Shielded Power Inductors – XFL6012

- High current, very low DCR, soft saturation
- Very low profile – 1.2 mm maximum
- AEC-Q200 Grade 1 qualified (–40°C to +125°C ambient)

Core material: Composite
Core and winding loss: See www.coilcraft.com/coreloss
Environmental: RoHS compliant, halogen free
Terminations: RoHS compliant tin-silver over copper. Other terminations available at additional cost.
Weight: 0.20 – 0.22 g
Operating voltage: 0 – 20 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 refloys at +260°C, parts cooled to room temperature between cycles.
Mean Time Between Failures (MTBF): 26,315,789 hours

1. When ordering, please specify termination and packaging codes:
   XFL6012-801ME
   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 (750 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 (3000 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. 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 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.

<table>
<thead>
<tr>
<th>Part number1</th>
<th>Inductance2 ±20% (µH)</th>
<th>DCR (mOhms)3 typ</th>
<th>max</th>
<th>SRF typ4 (MHz)</th>
<th>Isat (A)5</th>
<th>Irms (A)6</th>
<th>10% drop</th>
<th>20% drop</th>
<th>30% drop</th>
<th>20°C rise</th>
<th>40°C rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>XFL6012-181ME_</td>
<td>0.18</td>
<td>7.06</td>
<td>8.12</td>
<td>130</td>
<td>10.1</td>
<td>13.7</td>
<td>14.3</td>
<td>10.1</td>
<td>13.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XFL6012-391ME_</td>
<td>0.39</td>
<td>10.5</td>
<td>12.1</td>
<td>83</td>
<td>6.7</td>
<td>9.9</td>
<td>11.2</td>
<td>8.9</td>
<td>12.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XFL6012-801ME_</td>
<td>0.60</td>
<td>13.5</td>
<td>15.5</td>
<td>65</td>
<td>5.7</td>
<td>8.9</td>
<td>10.4</td>
<td>8.3</td>
<td>11.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XFL6012-601ME_</td>
<td>0.80</td>
<td>18.0</td>
<td>20.7</td>
<td>58</td>
<td>4.2</td>
<td>7.6</td>
<td>9.3</td>
<td>6.7</td>
<td>9.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XFL6012-102ME_</td>
<td>1.0</td>
<td>21.9</td>
<td>25.2</td>
<td>52</td>
<td>3.5</td>
<td>6.3</td>
<td>8.0</td>
<td>6.0</td>
<td>8.0</td>
<td></td>
<td></td>
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**L vs Current**

- **0.18 µH**
- **0.39 µH**
- **0.60 µH**
- **0.80 µH**
- **1.0 µH**

**L vs Frequency**

- **0.25 ±0.008**
- **0.258 ±0.008**
- **0.051 ±0.002**
- **0.047 ±max**

**Recommended Land Pattern**

- **0.159 ±0.04**
- **0.216 ±5.50**
- **0.056 ±1.43**

**Packaging** 750/7” reel; 3000/13” reel  Plastic tape: 16 mm wide, 0.3 mm thick, 12 mm pocket spacing, 1.4 mm pocket depth