

## 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 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

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#### 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



**CALIFORNIA WARNING:** Can expose you to lead, a carcinogen and reproductive toxicant. See [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

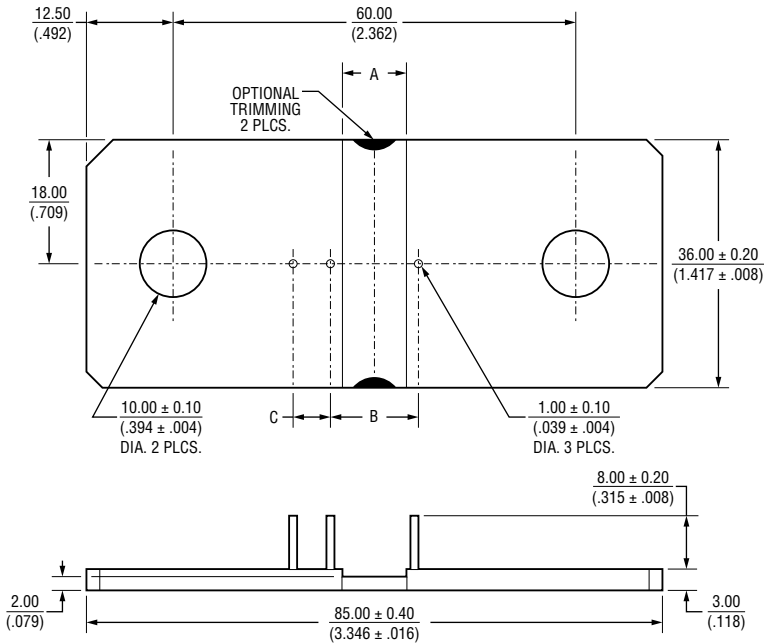
\* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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**Product Dimensions**

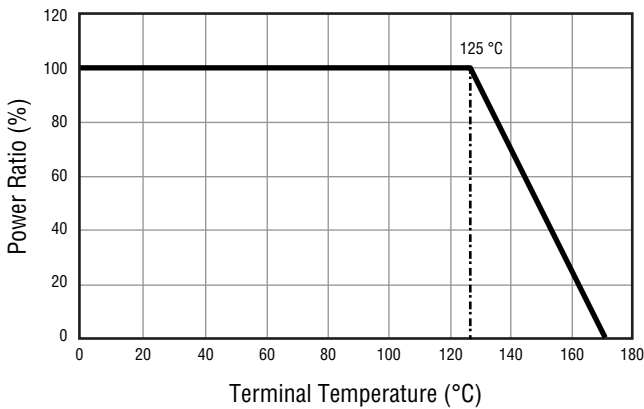


Part Number	Dim A	Dim B	Dim C
CSM2F-8536-L025J21	4.70 (.185)	7.87 (.310)	—
CSM2F-8536-L050J21	9.40 (.370)	12.57 (.495)	—
CSM2F-8536-L025J31	4.70 (.185)	7.87 (.310)	5.59 (.220)
CSM2F-8536-L050J31	9.40 (.370)	12.57 (.495)	5.59 (.220)

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

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

**Power Derating Curve**



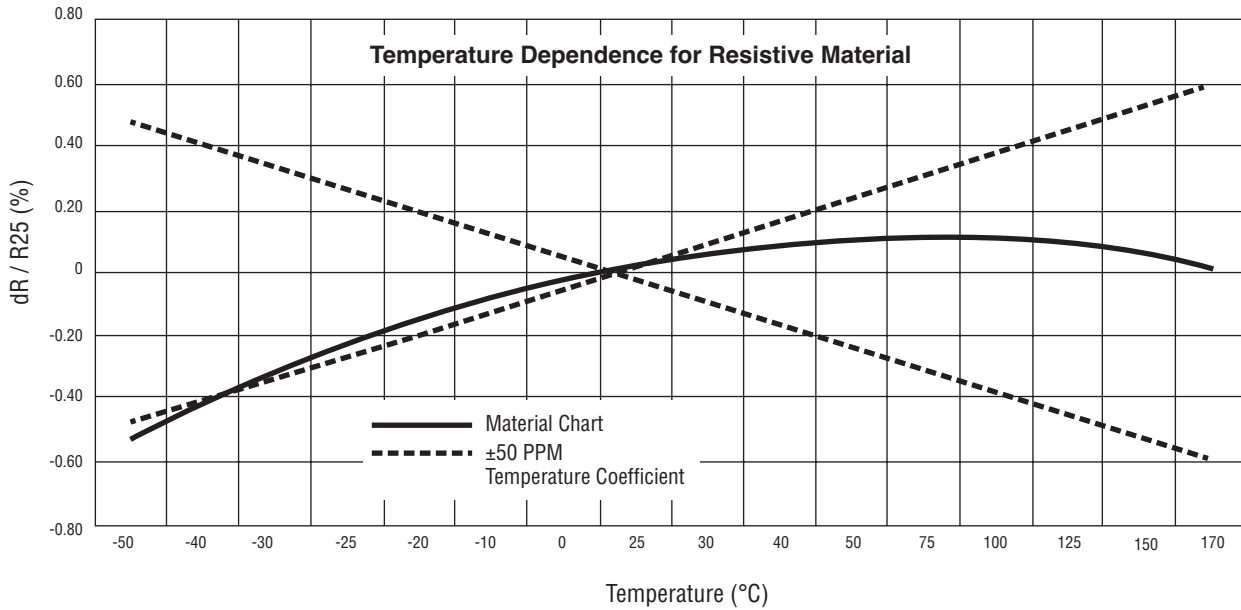
**General Specifications**

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 polysterene tray  
 112 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

TCR Curves



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