Power Inductors – XAL5020

- High current and very low DCR
- Soft saturation makes them ideal for VRM/VRD applications.
- AEC-200 Grade 1 (−40°C to +125°C)

**Core material** Composite

**Environmental** RoHS compliant, halogen free

**Terminations** RoHS compliant tin-silver over copper. Other terminations available at additional cost.

**Weight** 0.28 – 0.29 g

**Operating voltage:** 0 – 60 V

**Ambient temperature** –40°C to +125°C with (40°C rise) Irms current.

**Maximum part temperature** +165°C (ambient + temp rise).

**Storage temperature** Component: −55°C to +165°C.

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)** 0.48 per billion hours / 2.08E+09 hours, calculated per Telcordia SR-332

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance² ±20% (µH) typ max</th>
<th>DCR (mOhms)³ typ max</th>
<th>SRF typ⁴ (MHz)</th>
<th>Isat⁵ (A)</th>
<th>Irms (A)⁶ 20°C rise</th>
<th>40°C rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>XAL5020-161ME_</td>
<td>0.16</td>
<td>4.11</td>
<td>5.00</td>
<td>205</td>
<td>24.2</td>
<td>13.9</td>
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<tr>
<td>XAL5020-331ME_</td>
<td>0.33</td>
<td>6.40</td>
<td>7.68</td>
<td>110</td>
<td>17.1</td>
<td>10.5</td>
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<td>9.54</td>
<td>80</td>
<td>14.1</td>
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<td>11.8</td>
<td>64</td>
<td>12.0</td>
<td>9.4</td>
</tr>
<tr>
<td>XAL5020-122ME_</td>
<td>1.2</td>
<td>17.8</td>
<td>20.5</td>
<td>50</td>
<td>9.5</td>
<td>6.8</td>
</tr>
</tbody>
</table>

1. When ordering, please specify **packaging** code:

   **XAL5020-122MEC**

   **Packaging:**
   
   C = 7” machine-ready reel. EIA-481 embossed plastic tape (1000 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).

   B = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to C.

   D = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (3500 parts per full reel).

2. Inductance tested at 1 MHz, 0.1 Vrms, 0 Adc.

3. DCR measured on a micro-ohmmeter.

4. SRF measured using an Agilent/HP 4395A or equivalent.

5. DC current at 25°C that causes an inductance drop of 30% (typ) from its value without current. Click for temperature derating information.

6. 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.

7. Electrical specifications at 25°C.

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

**Irms Testing**

Irms testing was performed on 0.75 inch wide × 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.
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L vs Current

L vs Frequency

Dash number indicates direction of terminals and start (short) lead. Connect high dv/dt here for lowest EMI.

* 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.

Dimensions are in inches / mm.