Model CSM2F-6918 Series Current Sense Resistor w/Tinned Terminals

Features
- Tinned terminals
- Up to 36 W permanent power
- High pulse power rating
- Maximum fastening torque: 10 Nm
- Customized versions available
- AEC-Q200 and RoHS* compliant

Applications
- Current sensing for hybrid & electric vehicles
- Battery management systems
- Current sensing in bus bars
- Current sensing in welding equipment
- Frequency converters

Electrical Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Model CSM2F-6918 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Range / Power Rating @ 70 °C**</td>
<td>50 µΩ / 36 W 100 µΩ / 36 W</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-40 °C to +170 °C</td>
</tr>
<tr>
<td>TCR on Test Points</td>
<td>±150 ppm/°C</td>
</tr>
<tr>
<td>TCR Resistance Alloy***</td>
<td>&lt; 50 ppm/°C</td>
</tr>
<tr>
<td>Thermal EMF (µV/K)</td>
<td>&lt; 0.25 for 50 µΩ</td>
</tr>
<tr>
<td>Resistance Tolerance</td>
<td>±5 %</td>
</tr>
</tbody>
</table>

** Terminal temperature
*** For full TCR range, refer to TCR curve.

Environmental Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Test Condition</th>
<th>ΔTR Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Shock</td>
<td>-55 to +150 °C / 1000 cycles</td>
<td>±1.0 %</td>
</tr>
<tr>
<td>Resistance to Soldering Heat</td>
<td>+260 °C / 10 seconds</td>
<td>±0.5 %</td>
</tr>
<tr>
<td>High Temperature Exposure</td>
<td>+170 °C / 1000 hours</td>
<td>±1.5 %</td>
</tr>
<tr>
<td>Low Temperature Storage</td>
<td>-65 °C/ 24 hours</td>
<td>±0.5 %</td>
</tr>
<tr>
<td>Biased Humidity Test</td>
<td>+85 °C, 85 % RH, 10 % bias, 1000 hours</td>
<td>±0.5 %</td>
</tr>
<tr>
<td>Mechanical Shock</td>
<td>100 g, 6 milliseconds, 5 pulses</td>
<td>±0.5 %</td>
</tr>
<tr>
<td>Vibration, High Frequency</td>
<td>10-2000 Hz in 1 minute, 3 directions, 12 hours</td>
<td>±0.5 %</td>
</tr>
<tr>
<td>Load Life</td>
<td>1000 hours at max. load, derated at 70 °C</td>
<td>±1.0 %</td>
</tr>
<tr>
<td>Solderability</td>
<td>J-STD-002</td>
<td>95 % coverage min.</td>
</tr>
</tbody>
</table>

How to Order

Model CSM 2F - 6918 - L050 J 0 1

<table>
<thead>
<tr>
<th>No. of Terminals &amp; Style</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (Metric)</td>
<td></td>
</tr>
<tr>
<td>Resistance Code (Milliohms)</td>
<td></td>
</tr>
<tr>
<td>“L” Represents Decimal Point</td>
<td></td>
</tr>
<tr>
<td>L050 = 50 MicroOhms</td>
<td></td>
</tr>
<tr>
<td>L100 = 100 MicroOhms</td>
<td></td>
</tr>
<tr>
<td>Resistance Tolerance</td>
<td>J = ±5 %</td>
</tr>
<tr>
<td>Packaging</td>
<td>0 = Bulk Pack (50 pcs. per bag)</td>
</tr>
<tr>
<td>Surface Finishing</td>
<td>1 = Tinned Terminals</td>
</tr>
</tbody>
</table>

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Model CSM2F-6918 Series Current Sense Resistor w/Tinned Terminals

Product Dimensions

- **RESISTIVE MATERIAL**
  - **RESISTOR WIDTH**: 4.7 ± 0.15 mm (0.185 ± 0.006 in)

- **BASE MATERIAL**
  - **BASE MATERIAL C10200 (NOTE 1)**

- **Voltage Test Points**
  - **VOLTAGE TEST POINTS**: 52.00 ± 0.20 mm (2.047 ± 0.008 in)
  - **VOLTAGE TEST POINTS**: 18.00 ± 0.20 mm (0.709 ± 0.008 in)

- **Dimensions**:
  - **DIMENSIONS**: MM (INCHES)
  - **DIMENSIONS**: 6.60 ± 0.10 mm (0.260 ± 0.004 in)
  - **DIMENSIONS**: 4.7 mm (0.185 in)
  - **DIMENSIONS**: 2.00 ± 0.10 mm (0.079 ± 0.004 in)
  - **DIMENSIONS**: 5.0 mm (0.197 in)
  - **DIMENSIONS**: 69.00 ± 0.40 mm (2.717 ± 0.016 in)
  - **DIMENSIONS**: 3.00 mm (0.118 in)

- **Chamfers**
  - **CHAMFER**: 1 PLACE
  - **CHAMFER**: 2 PLCS.
  - **CHAMFER**: 3 PLCS.

- **Notes**
  1. Tinned Terminals: 100 % Sn, RoHS Complaint, JESD201 Class-2, ST200 Process, 2.5 - 8 micrometers, Ni underplate 1.5 - 4 micrometers.
  2. Base Material Copper: C10200 Temper 1/2 Hard.

TCR Curves

- **Temperature Dependence for Resistive Material**

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**Power Derating Curve**

<table>
<thead>
<tr>
<th>Terminal Temperature (°C)</th>
<th>Power Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>120</td>
</tr>
<tr>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>120</td>
<td>0</td>
</tr>
</tbody>
</table>

**Reference Pad for SMD Mounting**

**General Specifications**

- **Moisture Sensitivity Level**: 1
- **ESD Classification**: Level 6 per AEC-Q200-002, ≥ 25,000 V air discharge

**Packaging Specifications**

- **Bulk Pack**: 50 pcs. per plastic bag, 100 pcs. per box
- **Tray Pack**: 52 pcs. per high impact polysterene tray, 260 pcs. per box
- **Size**: 300 mm x 246 mm (11.811 in. x 9.685 in.)

**REV. 04/22**

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