Shielded Power Inductors – XEL6060

- AEC-Q200 Grade 1 qualified
- Extremely low DCR and ultra low AC losses for high switching frequencies (2 to 5 MHz)
- Superior current handling with soft saturation characteristics
- Can withstand high current spikes

**Designer's Kit C466** contains 3 of each value

**Core material** Composite

**Environment** RoHS compliant, halogen free

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

**Weight** 1.23 – 3.13 g

**Operating voltage** 0 – 80 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.

**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

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

### Table: XEL6060-331ME

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance</th>
<th>DCR (mOhms)</th>
<th>SRF typ</th>
<th>Isat (A)</th>
<th>Irms (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XEL6060-331ME</td>
<td>0.33 µH</td>
<td>1.98</td>
<td>2.20</td>
<td>79.0</td>
<td>13.0</td>
</tr>
</tbody>
</table>

### Notes:

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

   - **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 (250 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).
   - D = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (750 parts per full reel).
   - 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.

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. 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.

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**Irms Testing**

Irms 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.
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L vs Current

- **0.33 µH**
  - Current (A): 40, 35, 30, 25, 20, 15, 10, 5, 0
  - Inductance (µH): 0

- **0.56 µH**
  - Current (A): 40, 35, 30, 25, 20, 15, 10, 5, 0
  - Inductance (µH): 0

- **0.82 µH**
  - Current (A): 40, 35, 30, 25, 20, 15, 10, 5, 0
  - Inductance (µH): 0

- **1.0 µH**
  - Current (A): 40, 35, 30, 25, 20, 15, 10, 5, 0
  - Inductance (µH): 0

- **1.5 µH**
  - Current (A): 40, 35, 30, 25, 20, 15, 10, 5, 0
  - Inductance (µH): 0

- **2.2 µH**
  - Current (A): 10, 15, 20, 25, 30, 35, 40, 0
  - Inductance (µH): 0

- **2.7 µH**
  - Current (A): 25, 20, 15, 10, 5, 0
  - Inductance (µH): 0

- **4.7 µH**
  - Current (A): 15, 10, 5, 0
  - Inductance (µH): 0

- **6.8 µH**
  - Current (A): 10, 5, 0
  - Inductance (µH): 0

- **8.2 µH**
  - Current (A): 5, 0
  - Inductance (µH): 0

- **12 µH**
  - Current (A): 10, 5, 0
  - Inductance (µH): 0

- **20 µH**
  - Current (A): 5, 0
  - Inductance (µH): 0

- **2.5 µH**
  - Current (A): 10, 15, 20, 25, 30, 35, 40, 0
  - Inductance (µH): 0

- **3.0 µH**
  - Current (A): 20, 25, 30, 35, 40, 0
  - Inductance (µH): 0

These graphs show the inductance (µH) versus current (A) for different values of inductance. The graphs are labeled with specific inductance values and the corresponding current values at which they are measured.
HIGH TEMPERATURE

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L vs Frequency

Inductance (μH) vs Frequency (MHz)

- 0.56 μH at 0.1 MHz
- 0.82 μH at 1 MHz
- 1.33 μH at 10 MHz
- 2.7 μH at 20 MHz
- 1.5 μH at 50 MHz
- 4.7 μH at 100 MHz

Packaging: 250/7” reel; 750/13” reel
Plastic tape: 16 mm wide, 0.3 mm thick, 8 mm pocket spacing, 6.23 mm pocket depth

Dimensions are in inches

Recommended Land Pattern

Dash number indicates direction of terminals and start (short) lead. Connect high dvi/dt here for lowest EMI.
Coilcraft:
XEL6060-102MEB  XEL6060-102MEC  XEL6060-102MED  XEL6060-123MEB  XEL6060-123MEC  XEL6060-123MED
XEL6060-822MEB  XEL6060-822MEC  XEL6060-822MED  XEL6060-682MEB  XEL6060-682MEC  XEL6060-682MED
XEL6060-821MEB  XEL6060-821MEC  XEL6060-821MED  XEL6060-472MEB  XEL6060-472MEC  XEL6060-472MED
XEL6060-561MEB  XEL6060-561MEC  XEL6060-561MED  XEL6060-272MEB  XEL6060-272MEC  XEL6060-272MED
XEL6060-331MEB  XEL6060-331MEC  XEL6060-331MED  XEL6060-152MEB  XEL6060-152MEC  XEL6060-152MED
XEL6060-222MEB  XEL6060-222MEC  XEL6060-222MED