

## Features

- Up to 50 W permanent power
- High pulse power rating
- Maximum fastening torque: 25 Nm
- Customized versions available
- RoHS compliant\* / lead free
- AEC-Q200 compliant

## Applications

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

### CSM2F-8536 Series – Shunt Resistor with Sense Pins & Tinned Terminals

#### Electrical Characteristics

| Characteristic                             | Model CSM2F-8536 with Sense Pins                       |
|--|--|
| Resistance Range / Power Rating @ 125 °C** | 25 $\mu\Omega$ / 50 W<br>50 $\mu\Omega$ / 50 W         |
| Operating Temperature Range                | -40 °C ~ +170 °C                                       |
| TCR on Test Points (+20 °C to +130 °C)     | $\pm 150$ ppm/°C for 25 $\mu\Omega$ and 50 $\mu\Omega$ |
| TCR Resistance Alloy***                    | < 50 ppm/°C  |
| Inductance                                 | < 10 nH  |
| Resistance Tolerance                       | $\pm 5$ %  |

\*\* Terminal temperature

\*\*\* For full TCR range, refer to TCR curve.

#### Additional Information

Click these links for more information:



#### Environmental Characteristics

| Characteristic            | Test Condition                                 | $\Delta$ TR Max.   |
|---------------------------|--|--------------------|
| Thermal Shock             | -55 °C to +150 °C / 1000 cycles                | $\pm 1.0$ %        |
| High Temperature Exposure | +170 °C / 1000 hours                           | $\pm 1.5$ %        |
| Low Temperature Storage   | -65 °C / 24 hours                              | $\pm 0.5$ %        |
| Biased Humidity Test      | +85 °C, 85 % RH, 10 % bias, 1000 hours         | $\pm 0.5$ %        |
| Mechanical Shock          | 100 g, 6 milliseconds, 5 pulses                | $\pm 0.5$ %        |
| Vibration, High Frequency | 10-2000 Hz in 1 minute, 3 directions, 12 hours | $\pm 0.5$ %        |
| Load Life                 | +125 °C / 2000 hours at maximum current rating | $\pm 1.0$ %        |
| Solderability*            | J-STD-002                                      | 95 % coverage min. |

\* Limited to dipping terminals.

#### How to Order

CSM 2F - 8536 - L050 J 2 1

Model \_\_\_\_\_

No. of Terminals & Style \_\_\_\_\_

Size (Metric) \_\_\_\_\_

Resistance Code (Milliohms) \_\_\_\_\_  
 "L" Represents Decimal Point  
 L050 = 50 MicroOhms

Resistance Tolerance \_\_\_\_\_  
 J =  $\pm 5$  %

Number of Pins \_\_\_\_\_  
 2 or 3

Surface Finishing \_\_\_\_\_  
 1 = Tinned Terminals  
 Plated Sense Pins

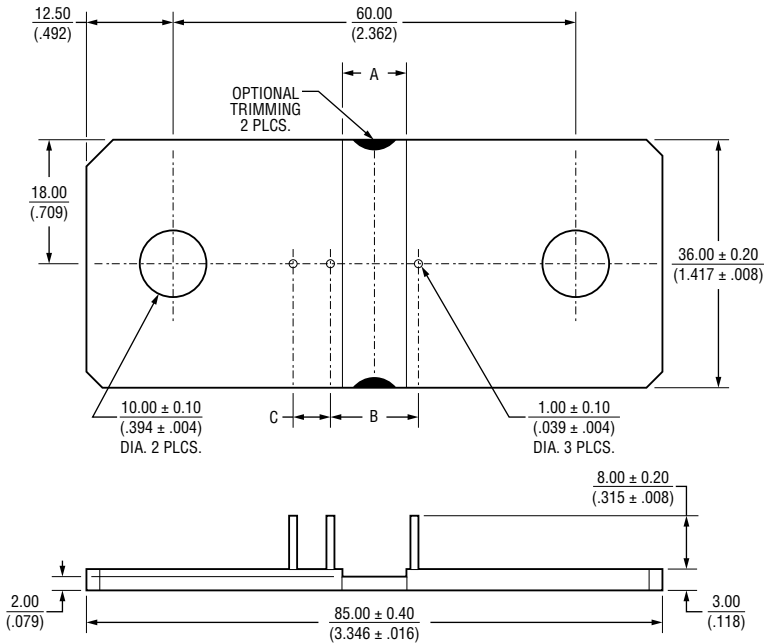


**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

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**Product Dimensions**

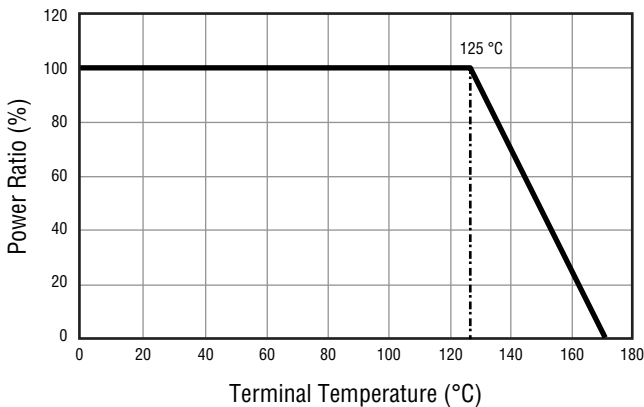


| Part Number        | Dim A          | Dim B           | Dim C          |
|--------------------|----------------|-----------------|----------------|
| CSM2F-8536-L025J21 | 4.70<br>(.185) | 7.87<br>(.310)  | —              |
| CSM2F-8536-L050J21 | 9.40<br>(.370) | 12.57<br>(.495) | —              |
| CSM2F-8536-L025J31 | 4.70<br>(.185) | 7.87<br>(.310)  | 5.59<br>(.220) |
| CSM2F-8536-L050J31 | 9.40<br>(.370) | 12.57<br>(.495) | 5.59<br>(.220) |

Note: Terminals plated: Nickel barrier and 100 % Sn.

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

**Power Derating Curve**



**General Specifications**

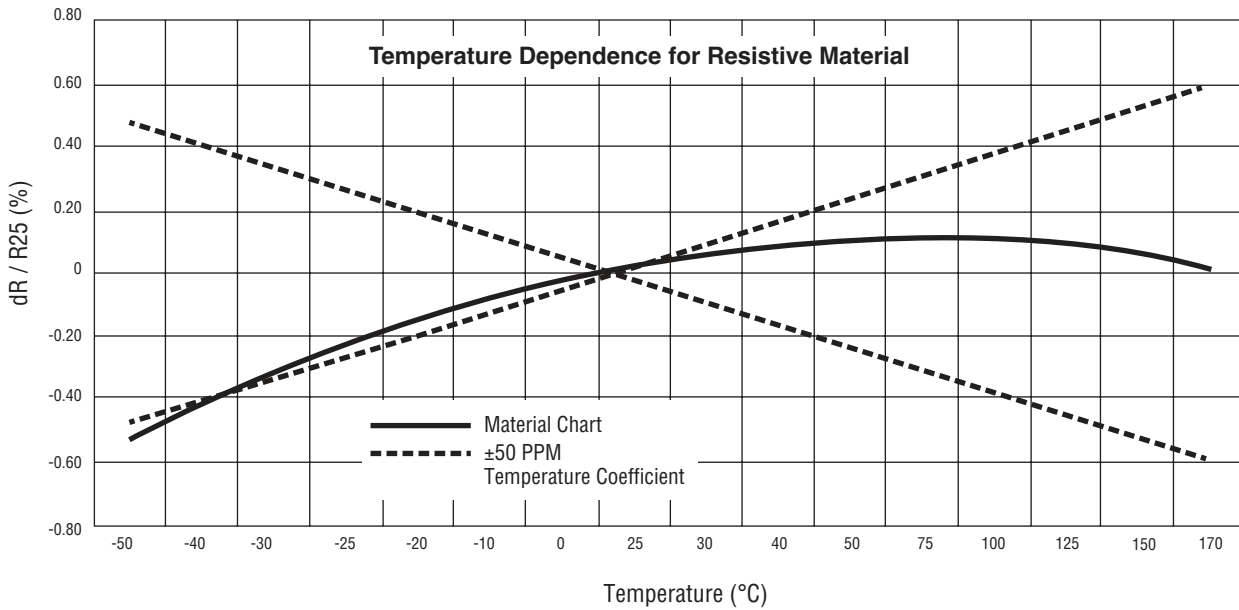
Moisture Sensitivity Level..... 1  
 ESD Classification..... Level 6  
 per AEC-Q200-002,  
 ≥ 25,000 V air discharge

**Packaging Specifications**

Tray Pack ..... 16 pcs. per high impact polystyrene tray  
 112 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

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TCR Curves



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10/22

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