# Shielded Power Inductors – XAL1060

- AEC-Q200 Grade 1 qualified (−40°C to +125°C ambient)
- Excellent current handling – up to 120 A
- Very low DCR – as low as 0.5 mOhm
- Soft saturation

**Designer’s Kit C435** contains 3 of each XAL1060 and XAL1010 value

**Core material** Composite

**Environmental** RoHS compliant, halogen free

**Terminations** RoHS compliant tin-silver (96.5/3.5) over copper. Other terminations available at additional cost.

**Weight** 3.6 – 3.8 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. 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)** 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

**Packaging** 150/7” reel; 600/13” reel. Plastic tape: 24 mm wide, 0.3 mm thick, 16 mm pocket spacing, 6.3 mm pocket depth

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

## Electrical Specifications

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>XAL1060-181ME</td>
<td>0.18</td>
<td>0.50</td>
<td>0.55</td>
<td>68</td>
<td>120</td>
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<tr>
<td>XAL1060-401ME</td>
<td>0.40</td>
<td>0.80</td>
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<td>82</td>
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<td>XAL1060-681ME</td>
<td>0.68</td>
<td>1.35</td>
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<tr>
<td>XAL1060-122ME</td>
<td>1.2</td>
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<td>2.75</td>
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<tr>
<td>XAL1060-152ME</td>
<td>1.5</td>
<td>3.00</td>
<td>3.30</td>
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<tr>
<td>XAL1060-222ME</td>
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<td>4.50</td>
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<tr>
<td>XAL1060-332ME</td>
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<td>7.92</td>
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<tr>
<td>XAL1060-472ME</td>
<td>4.7</td>
<td>9.75</td>
<td>10.72</td>
<td>16</td>
<td>25</td>
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</tbody>
</table>

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

   **XAL1060-152ME**

   **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:** C = 7” machine-ready reel. EIA-481 embossed plastic tape (150 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 C instead.
   D = 13” machine-ready reel. EIA-481 embossed plastic tape, Factory order only, not stocked
   (600 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 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. Current that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.

**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.

**Click for temperature derating information.**

7. Electrical specifications at 25°C.

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

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[^2]: ±20% (µH) typ max
[^3]: (MHz)
[^4]: SRF typ
[^5]: (A)
[^6]: Irms (A)
**HIGH TEMPERATURE**

Shielded Power Inductors – XAL1060

L vs Current

- **0.18 µH**
- **0.40 µH**
- **0.68 µH**
- **1.5 µH**
- **2.2 µH**
- **3.2 µH**
- **4.7 µH**
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**L vs Frequency**

![Graph showing inductance (µH) vs frequency (MHz)]

**ESR vs Frequency**

![Graph showing equivalent series resistance (Ohms) vs frequency (MHz)]

**Recommended Land Pattern**

Dimensions are in inches

<table>
<thead>
<tr>
<th>Dash number</th>
<th>Terminal thickness typ (in / mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-181</td>
<td>0.0394 / 1.0</td>
</tr>
<tr>
<td>-401</td>
<td>0.0315 / 0.80</td>
</tr>
<tr>
<td>-681</td>
<td>0.0236 / 0.60</td>
</tr>
<tr>
<td>-122</td>
<td>0.0157 / 0.40</td>
</tr>
<tr>
<td>-152</td>
<td>0.0157 / 0.40</td>
</tr>
<tr>
<td>-222</td>
<td>0.0118 / 0.30</td>
</tr>
<tr>
<td>-332</td>
<td>0.0079 / 0.20</td>
</tr>
<tr>
<td>-472</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.

RoHS REACH Compliant
Halogen Free
AEC Q200 125°C+

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