### Features
- Thick film technology
- Power rating of 0.25, 0.5 or 1 watt at 70 °C
- Low resistance value available
- RoHS compliant*

### Applications
- Current sensing
- Power supplies
- Stepper motor drives
- Snubber resistor for flyback power supplies

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### CRM0805/1206/2010 High Power Current Sense Chip Resistors

#### General Information
Bourns® CRM Series are thick film chip resistors with high power ratings making them suitable for different applications in power supply circuits including current sensing and current limiting.

#### Electrical Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Model CRM0805</th>
<th>Model CRM1206</th>
<th>Model CRM2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Rating @ 70 °C</td>
<td>0.25 W</td>
<td>0.5 W</td>
<td>1 W</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-55 °C to +155 °C</td>
<td>+155 °C</td>
<td></td>
</tr>
<tr>
<td>Derated to Zero Load at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Working Voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47 mohms to 910 mohms</td>
<td>551 mV</td>
<td>675 mV</td>
<td>954 mV</td>
</tr>
<tr>
<td>1 ohm to 1 megohm</td>
<td>150 V</td>
<td>200 V</td>
<td>200 V</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>&gt;1000 megohms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance Range</td>
<td>47 mohms to 910 mohms (±1 % and ±5 %, E24 Series)</td>
<td>1 ohm to 1 megohm (±1 %, E96 &amp; E24 Series)</td>
<td>0 ohm, 1 ohm to 1 megohm (±5 %, E24 Series)</td>
</tr>
<tr>
<td>Resistance Tolerance</td>
<td>±1 %, ±5 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47 mohms to 91 mohms</td>
<td>±100 ppm</td>
<td>±100 ppm</td>
<td>±100 ppm</td>
</tr>
<tr>
<td>(±1 % and ±5 %, E24 Series)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 mohms to 910 mohms</td>
<td>±100 ppm</td>
<td>±100 ppm</td>
<td>±100 ppm</td>
</tr>
<tr>
<td>(±1 % and ±5 %, E24 Series)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 ohm to 9.76 ohms</td>
<td>±150 ppm/</td>
<td>±100 ppm/</td>
<td>±100 ppm/</td>
</tr>
<tr>
<td>(±1 %, E96 &amp; E24 Series)</td>
<td>±200 ppm</td>
<td>±200 ppm</td>
<td>±200 ppm</td>
</tr>
<tr>
<td>10 ohms to 1 megohm</td>
<td>±100 ppm</td>
<td>±100 ppm</td>
<td>±100 ppm</td>
</tr>
<tr>
<td>(±1 %, E96 &amp; E24 Series)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 ohm to 1 megohm</td>
<td>±200 ppm</td>
<td>±200 ppm</td>
<td>±200 ppm</td>
</tr>
<tr>
<td>(±5 %, E24 Series)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zero Ohm Jumper &lt;0.02 ohm (1)</td>
<td>4 A</td>
<td>4 A</td>
<td>6 A</td>
</tr>
<tr>
<td>Maximum Rated Current</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Pulse Load Characteristics

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**WARNING** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)


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### CRM0805/1206/2010 High Power Current Sense Chip Resistors

#### Product Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>L (mm)</th>
<th>W (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>T (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRM0805</td>
<td>2.00 ± 0.15</td>
<td>1.20 ± 0.15</td>
<td>0.40 ± 0.20</td>
<td>0.40 ± 0.20</td>
<td>0.50 ± 0.10</td>
</tr>
<tr>
<td>CRM1206</td>
<td>3.10 ± 0.15</td>
<td>1.60 ± 0.15</td>
<td>0.50 ± 0.25</td>
<td>0.50 ± 0.25</td>
<td>0.55 ± 0.10</td>
</tr>
<tr>
<td>CRM2010</td>
<td>5.00 ± 0.20</td>
<td>2.50 ± 0.20</td>
<td>0.60 ± 0.25</td>
<td>0.60 ± 0.25</td>
<td>0.60 ± 0.10</td>
</tr>
</tbody>
</table>

#### Recommended Solder Pad Layout

<table>
<thead>
<tr>
<th>Model</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>L (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRM0805</td>
<td>1.3 (0.051)</td>
<td>1.15 (0.045)</td>
<td>1.2 (0.047)</td>
</tr>
<tr>
<td>CRM1206</td>
<td>1.8 (0.071)</td>
<td>1.3 (0.051)</td>
<td>2.1 (0.083)</td>
</tr>
<tr>
<td>CRM2010</td>
<td>3.0 (0.118)</td>
<td>1.5 (0.059)</td>
<td>3.8 (0.149)</td>
</tr>
</tbody>
</table>

#### Soldering Profile

- **<1> Maximum of 20 seconds between +255 °C and +260 °C**
- **260 °C peak**
- **255 °C**
- **190 °C**
- **220 °C**
- **Ramp Down 6 °C/second**
- **60 - 120 seconds**
- **10 seconds minimum**
- **Ramp Up 3 °C/second maximum**

#### Derating Curve

- **Power Ratio (%)**
- **Ambient Temperature (°C)**

- Maximum of 20 seconds between +255 °C and +260 °C
- 260 °C peak
- 255 °C
- 190 °C
- 220 °C
- Ramp Down 6 °C/second
- 60 - 120 seconds
- 10 seconds minimum
- Ramp Up 3 °C/second maximum
# How to Order

CRM 2010 - F X - R100 E LF

- **Model:** (CRM = Precision Chip Resistor)
- **Size:**
  - 0805 = 0805 Size
  - 1206 = 1206 Size
  - 2010 = 2010 Size
- **Resistance Tolerance**
  - F = ±1 %
  - J = ±5 %
- **TCR (PPM/°C - See Electrical Characteristics chart)**
  - W = ±200 PPM/°C
  - Z = ±150 PPM/°C
  - X = ±100 PPM/°C
  - / = Jumper
- **Resistance Value**
  - 1 % or 5 % Tolerance:
    - R <1 ohm..............“R” represents decimal point followed by three significant digits (example: R100 = 0.100 ohm)
    - 1% Tolerance:
      - <100 ohms ............“R” represents decimal point (example: 24R3 = 24.3 ohms)
      - ≥100 ohms ............First three digits are significant, fourth digit represents number of zeros to follow (example: 8252 = 82.5K ohms)
    - 5% Tolerance:
      - <10 ohms ..............“R” represents decimal point (example: 4R7 = 4.7 ohms)
      - ≥10 ohms .............First two digits are significant, third digit represents number of zeros to follow (example: 474 = 470K ohms)
      - 0 ohm Jumper............“000”
- **Packaging**
  - E = 5,000 pieces on 180 mm (7 inch) reel - CRM0805, CRM1206
  - 4,000 pieces on 180 mm (7 inch) reel - CRM2010
- **Termination**
  - LF = Tin-plated (RoHS Compliant)
### CRM0805/1206/2010 High Power Current Sense Chip Resistors

**Packaging Dimensions (Conforms to EIA RS-481A)**

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>F</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRM0805</td>
<td>2.40 ± 0.20 (0.094 ± 0.008)</td>
<td>1.65 ± 0.20 (0.065 ± 0.008)</td>
<td>3.50 ± 0.05 (0.138 ± 0.002)</td>
<td>8.00 ± 0.30 (0.315 ± 0.012)</td>
</tr>
<tr>
<td>CRM1206</td>
<td>3.57 ± 0.20 (0.141 ± 0.008)</td>
<td>2.00 ± 0.20 (0.079 ± 0.008)</td>
<td>3.50 ± 0.05 (0.138 ± 0.002)</td>
<td>8.00 ± 0.30 (0.315 ± 0.012)</td>
</tr>
<tr>
<td>CRM2010</td>
<td>5.50 ± 0.20 (0.217 ± 0.008)</td>
<td>2.80 ± 0.20 (0.110 ± 0.008)</td>
<td>5.50 ± 0.05 (0.217 ± 0.002)</td>
<td>12.00 ± 0.30 (0.472 ± 0.012)</td>
</tr>
</tbody>
</table>

Maximum 1 mm (0.040) thick

* Cumulative over 10 holes: ±0.2 mm
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