Shielded Power Inductors – XAL40xx

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

**Designer’s Kit C429** contains 5 of each value

**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.

**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). **Derating.**

**Storage temperature** Component: −55°C to +165°C. Tape and reel packaging: −55°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)** 0.48 per billion hours / 2.083E+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.

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<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance²±20% (µH)</th>
<th>DCR (mOhms)³</th>
<th>SRF typ⁴</th>
<th>Isat⁵</th>
<th>Irms (A)⁶</th>
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<tr>
<td></td>
<td>typ</td>
<td>max</td>
<td>(MHz)</td>
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<td></td>
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<td>XAL4020-221ME_</td>
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<td>120</td>
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</table>

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

   **XAL4040-153MEC**
   
   **Termination:** E = RoHS compliant tin-silver over copper.  
   **Special order:** T = RoHS tin-silver-copper (95.5/0.5) or S = non-RoHS tin-lead (63/37).
   
   **Packaging:** C = 7” machine-ready reel. EIA-481 embossed plastic tape. Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).
   
   **B** = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked.

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. **Click for temperature derating information.**
6. Current that causes the specified temperature rise from 25°C ambient. **Click for temperature derating information.**
7. Electrical specifications at 25°C. Refer to Doc 362 “Soldering Surface Mount Components” before soldering.
Shielded Power Inductors – XAL40xx

L vs Current

- 0.22 µH
- 0.40 µH
- 0.60 µH
- 1.0 µH
- 1.2 µH
- 1.5 µH
- 2.2 µH
- 1.0 µH

Inductance (µH) vs Current (A) graphs for different inductance values.
Shielded Power Inductors – XAL40xx

L vs Current

![Graphs showing L vs Current for different inductance values at various current levels.]

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.
Shielded Power Inductors – XAL40xx

Typical L vs Frequency

Typical ESR vs Frequency

Packaging
XAL4020: 1000/7" reel; 3500/13" reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 2.3 mm pocket depth
XAL4030: 500/7" reel; 2000/13" reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 3.25 mm pocket depth
XAL4040: 500/7" reel; 2000/13" reel Plastic tape: 12 mm wide, 0.30 mm thick, 8 mm pocket spacing, 4.27 mm pocket depth