Shielded Power Inductors – XAL7070

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

### 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**: 1.9 – 2.1 g
- **Operating voltage**: 0 – 55 V
- **Ambient temperature**: –40°C to +125°C with (40°C rise) I rms 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)
58 per billion hours / 2315,789 hours, calculated per Telcordia SR-332

### Part number

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance (µH) ±20%</th>
<th>DCR (mOhms)</th>
<th>SRF typ (MHz)</th>
<th>Isat (A)</th>
<th>I rms (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>typ</td>
<td>max</td>
<td></td>
<td>20°C rise</td>
<td>40°C rise</td>
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<tr>
<td>XAL7070-161ME</td>
<td>0.16</td>
<td>0.75</td>
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<td>84.41</td>
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<td>5.7</td>
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</tr>
</tbody>
</table>

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

   **XAL7070-682MEC**

   - **Termination**: E = Halogen free component. RoHS compliant tin-silver over copper terminations.
   - **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.
   - **D** = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory ordered only, not stocked (750 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. DC current at 25°C 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. DC current at 25°C that causes the specified temperature rise from 25°C ambient.

**I rms Testing**

I rms 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.

**Weight**: 1.9 – 2.1 g

**Operating voltage**: 0 – 55 V

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

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

**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)**: 38 per billion hours / 2315,789 hours, calculated per Telcordia SR-332

**Packaging**

- **150/7″ reel, 750/13″ reel**: Plastic tape: 16 mm wide, 0.35 mm thick, 12 mm pocket spacing, 7.44 mm pocket depth.
- **PCB washing**: Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

**PCB washing**

**Tested to MIL-STD-202 Method 215 plus an additional aqueous wash.**

**Click for temperature derating information.**
Shielded Power Inductors – XAL7070

L vs Current

- 0.16 µH
- 0.30 µH
- 0.55 µH
- 0.65 µH
- 0.80 µH
- 1.0 µH
- 1.2 µH
- 1.5 µH
- 2.0 µH
- 3.0 µH
- 5.0 µH

Current (A)
Inductance (µH)

- 0.4
- 0.8
- 1.2
- 1.6
- 2.0
- 2.4
- 3.0
- 5.0

Current (A)
Inductance (µH)
### Shielded Power Inductors – XAL7070

#### L vs Current

<table>
<thead>
<tr>
<th>Current (A)</th>
<th>Inductance (µH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4.7</td>
</tr>
<tr>
<td>4</td>
<td>2.2</td>
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<td>6</td>
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<td>8</td>
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<tr>
<td>10</td>
<td>0.80</td>
</tr>
<tr>
<td>12</td>
<td>0.65</td>
</tr>
<tr>
<td>14</td>
<td>0.47</td>
</tr>
<tr>
<td>16</td>
<td>0.30</td>
</tr>
</tbody>
</table>

#### Typical L vs Frequency

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Inductance (µH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>2.2</td>
</tr>
<tr>
<td>1</td>
<td>6.8</td>
</tr>
<tr>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>100</td>
<td>0.80</td>
</tr>
</tbody>
</table>

**Note:** 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.

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**High Temperature AEC Q200 125°C+ Halogen Free**