



## Features

- EB welded metal strip
- Very high power
- Excellent long term stability
- Low resistance, low TCR
- Low thermal EMF
- RoHS compliant\* and halogen free\*\*
- AEC-Q200 compliant

## Applications

- Current sensing
- Voltage division
- Battery management systems
- Power modules
- Frequency converters
- Industrial

## Model CSS2H-2512 Series Current Sense Resistor

### Electrical Characteristics

Characteristic	Model CSS2H-2512 Series	
Resistance Range / Power Rating @70 °C <sup>1</sup> / Power Rating @130 °C <sup>1</sup>	CSS2H-2512C-000 <sup>3</sup>	< 0.1 mΩ / 100 A
	CSS2H-2512R-L300x	0.3 mΩ / 6 W / 3 W
	CSS2H-2512R-L500x	0.5 mΩ / 6 W / 3 W
	CSS2H-2512R-1L00x	1.0 mΩ / 5 W / 3 W
	CSS2H-2512K-1L80x	1.8 mΩ / 5 W / 3 W
	CSS2H-2512K-2L00x	2.0 mΩ / 5 W / 3 W
	CSS2H-2512K-2L30x	2.3 mΩ / 5 W / 3 W
	CSS2H-2512K-3L00x	3.0 mΩ / 4 W / 2 W
	CSS2H-2512K-3L50x	3.5 mΩ / 4 W / 2 W
	CSS2H-2512K-4L00x <sup>4</sup>	4.0 mΩ / 3 W / 2 W
	CSS2H-2512K-5L00x <sup>4</sup>	5.0 mΩ / 2.5 W / 1.5 W
Operating Temperature Range	-55 to +170 °C	
TCR - Resistive Alloy <sup>2</sup>	±50 PPM/°C (20~60 °C)	
Temperature Coefficient including Copper Terminals	CSS2H-2512R-L300x	±150 PPM/°C
	CSS2H-2512R-L500x	±100 PPM/°C
	CSS2H-2512R-1L00x	±75 PPM/°C
	CSS2H-2512K-1L80x	±75 PPM/°C
	CSS2H-2512K-2L00x	±75 PPM/°C
	CSS2H-2512K-2L30x	±75 PPM/°C
	CSS2H-2512K-3L00x	±75 PPM/°C
	CSS2H-2512K-3L50x	±75 PPM/°C
	CSS2H-2512K-4L00x <sup>4</sup>	±75 PPM/°C
	CSS2H-2512K-5L00x <sup>4</sup>	±75 PPM/°C
Inductance	Material type R: < 2 nH Material type K: < 5 nH	
Resistance Tolerance	±1 %, ±5 %	

<sup>1</sup> Terminal temperature <sup>2</sup> For full TCR range, refer to TCR curve

<sup>3</sup> Tinned copper <sup>4</sup> CSS2H-2512K-4L00F and -5L00F are available upon request - contact factory

### Environmental Characteristics

Characteristic	Test Condition	ΔR Max.
Thermal Shock	-55 to +150 °C / 2000 Cycles	0.50 %
Short Time Overload	5 Times Rated Power for 5 Second Duration	0.50 %
Resistance to Soldering Heat	+260 °C / 10 Seconds	0.50 %
High Temperature Exposure	+170 °C / 2000 Hours	1.00 %
Low Temperature Storage	-65 °C / 24 Hours	0.10 %
Biased Humidity Test	+85 °C, 85 %R.H., 1000 Hours	0.50 %
Moisture Resistance	10 Days with Cold Shock, No Load	0.20 %
Mechanical Shock	100 g, 6 ms half sine	0.20 %
Vibration, High Frequency	20 g, 10-2000 Hz	0.20 %
Load Life	2000 Hours, Max. Load, Terminal Temperature 130 °C	1.00 %
Solderability	J-STD-002	95 % Coverage Min.
ESD	AEC-Q200-002, 25 kV	0.25 %
Board Flex	60 Sec. Min. Holding Time	0.25 %
Moisture Sensitivity Level		Level 1

### Additional Information

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### How to Order

**CSS 2H - 2512 R - L500 J**

Model

No. of Terminals & Style

Size

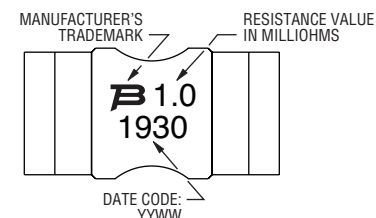
Material Type   
(See Part Number Table)

Resistance Code (milliohms)   
"L" represents decimal point  
(examples: L500 = .500 milliohms;  
1L00 = 1.00 milliohms)

Resistance Tolerance   
F = ±1 %  
J = ±5 %

Packaging size   
Blank = Standard 13 " reel  
E = Mini 7 " reel

### Typical Part Marking



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

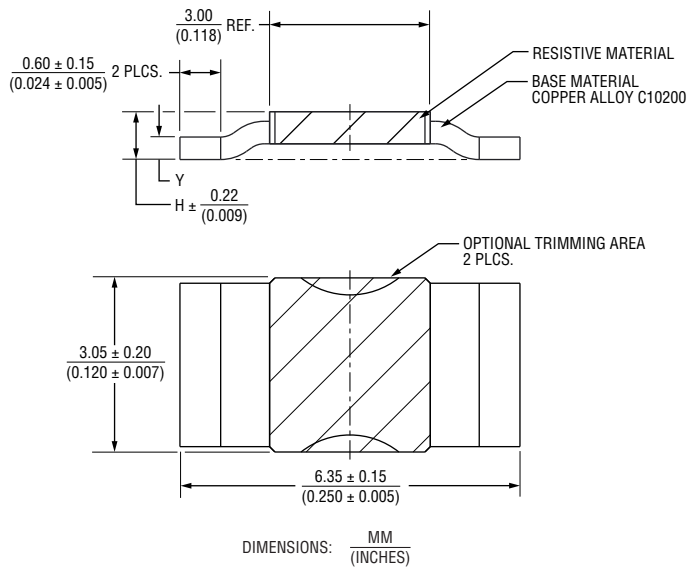
\* RoHS Directive 2015/863, Mar 31, 2015 and Annex.  
\*\* Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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# Model CSS2H-2512 Series Current Sense Resistor

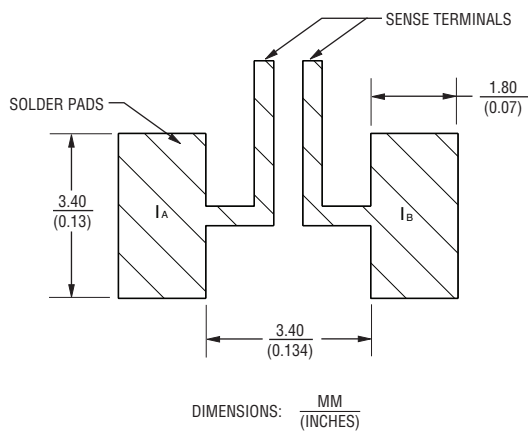
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## Product Dimensions

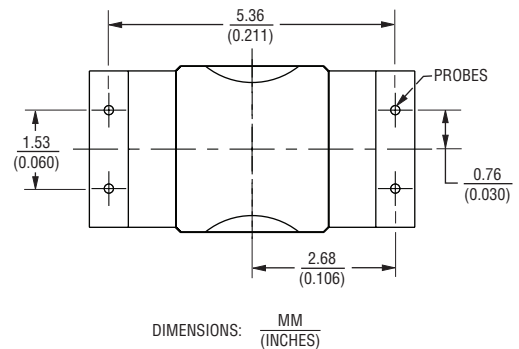


Part Number	Dimension H max.	Dimension Y max.	Alloy
CSS2H-2512C-000	0.78 (0.031)	0.43 (0.017)	Cu/Tin
CSS2H-2512R-L300x	1.65 (0.065)	1.20 (0.047)	Cu-Mn
CSS2H-2512R-L500x	1.21 (0.048)	0.86 (0.034)	Cu-Mn
CSS2H-2512R-1L00x	0.78 (0.031)	0.43 (0.017)	Cu-Mn
CSS2H-2512K-1L80x	1.21 (0.048)	0.73 (0.029)	Fe-Cr
CSS2H-2512K-2L00x	1.09 (0.043)	0.73 (0.029)	Fe-Cr
CSS2H-2512K-2L30x			
CSS2H-2512K-3L00x	0.81 (0.032)	0.45 (0.018)	Fe-Cr
CSS2H-2512K-3L50x			
CSS2H-2512K-4L00x	0.73 (0.029)	0.43 (0.017)	Fe-Cr
CSS2H-2512K-5L00x	0.65 (0.026)	0.43 (0.017)	Fe-Cr

## Recommended Pad Layout



## Recommended Measurements



## Electrical Schematic



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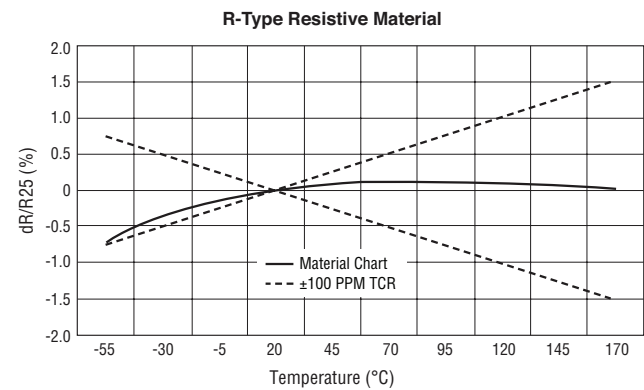
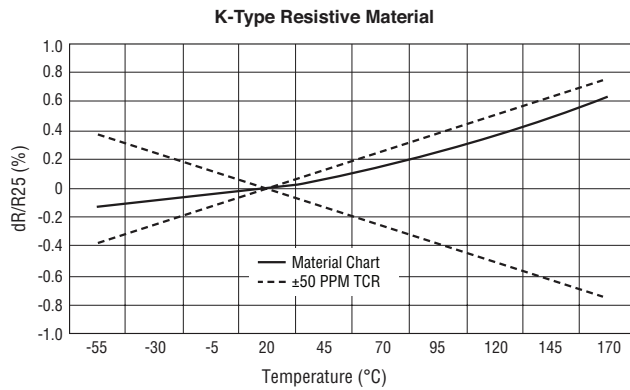
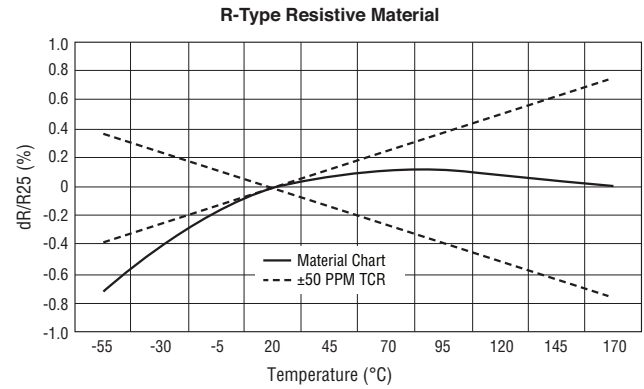
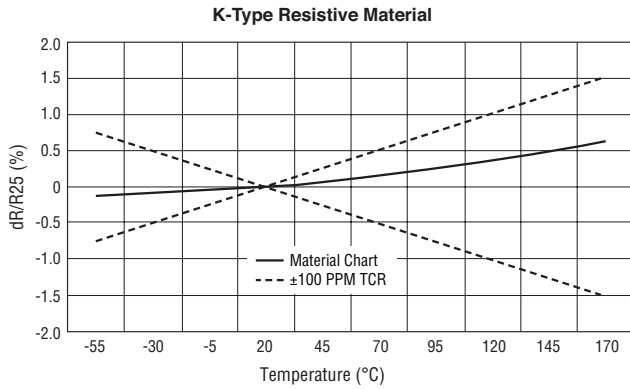
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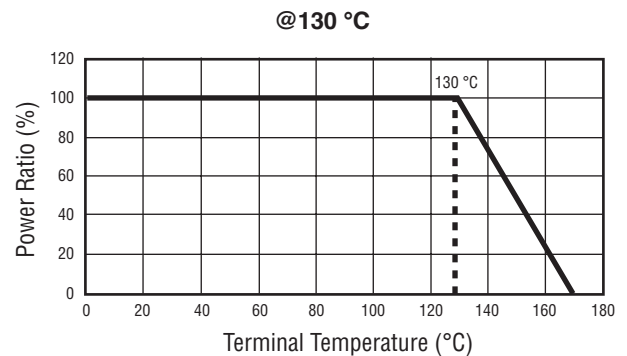
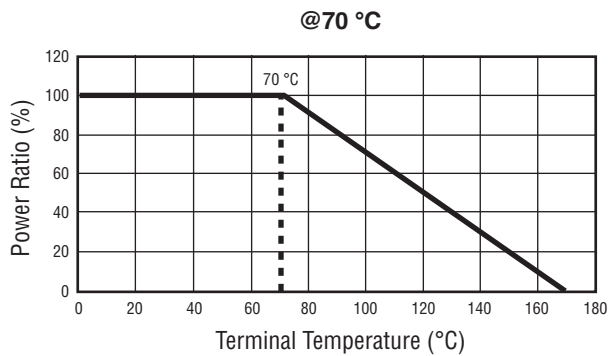
# Model CSS2H-2512 Series Current Sense Resistor

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## TCR Curves



## Power Derating Curves



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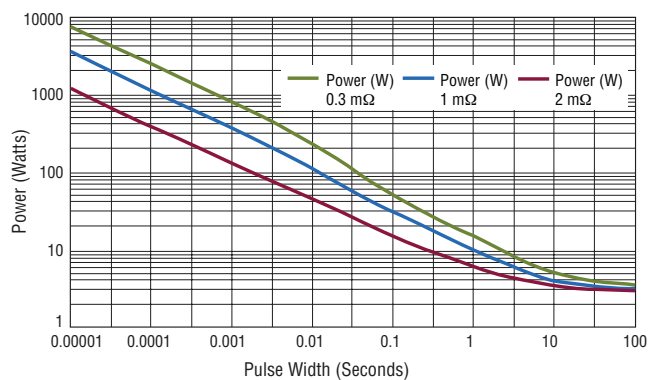
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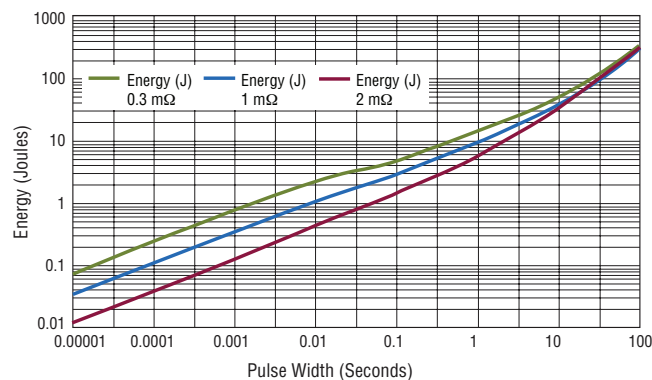
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### Maximum Pulse Power



### Maximum Pulse Energy

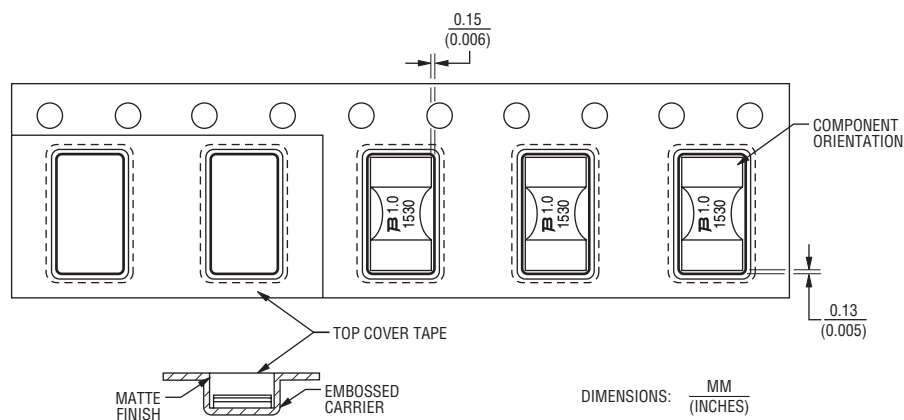


### Packaging Specifications

Components packaged per EIA-481.

Standard Reel Size: 13 inches  
Tape Width: 12 mm  
Quantity: 3,000 pcs. per reel

Mini-Reel Size: 7 inches  
Tape Width: 12 mm  
Quantity: 1000 pcs. per reel



**BOURNS®**

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