Model CSM2F-7036 Series Current Sense Resistor w/Tinned Terminals

**Features**
- Tinned terminals
- Up to 50 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-7036 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance Range / Power Rating @ 70 °C**</td>
<td>25 µΩ / 50 W 50 µΩ / 50 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/K</td>
</tr>
<tr>
<td>Thermal EMF (µV/K)</td>
<td>&lt; 0.25 for 50 µΩ</td>
</tr>
<tr>
<td>Resistance Tolerance</td>
<td>±1 %, ±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>∆TR 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 ________________
No. of Terminals & Style ________________
Size (Metric) ________________
Resistance Code (Milliohms) ________________
“L” Represents Decimal Point
L050 = 50 MicroOhms
Resistance Tolerance ________________
F = ±1%
J = ±5 %
Packaging ________________
0 = Bulk Pack (50 pcs. per bag)
T = Tray Pack (28 pcs. per tray)
Surface Finishing ________________
1 = Tinned Terminals

CSM 2F - 7036 - L050 J 0 1

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WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov
Model CSM2F-7036 Series Current Sense Resistor w/Tinned Terminals

Product Dimensions

NOTES:
1. Tinned Terminals: 100 % Sn, RoHS Compliant, 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>
<tr>
<td>140</td>
<td></td>
</tr>
<tr>
<td>160</td>
<td></td>
</tr>
<tr>
<td>180</td>
<td></td>
</tr>
</tbody>
</table>

![Power Derating Curve](image)

### Packaging Specifications
- **Bulk Pack**: 50 pcs. per plastic bag, 100 pcs. per box
- **Tray Pack**: 28 pcs. per high impact polystyrene tray, 140 pcs. per box
- **Size**: 235 mm x 225 mm (9.252 in. x 8.858 in.)

### Reference Pad for SMD Mounting

![Reference Pad for SMD Mounting](image)

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

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REV. 11/21
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