



## Features

- Up to 36 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-6918 Series – Shunt Resistor with Sense Pins & Bare Copper Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-6918 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	50 $\mu\Omega$ / 36 W 100 $\mu\Omega$ / 36 W 200 $\mu\Omega$ / 36 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 100$ ppm/°C for 50 $\mu\Omega$ $\pm 50$ ppm/°C for 100 $\mu\Omega$ and 200 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 5 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
Low Temperature Storage	-65 °C / 1000 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 - 6918 - L050 J 2 0

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 \_\_\_\_\_  
 0 = Bare Copper Terminals  
 Plated Sense Pins

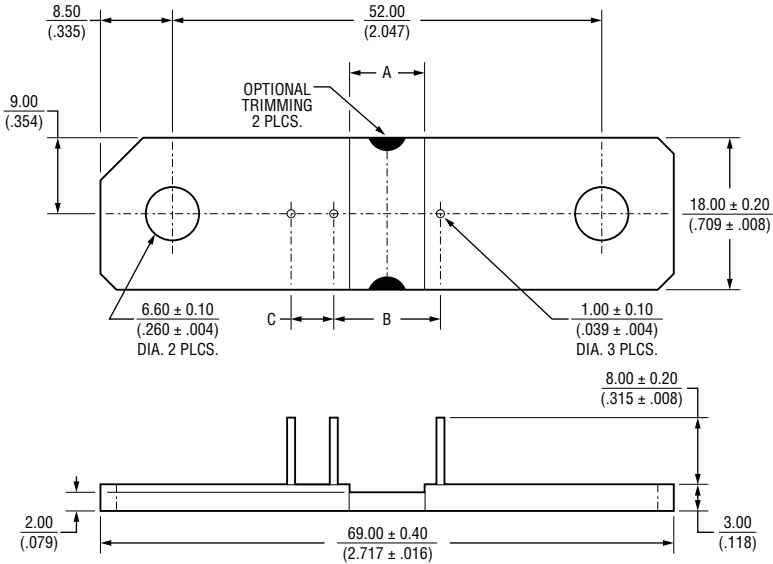


**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

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

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**Product Dimensions**

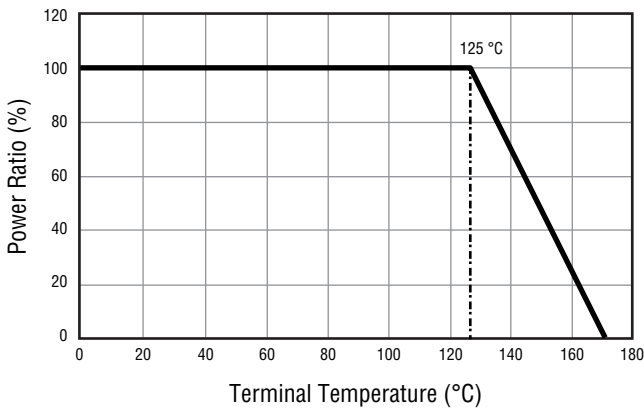


Part Number	Dim A	Dim B	Dim C
CSM2F-6918-L050J20	4.70 (.185)	7.80 (.307)	—
CSM2F-6918-L100J20	9.40 (.370)	12.50 (.492)	—
CSM2F-6918-L200J20	20.0 (.787)	23.10 (.909)	—
CSM2F-6918-L050J30	4.70 (.185)	7.80 (.307)	5.59 (.220)
CSM2F-6918-L100J30	9.40 (.370)	12.50 (.492)	5.59 (.220)
CSM2F-6918-L200J30	20.0 (.787)	23.10 (.909)	5.59 (.220)

Note: plated sense pins: Nickel barrier and 100% Sn.

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

**Power Derating Curve**



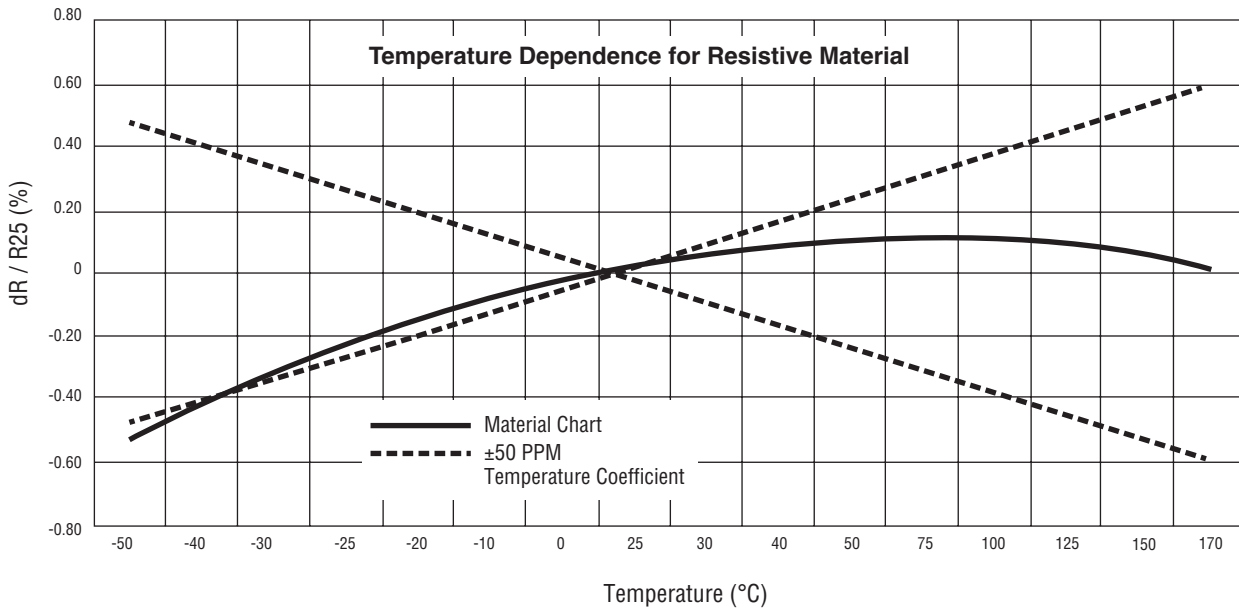
**General Specifications**

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

**Packaging Specifications**

Tray Pack ..... 30 pcs. per high impact polystyrene tray  
 210 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

TCR Curves



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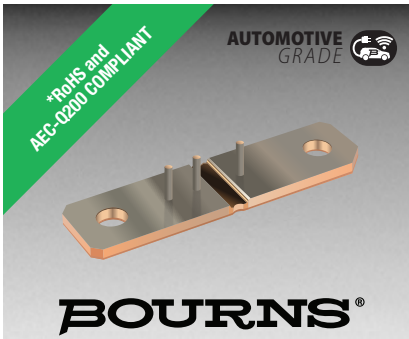
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### CSM2F-6918 Series – Shunt Resistor with Sense Pins & Tinned Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-6918 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	50 $\mu\Omega$ / 36 W 100 $\mu\Omega$ / 36 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 150$ ppm/°C for 50 $\mu\Omega$ and 100 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 5 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
Low Temperature Storage	-65 °C / 1000 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 - 6918 - 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

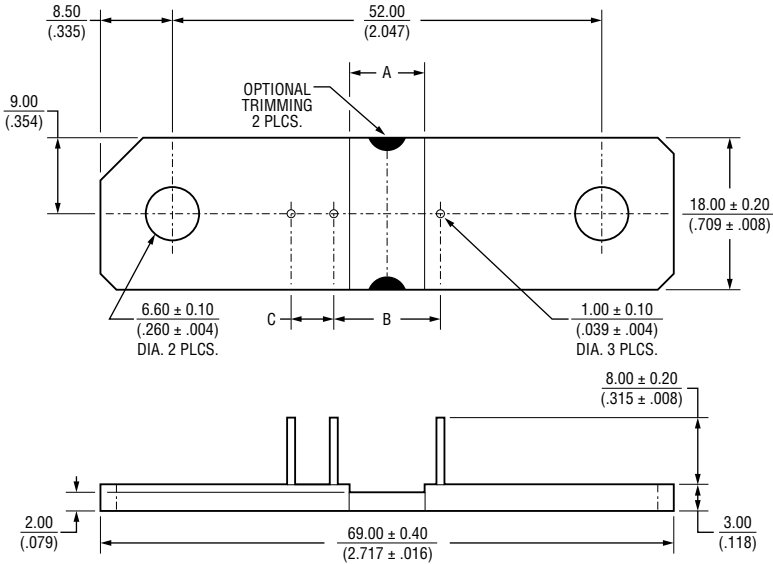


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**Product Dimensions**

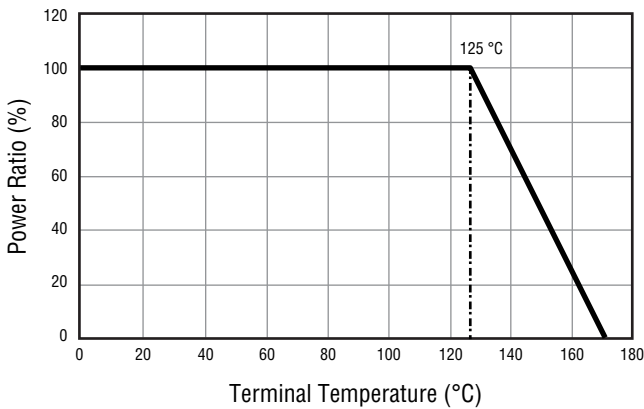


Part Number	Dim A	Dim B	Dim C
CSM2F-6918-L050J21	4.70 (.185)	7.80 (.307)	—
CSM2F-6918-L100J21	9.40 (.370)	12.50 (.492)	—
CSM2F-6918-L050J31	4.70 (.185)	7.80 (.307)	5.59 (.220)
CSM2F-6918-L100J31	9.40 (.370)	12.50 (.492)	5.59 (.220)

Note: plated sense pins: Nickel barrier and 100% Sn.

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

**Power Derating Curve**



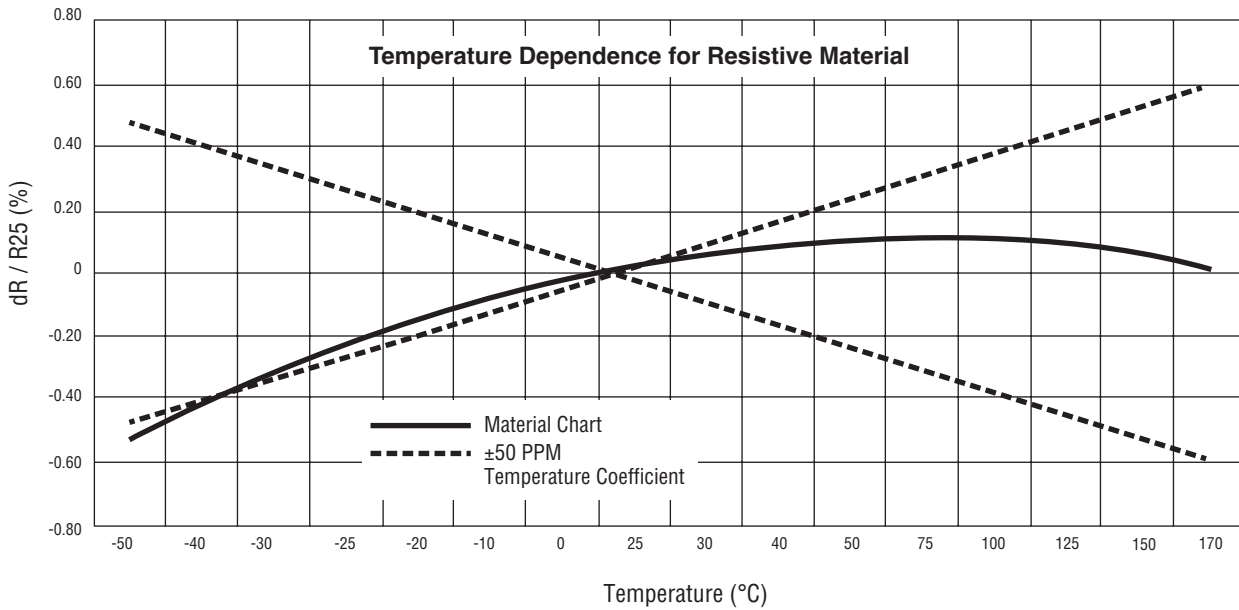
**General Specifications**

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

**Packaging Specifications**

Tray Pack ..... 30 pcs. per high impact polystyrene tray  
 210 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

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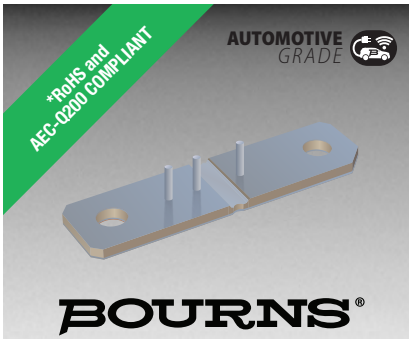
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#### Electrical Characteristics

Characteristic	Model CSM2F-6918 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	50 $\mu\Omega$ / 36 W 100 $\mu\Omega$ / 36 W 200 $\mu\Omega$ / 36 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 200$ ppm/°C for 50 $\mu\Omega$ $\pm 150$ ppm/°C for 100 $\mu\Omega$ and 200 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 12 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
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 - 6918 - L050 J 2 2

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 \_\_\_\_\_  
 2 = Fully Tinned Terminals and Resistive Element  
 Plated Sense Pins

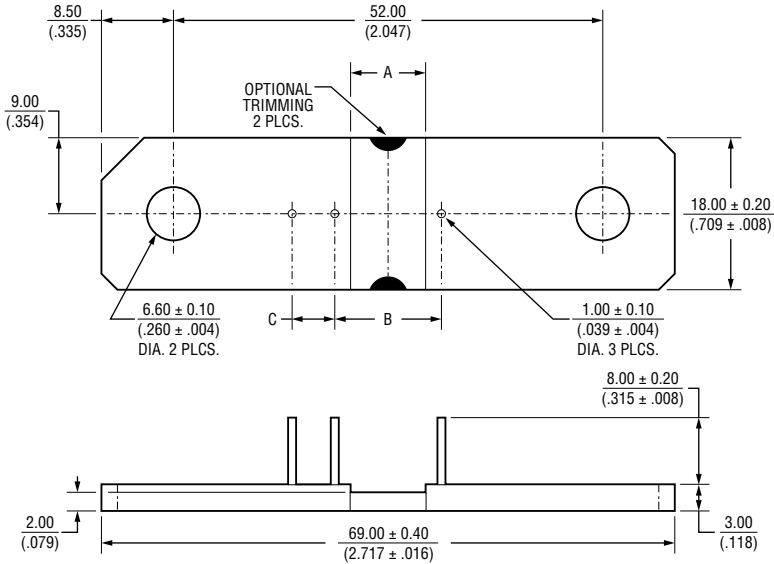


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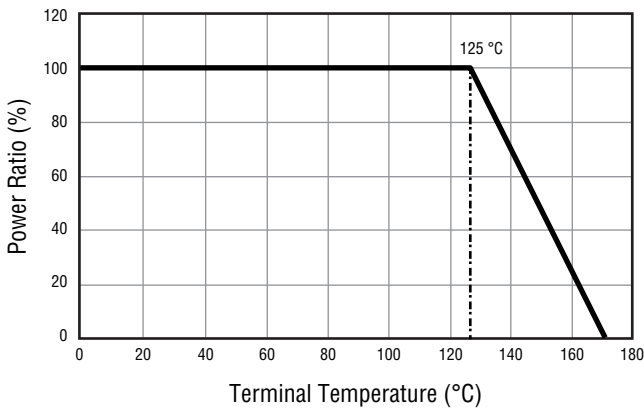


Part Number	Dim A	Dim B	Dim C
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Note: plated sense pins: Nickel barrier and 100% Sn.

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**Power Derating Curve**



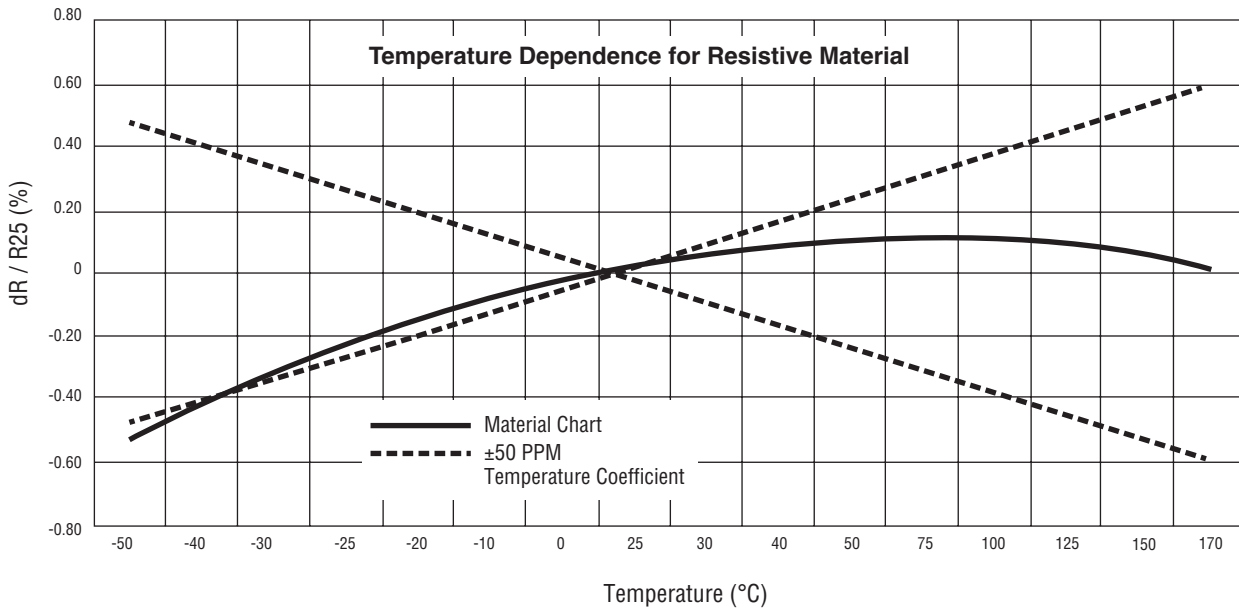
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Tray Pack ..... 30 pcs. per high impact polystyrene tray  
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 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

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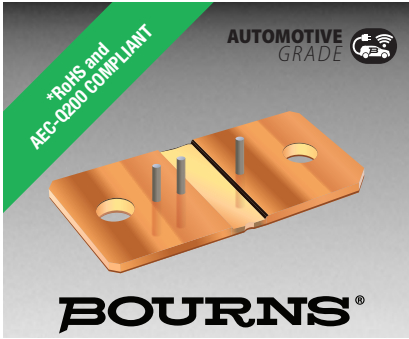
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## Features

- 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-7036 Series – Shunt Resistor with Sense Pins & Bare Copper Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-7036 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	25 $\mu\Omega$ / 50 W 50 $\mu\Omega$ / 50 W 100 $\mu\Omega$ / 50 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 100$ ppm/°C for 25 $\mu\Omega$ $\pm 50$ ppm/°C for 50 $\mu\Omega$ and 100 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 5 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
Low Temperature Storage	-65 °C / 1000 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 and not resistor

#### How to Order

**CSM 2F - 7036 - L050 J 2 0**

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 \_\_\_\_\_

0 = Bare Copper Terminals  
Plated Sense Pins

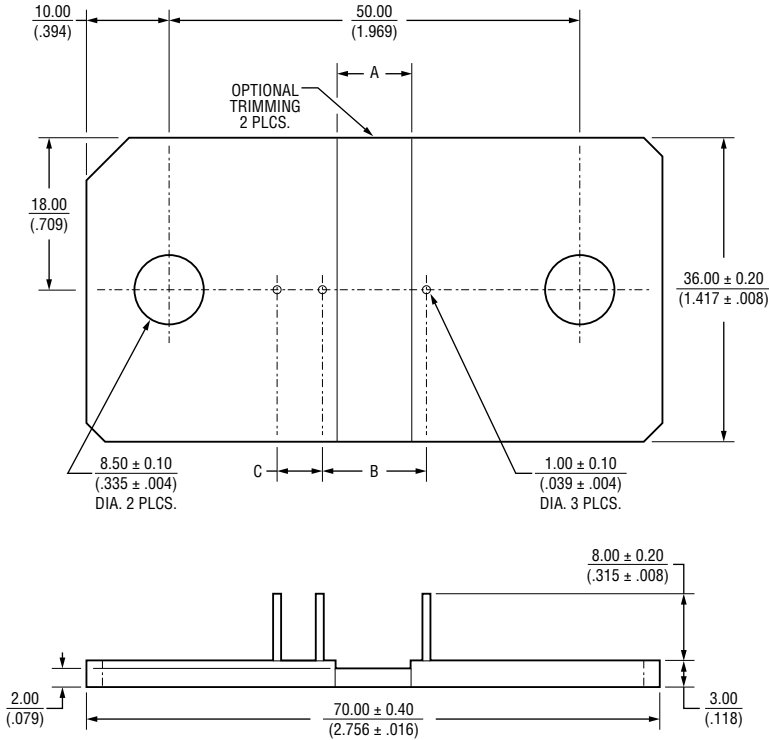


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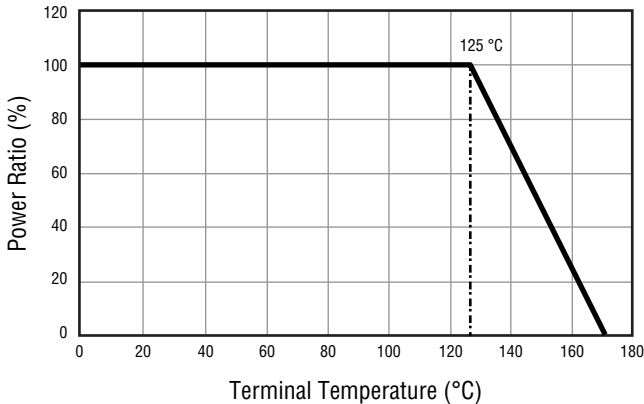
**Product Dimensions**



Part Number	Dim A	Dim B	Dim C
CSM2F-7036-L025J20	4.70 (.185)	7.87 (.310)	—
CSM2F-7036-L050J20	9.40 (.370)	12.57 (.495)	—
CSM2F-7036-L100J20	20.0 (.787)	23.18 (.913)	—
CSM2F-7036-L025J30	4.70 (.185)	7.87 (.310)	5.59 (.220)
CSM2F-7036-L050J30	9.40 (.370)	12.57 (.495)	5.59 (.220)
CSM2F-7036-L100J30	20.0 (.787)	23.18 (.913)	5.59 (.220)

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

**Power Derating Curve**



**General Specifications**

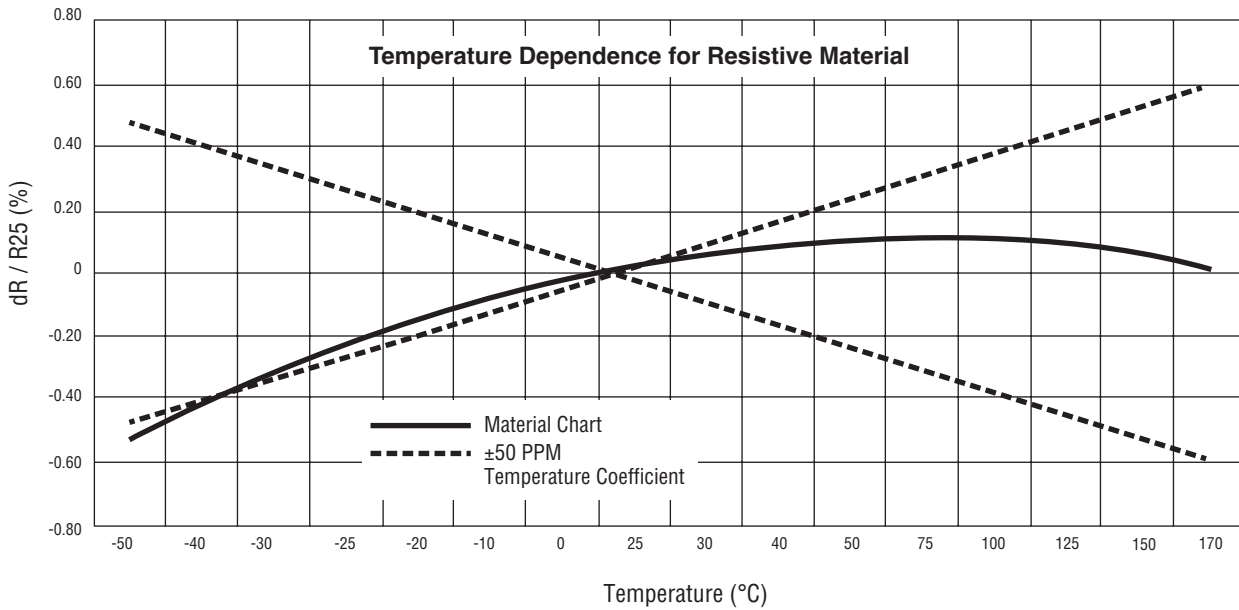
Moisture Sensitivity Level..... 1  
 ESD Classification..... Level 6  
 per AEC-Q200-002,  
 ≥ 25,000 V air discharge

**Packaging Specifications**

Tray Pack ..... 20 pcs. per high impact polystyrene tray  
 140 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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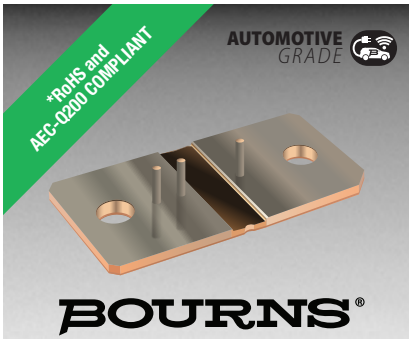
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## Features

- Up to 50 W permanent power
- Continuous current load up to 1000 A
- High pulse power rating
- Maximum fastening torque: 25 Nm
- Tinned terminals
- Customized versions available
- RoHS compliant\* / 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-7036 Series – Shunt Resistor with Sense Pins & Tinned Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-7036 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	$\pm 150$ ppm/°C
TCR Resistance Alloy***	< 50 ppm/°C
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	$\pm 0.5$ %
Resistance to Soldering Heat	+260 °C / 10 seconds	$\pm 0.5$ %
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	$\pm 0.5$ %
Solderability	J-STD-002	95 % coverage min.
Short Time Overload	5 times rated power for 5 seconds	$\pm 0.5$ %
Load Life	+125 °C / 1000 hours max load (1000 A) 1.5 hours ON 0.5 hours OFF	$\pm 1.0$ %

#### How to Order

CSM 2F - 7036 - 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

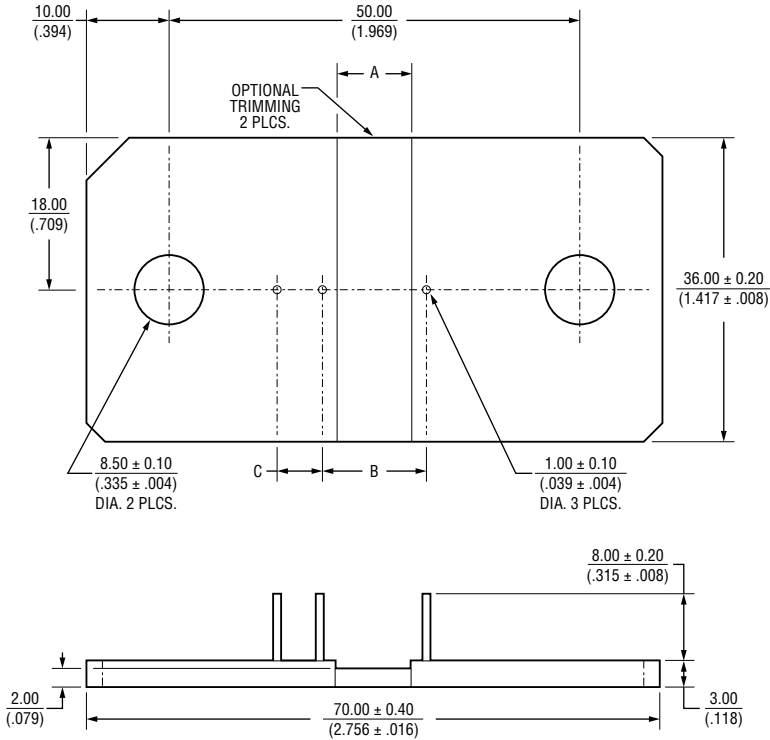


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**Product Dimensions**



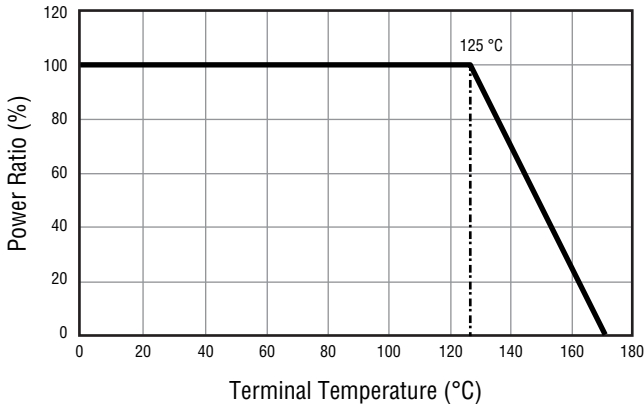
Part Number	Dim A	Dim B	Dim C
CSM2F-7036-L025J21	4.70 (.185)	7.87 (.310)	—
CSM2F-7036-L050J21	9.40 (.370)	12.57 (.495)	—
CSM2F-7036-L100J21	20.0 (.787)	23.18 (.913)	—
CSM2F-7036-L025J31	4.70 (.185)	7.87 (.310)	5.59 (.220)
CSM2F-7036-L050J31	9.40 (.370)	12.57 (.495)	5.59 (.220)
CSM2F-7036-L100J31	20.0 (.787)	23.18 (.913)	5.59 (.220)

**Notes**

1. Base material copper oxygen free
2. Tinned parts: Tin plating and nickel underplate. Edges non-plated.

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

**Power Derating Curve**



**General Specifications**

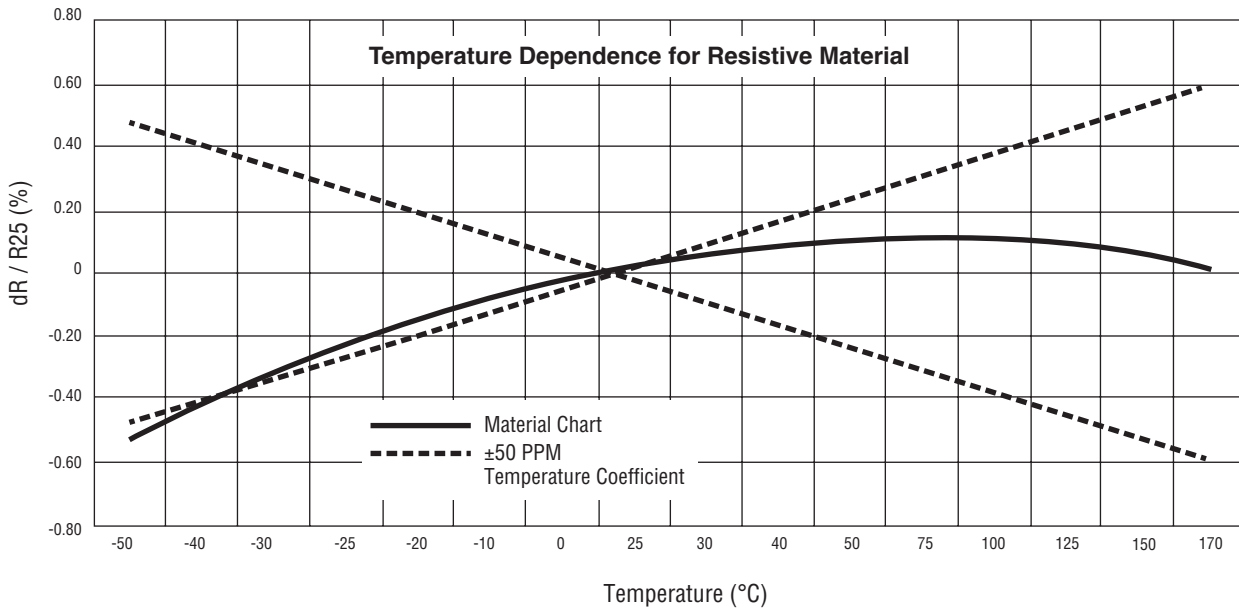
Moisture Sensitivity Level..... 1  
 ESD Classification..... Level 6  
 per AEC-Q200-002,  
 ≥ 25,000 V air discharge

**Packaging Specifications**

Tray Pack ..... 20 pcs. per high impact polystyrene tray  
 140 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

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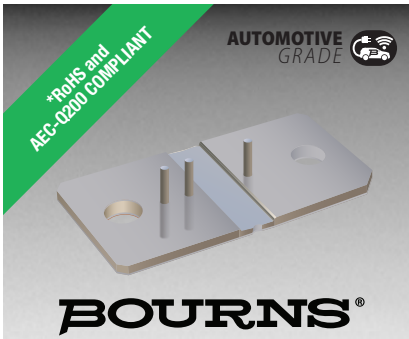
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## Features

- 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-7036 Series – Shunt Resistor with Sense Pins & Fully Tinned Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-7036 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	25 $\mu\Omega$ / 50 W 50 $\mu\Omega$ / 50 W 100 $\mu\Omega$ / 50 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 200$ ppm/°C for 25 $\mu\Omega$ $\pm 150$ ppm/°C for 50 $\mu\Omega$ and 100 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 12 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
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 - 7036 - L100 J 2 2**

Model \_\_\_\_\_

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

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

Resistance Code (Milliohms) \_\_\_\_\_  
 "L" Represents Decimal Point  
 L100 = 100 MicroOhms

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

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

Surface Finishing \_\_\_\_\_  
 2 = Fully Tinned Terminals and Resistive Element  
 Plated Sense Pins

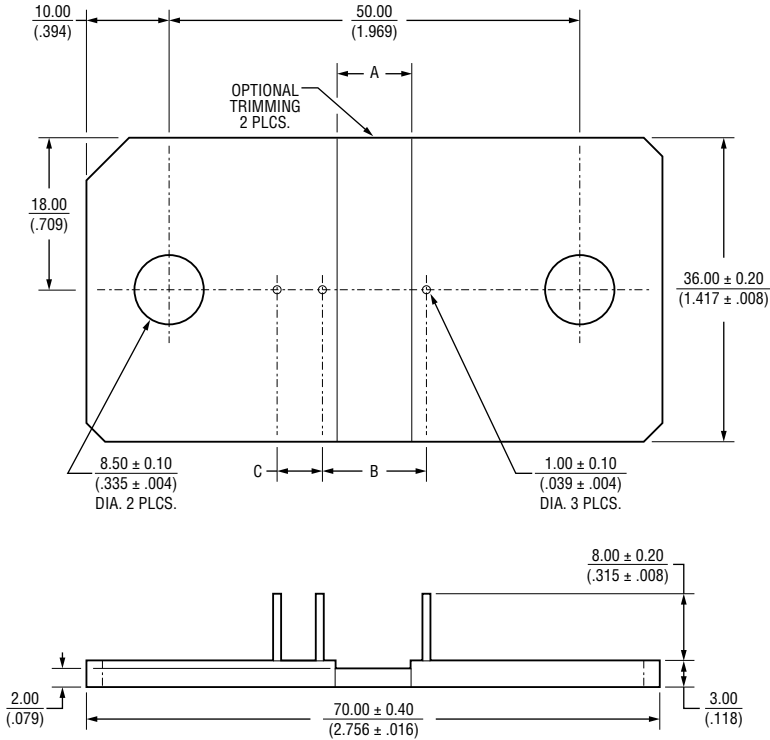


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**Product Dimensions**

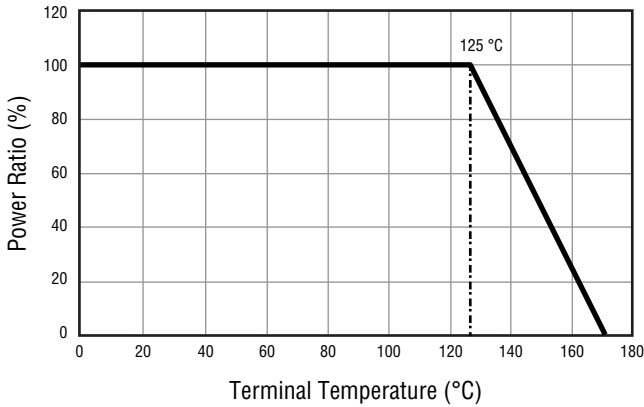


Part Number	Dim A	Dim B	Dim C
CSM2F-7036-L025J22	4.70 (.185)	7.87 (.310)	—
CSM2F-7036-L050J22	9.40 (.370)	12.57 (.495)	—
CSM2F-7036-L100J22	20.0 (.787)	23.18 (.913)	—
CSM2F-7036-L025J32	4.70 (.185)	7.87 (.310)	5.59 (.220)
CSM2F-7036-L050J32	9.40 (.370)	12.57 (.495)	5.59 (.220)
CSM2F-7036-L100J32	20.0 (.787)	23.18 (.913)	5.59 (.220)

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

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

**Power Derating Curve**



**General Specifications**

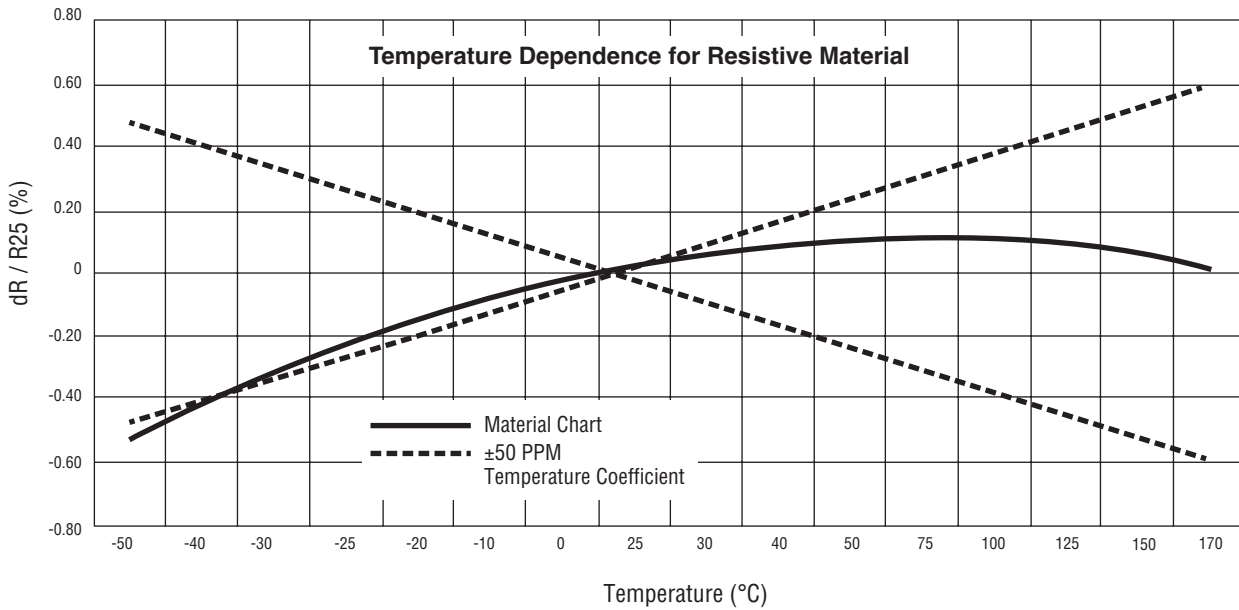
Moisture Sensitivity Level..... 1  
 ESD Classification..... Level 6  
 per AEC-Q200-002,  
 ≥ 25,000 V air discharge

**Packaging Specifications**

Tray Pack ..... 20 pcs. per high impact polystyrene tray  
 140 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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## Features

- Up to 36 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-8518 Series – Shunt Resistor with Sense Pins & Bare Copper Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-8518 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	50 $\mu\Omega$ / 36 W 100 $\mu\Omega$ / 36 W 200 $\mu\Omega$ / 36 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 100$ ppm/°C for 50 $\mu\Omega$ $\pm 150$ ppm/°C for 100 $\mu\Omega$ and 200 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 5 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
Low Temperature Storage	-65 °C / 1000 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 - 8518 - L050 J 2 0

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 \_\_\_\_\_  
 0 = Bare Copper Terminals  
 Plated Sense Pins

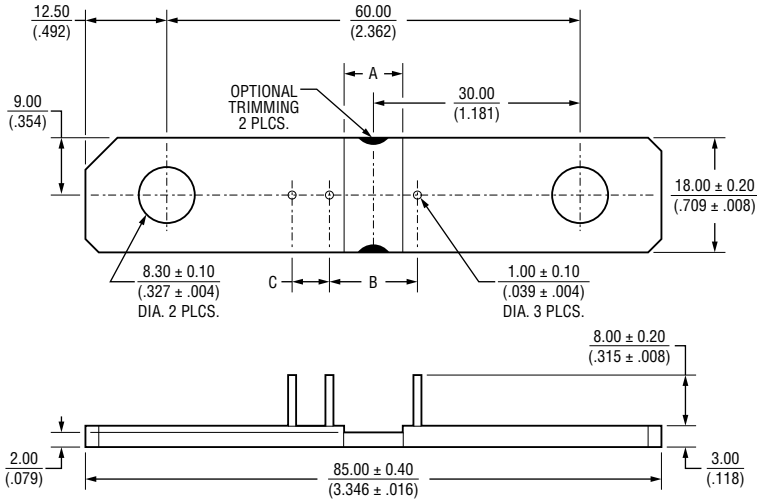


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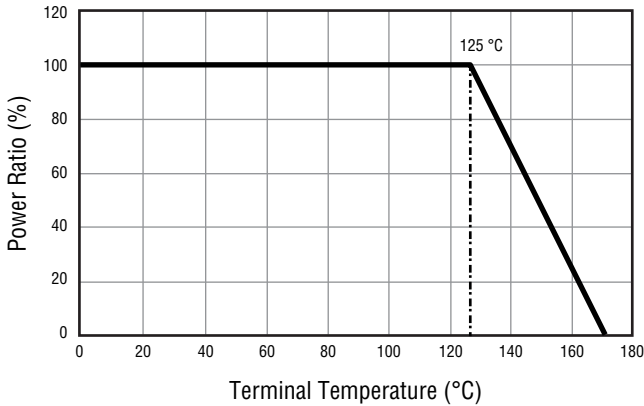
**Product Dimensions**



Part Number	Dim A	Dim B	Dim C
CSM2F-8518-L050J20	4.70 (.185)	7.80 (.307)	—
CSM2F-8518-L100J20	9.40 (.370)	12.50 (.492)	—
CSM2F-8518-L200J20	20.0 (.787)	23.10 (.909)	—
CSM2F-8518-L050J30	4.70 (.185)	7.80 (.307)	5.59 (.220)
CSM2F-8518-L100J30	9.40 (.370)	12.50 (.492)	5.59 (.220)
CSM2F-8518-L200J30	20.0 (.787)	23.10 (.909)	5.59 (.220)

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

**Power Derating Curve**



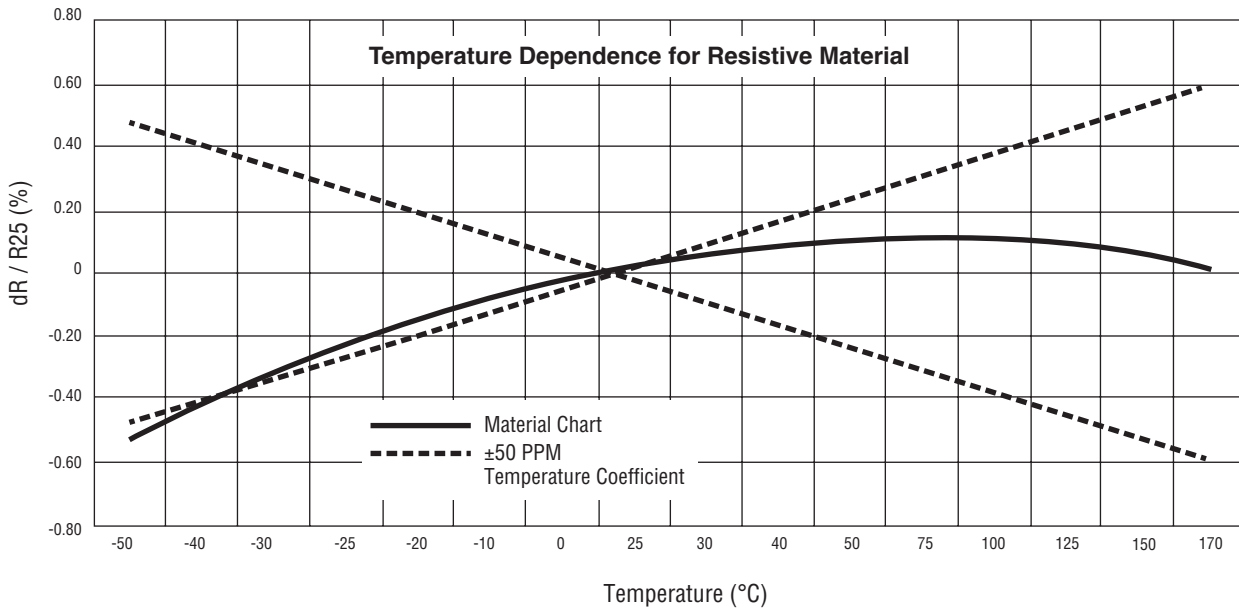
**General Specifications**

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

**Packaging Specifications**

Tray Pack ..... 24 pcs. per high impact polystyrene tray  
 168 pcs. per box  
 Size ..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

TCR Curves



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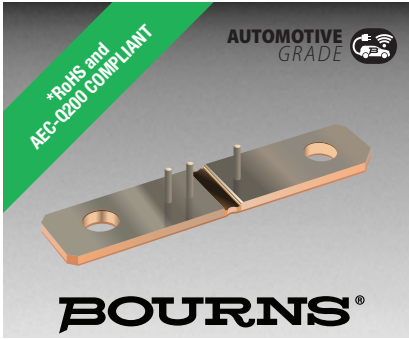
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## Features

- Up to 36 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-8518 Series – Shunt Resistor with Sense Pins & Tinned Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-8518 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	50 $\mu\Omega$ / 36 W 100 $\mu\Omega$ / 36 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 150$ ppm/°C for 50 $\mu\Omega$ and 100 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 5 nH
Resistance Tolerance	$\pm 5$ %

\*\* Terminal temperature

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

#### Additional Information

Click these links for more information:



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#### Environmental Characteristics

Characteristic	Test Condition	$\Delta$ TR Max.
Thermal Shock	-55 °C to +150 °C / 1000 cycles	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
Low Temperature Storage	-65 °C / 1000 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 - 8518 - 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

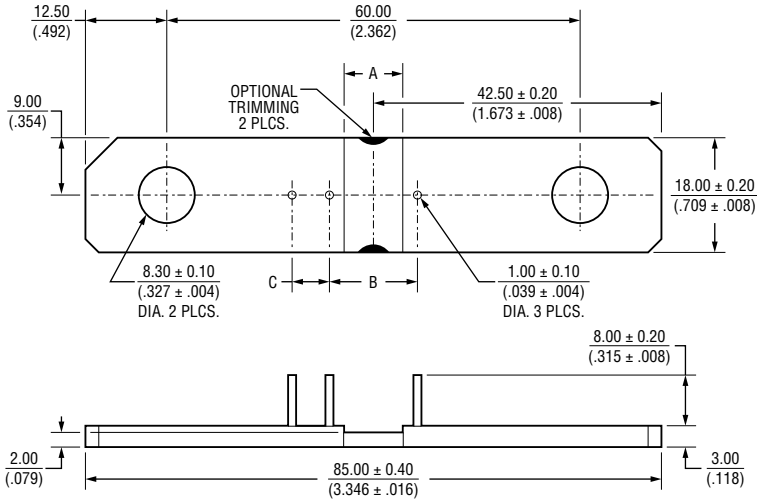


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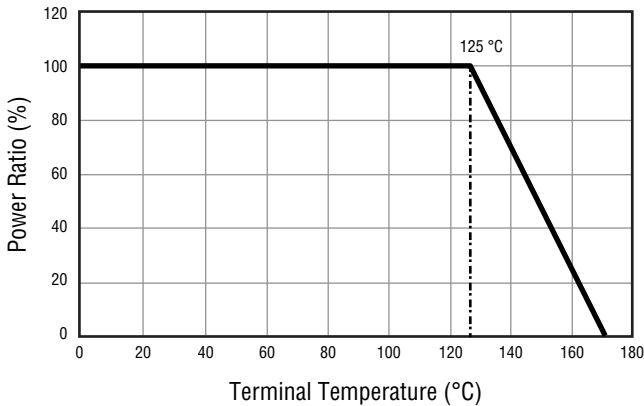
**Product Dimensions**



Part Number	Dim A	Dim B	Dim C
CSM2F-8518-L050J21	4.70 (.185)	7.80 (.307)	—
CSM2F-8518-L100J21	9.40 (.370)	12.50 (.492)	—
CSM2F-8518-L050J31	4.70 (.185)	7.80 (.307)	5.59 (.220)
CSM2F-8518-L100J31	9.40 (.370)	12.50 (.492)	5.59 (.220)

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

**Power Derating Curve**



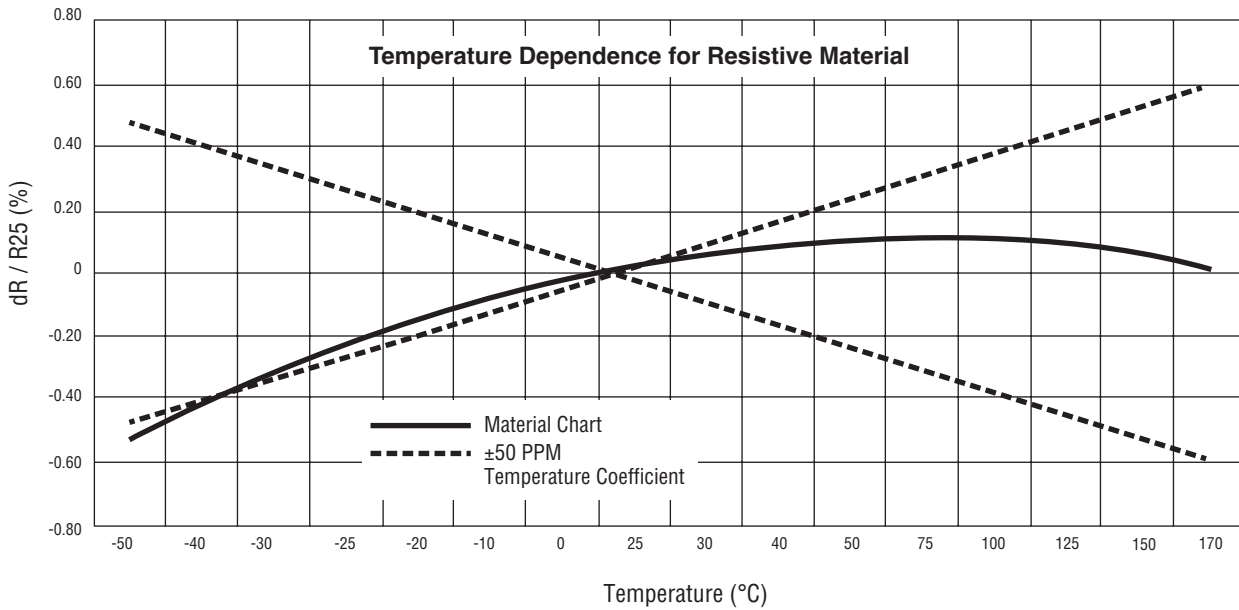
**General Specifications**

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

**Packaging Specifications**

Tray Pack ..... 24 pcs. per high impact polystyrene tray  
 168 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

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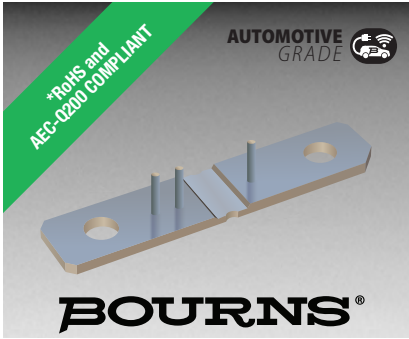
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## Features

- Up to 36 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-8518 Series – Shunt Resistor with Sense Pins & Fully Tinned Terminals

#### Electrical Characteristics

Characteristic	Model CSM2F-8518 with Sense Pins
Resistance Range / Power Rating @ 125 °C**	50 $\mu\Omega$ / 36 W 100 $\mu\Omega$ / 36 W 200 $\mu\Omega$ / 36 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 200$ ppm/°C for 50 $\mu\Omega$ $\pm 150$ ppm/°C for 100 $\mu\Omega$ and 200 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 12 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
Low Temperature Storage	-65 °C / 1000 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 - 8518 - L050 J 2 2

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 \_\_\_\_\_  
 2 = Fully Tinned Terminals and Resistive Element  
 Plated Sense Pins

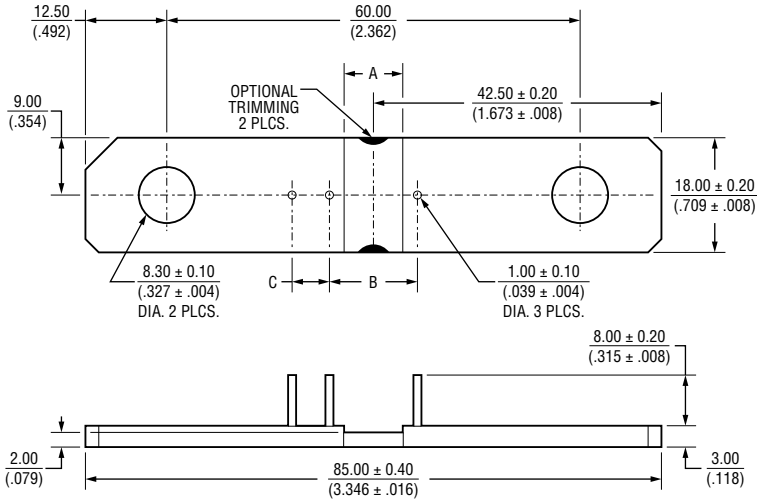


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**Product Dimensions**

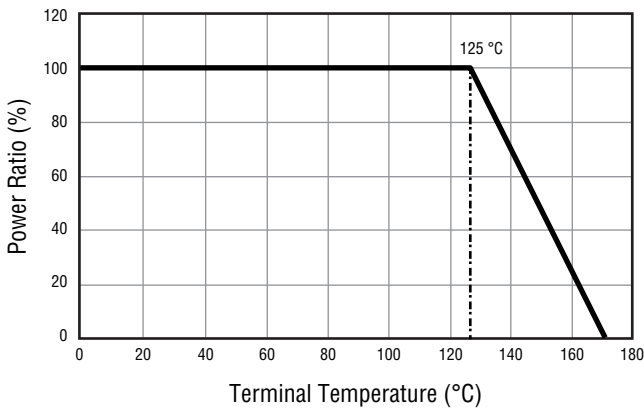


Part Number	Dim A	Dim B	Dim C
CSM2F-8518-L050J22	4.70 (.185)	7.87 (.310)	—
CSM2F-8518-L100J22	9.40 (.370)	12.57 (.495)	—
CSM2F-8518-L200J22	20.0 (.787)	23.18 (.913)	—
CSM2F-8518-L050J32	4.70 (.185)	7.87 (.310)	5.59 (.220)
CSM2F-8518-L100J32	9.40 (.370)	12.57 (.495)	5.59 (.220)
CSM2F-8518-L200J32	20.0 (.787)	23.18 (.913)	5.59 (.220)

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

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

**Power Derating Curve**



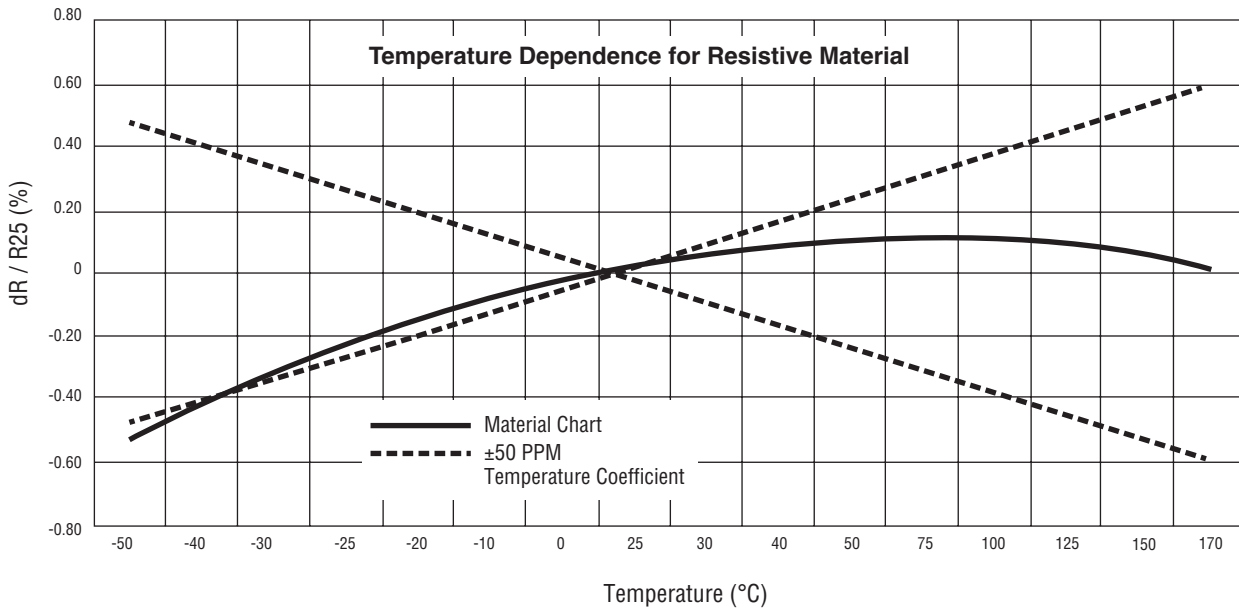
**General Specifications**

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

**Packaging Specifications**

Tray Pack ..... 24 pcs. per high impact polystyrene tray  
 168 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

TCR Curves



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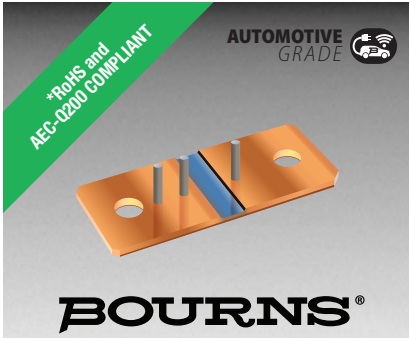
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## Features

- 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 & Bare Copper 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 100 $\mu\Omega$ / 50 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 100$ ppm/°C
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 12 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
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 - L100 J 2 0**

Model \_\_\_\_\_

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

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

Resistance Code (Milliohms) \_\_\_\_\_  
 "L" Represents Decimal Point  
 L100 = 100 MicroOhms

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

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

Surface Finishing \_\_\_\_\_  
 0 = Bare Copper Terminals  
 Plated Sense Pins

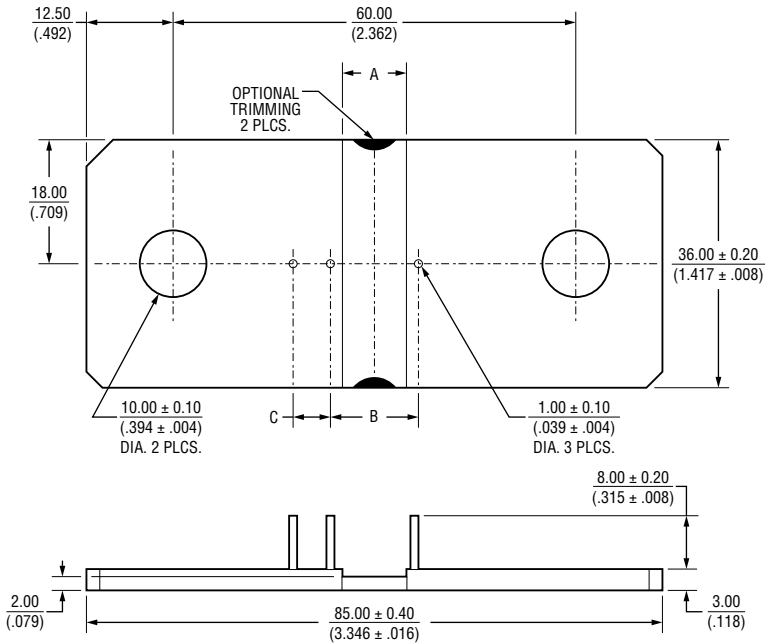


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**Product Dimensions**

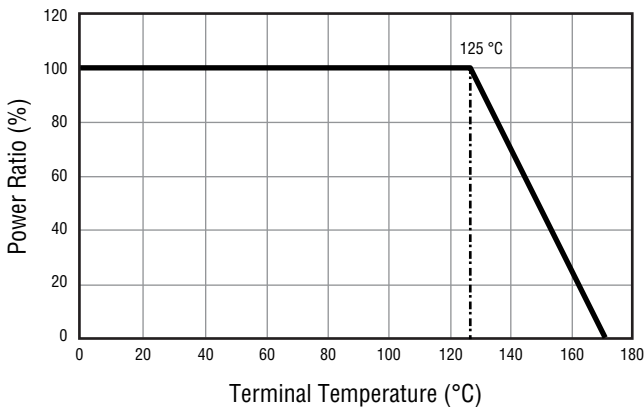


Part Number	Dim A	Dim B	Dim C
CSM2F-8536-L025J20	4.70 (.185)	7.80 (.307)	—
CSM2F-8536-L050J20	9.40 (.370)	12.50 (.492)	—
CSM2F-8536-L100J20	20.0 (.787)	23.10 (.909)	—
CSM2F-8536-L025J30	4.70 (.185)	7.80 (.307)	5.59 (.220)
CSM2F-8536-L050J30	9.40 (.370)	12.50 (.492)	5.59 (.220)
CSM2F-8536-L100J30	20.0 (.787)	23.10 (.909)	5.59 (.220)

Note: Sense pins are fully plated with a layer of tin.

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**

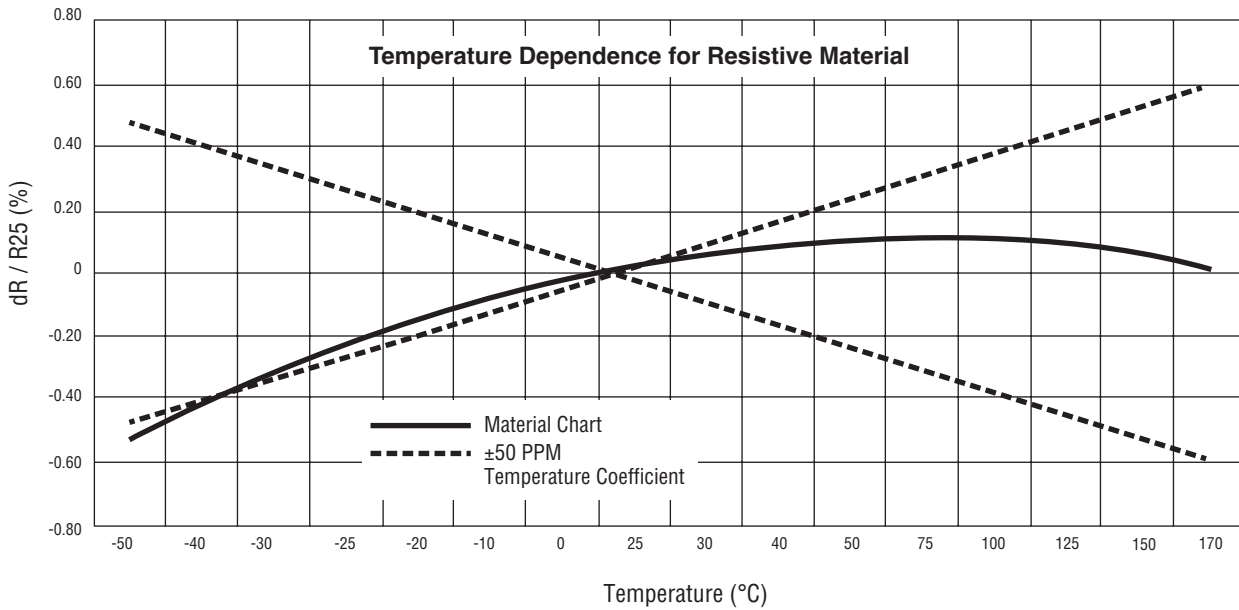
Tray Pack ..... 16 pcs. per high impact polystyrene tray  
 112 pcs. per box  
 Size..... 460 mm x 320 mm (18.110 in. x 12.598 in.)

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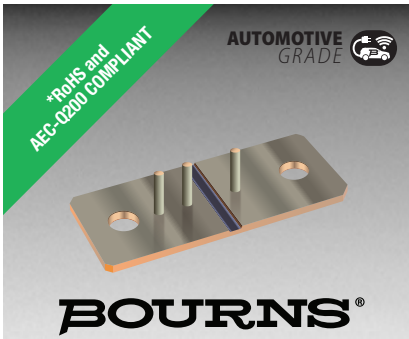
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## Features

- 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

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

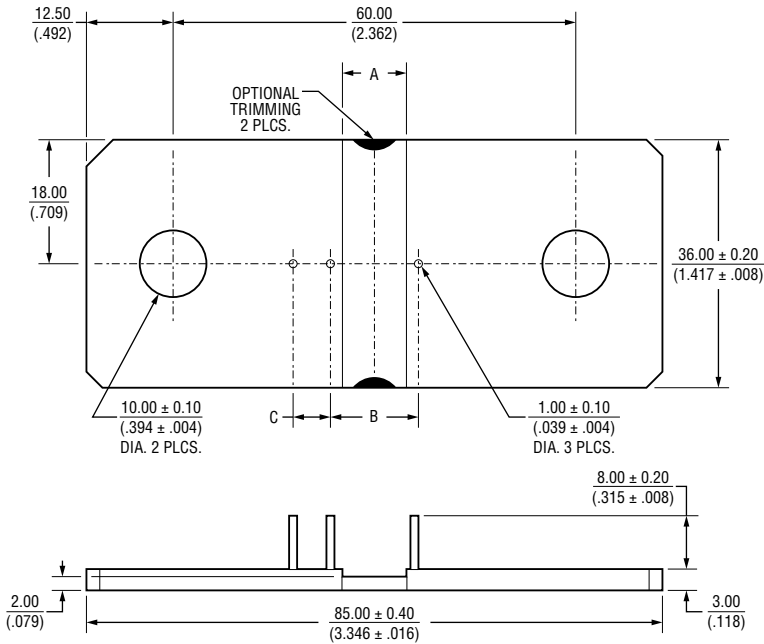


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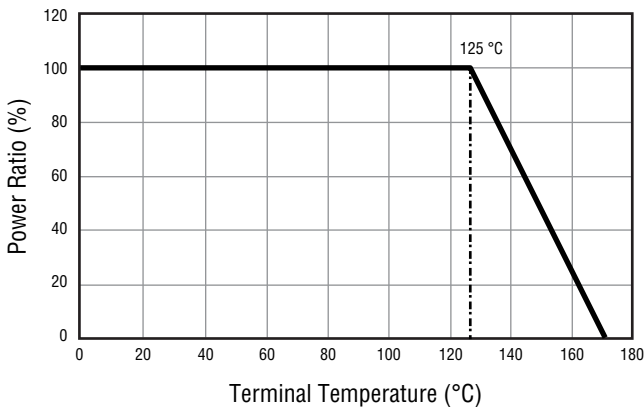


Part Number	Dim A	Dim B	Dim C
CSM2F-8536-L025J21	4.70 (.185)	7.87 (.310)	—
CSM2F-8536-L050J21	9.40 (.370)	12.57 (.495)	—
CSM2F-8536-L025J31	4.70 (.185)	7.87 (.310)	5.59 (.220)
CSM2F-8536-L050J31	9.40 (.370)	12.57 (.495)	5.59 (.220)

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

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

**Power Derating Curve**



**General Specifications**

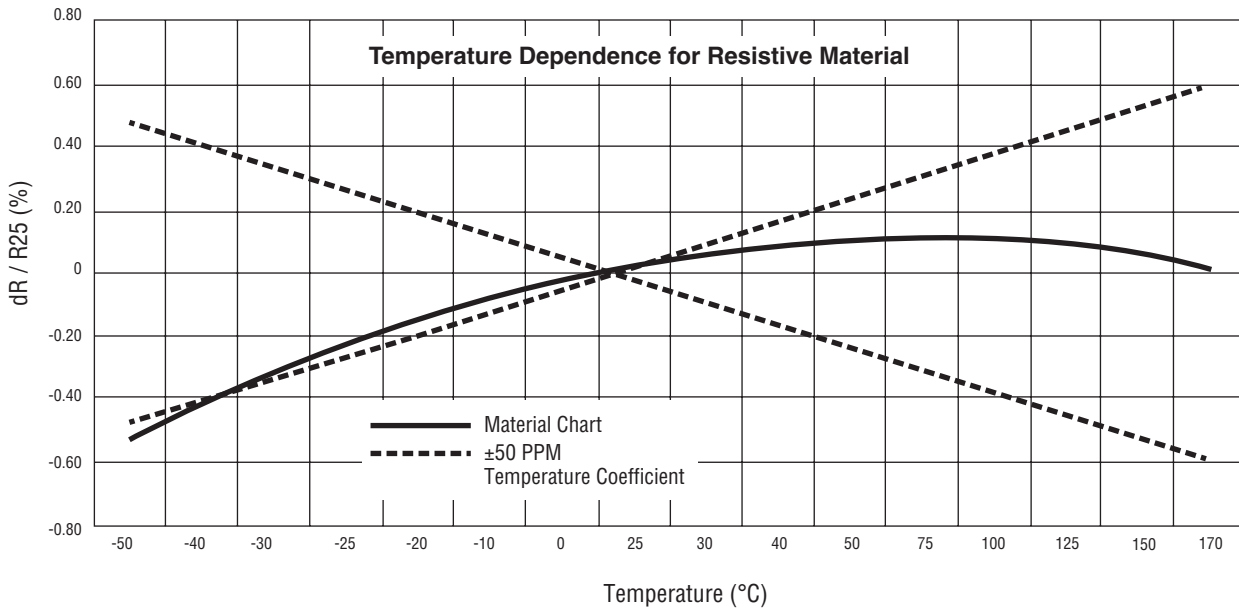
Moisture Sensitivity Level..... 1  
 ESD Classification..... Level 6  
 per AEC-Q200-002,  
 ≥ 25,000 V air discharge

**Packaging Specifications**

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

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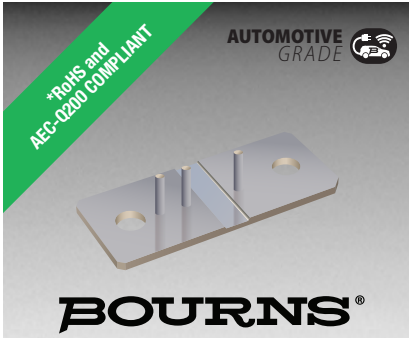
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## Features

- 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 & Fully 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 100 $\mu\Omega$ / 50 W
Operating Temperature Range	-40 °C ~ +170 °C
TCR on Test Points (+20 °C to +130 °C)	$\pm 200$ ppm/°C for 25 $\mu\Omega$ $\pm 150$ ppm/°C for 50 $\mu\Omega$ and 100 $\mu\Omega$
TCR Resistance Alloy***	< 50 ppm/°C
Inductance	< 12 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	$\pm 0.5$ %
High Temperature Exposure	+170 °C / 1000 hours	$\pm 1.0$ %
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 - L100 J 2 2**

Model \_\_\_\_\_

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

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

Resistance Code (Milliohms) \_\_\_\_\_

“L” Represents Decimal Point  
L100 = 100 MicroOhms

Resistance Tolerance \_\_\_\_\_

J =  $\pm 5$  %

Number of Pins \_\_\_\_\_

2 or 3

Surface Finishing \_\_\_\_\_

2 = Fully Tinned Terminals and Resistive Element  
Plated Sense Pins

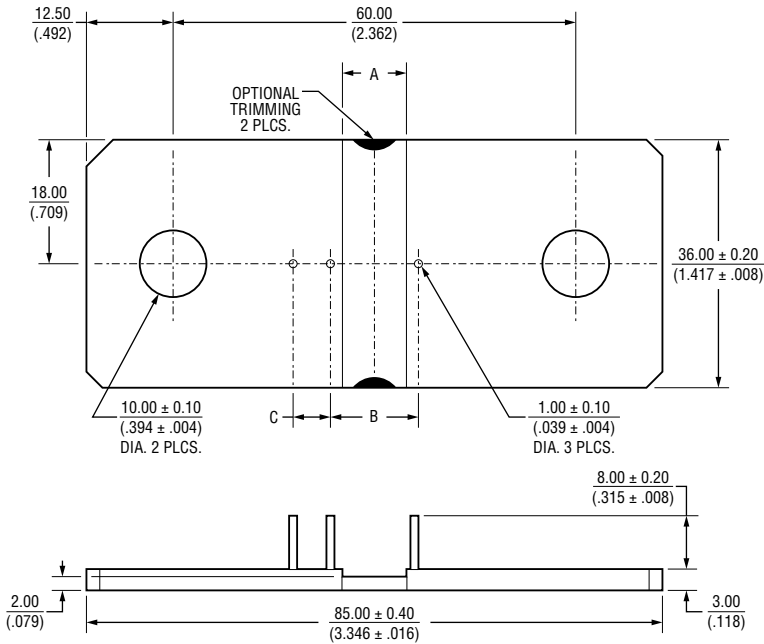


**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

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

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**Product Dimensions**

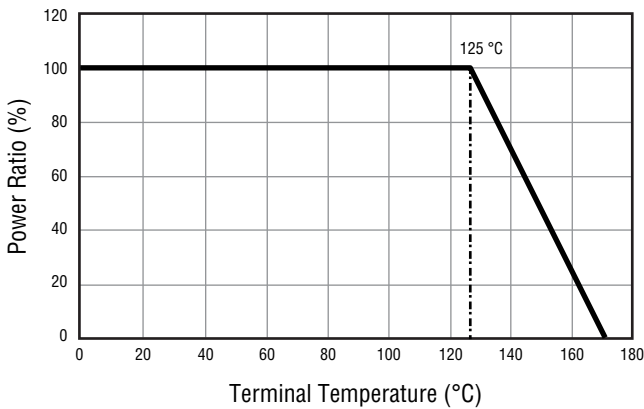


Part Number	Dim A	Dim B	Dim C
CSM2F-8536-L025J22	4.70 (.185)	7.80 (.307)	—
CSM2F-8536-L050J22	9.40 (.370)	12.50 (.492)	—
CSM2F-8536-L100J22	20.0 (.787)	23.10 (.909)	—
CSM2F-8536-L025J32	4.70 (.185)	7.80 (.307)	5.59 (.220)
CSM2F-8536-L050J32	9.40 (.370)	12.50 (.492)	5.59 (.220)
CSM2F-8536-L100J32	20.0 (.787)	23.10 (.909)	5.59 (.220)

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

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

**Power Derating Curve**



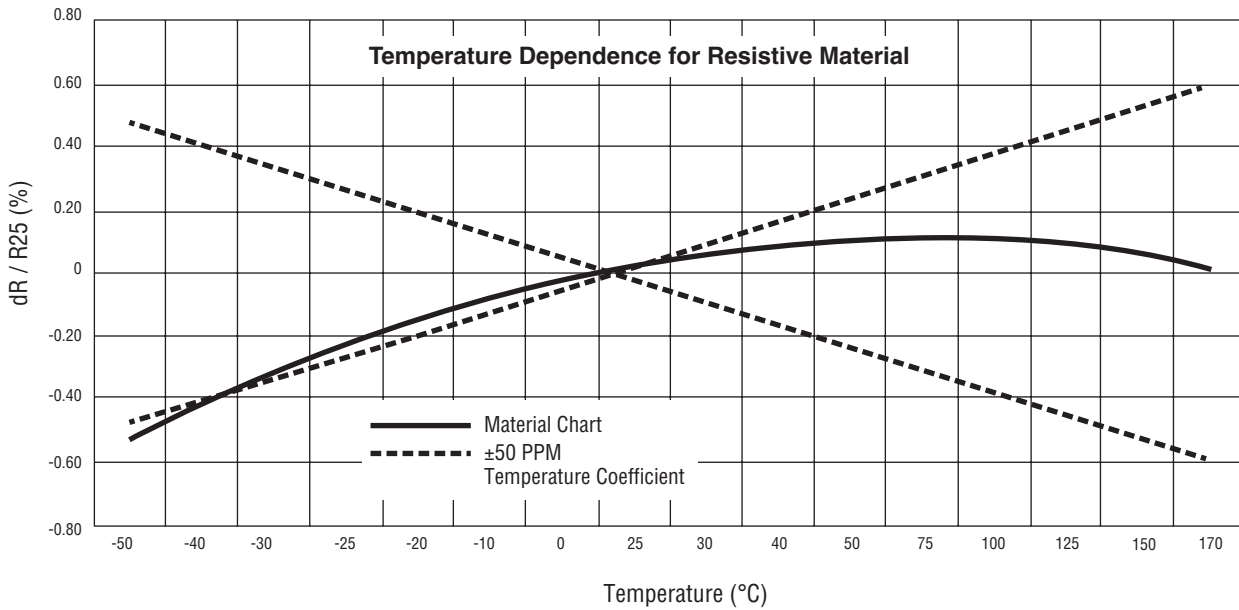
**General Specifications**

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.)

TCR Curves



**BOURNS®**

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EMEA: Tel: +36 88 885 877 • Email: eurocus@bourns.com

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