



**THE DATASHEET OF
CSS2H-2512R-L300F**





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 ¹ | CSS2H-2512C-000 ³ | < 0.1 mΩ / 100 A |
| | CSS2H-2512R-L300x | 0.3 mΩ / 6 W |
| | CSS2H-2512R-L500x | 0.5 mΩ / 6 W |
| | CSS2H-2512R-1L00x | 1.0 mΩ / 5 W |
| | CSS2H-2512K-1L80x | 1.8 mΩ / 5 W |
| | CSS2H-2512K-2L00x | 2.0 mΩ / 5 W |
| | CSS2H-2512K-2L30x | 2.3 mΩ / 5 W |
| | CSS2H-2512K-3L00x | 3.0 mΩ / 4 W |
| | CSS2H-2512K-3L50x | 3.5 mΩ / 4 W |
| | CSS2H-2512K-4L00x ⁴ | 4.0 mΩ / 3 W |
| CSS2H-2512K-5L00x ⁴ | 5.0 mΩ / 2.5 W | |
| Operating Temperature Range | -55 to +170 °C | |
| TCR - Resistive Alloy ² | ±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 ⁴ | ±75 PPM/°C |
| | CSS2H-2512K-5L00x ⁴ | ±75 PPM/°C |
| Inductance | Material type R: < 2 nH Material type K: < 5 nH | |
| Resistance Tolerance | ±1 %, ±5 % | |

¹ Terminal temperature ² For full TCR range, refer to TCR curve

³ Tinned copper ⁴ 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

Click these links for more information:



How to Order

CSS 2H - 2512 R - L500 J

Model

No. of Terminals & Style

Size

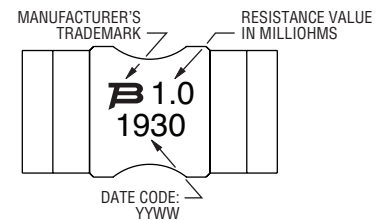
Material Type
(See Part Number Table)

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



WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

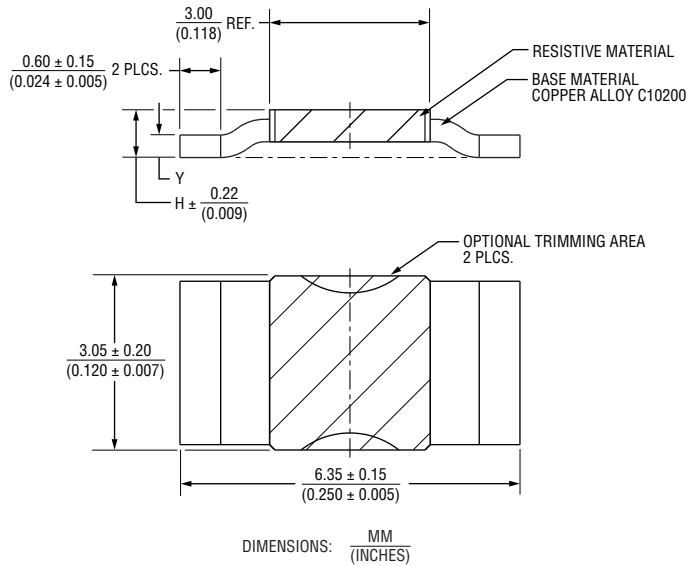
* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
** Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

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Model CSS2H-2512 Series Current Sense Resistor

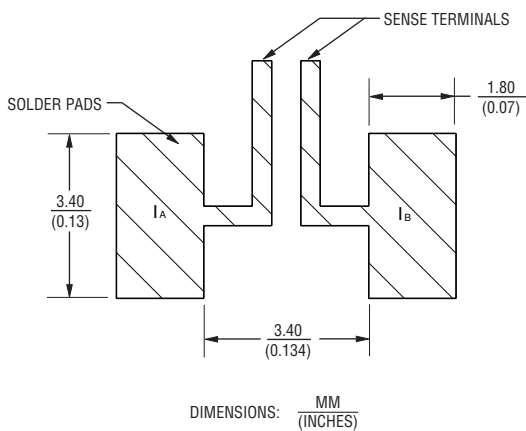
BOURNS®

Product Dimensions

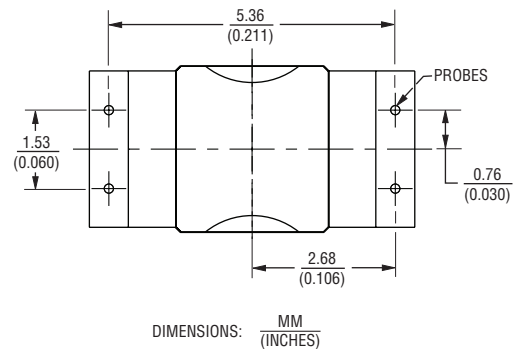


| Part Number | Dimension H max. | Dimension Y max. | Alloy |
|-------------------|------------------------|------------------------|--------|
| CSS2H-2512C-000 | $\frac{0.78}{(0.031)}$ | $\frac{0.43}{(0.017)}$ | Cu/Tin |
| CSS2H-2512R-L300x | $\frac{1.65}{(0.065)}$ | $\frac{1.20}{(0.047)}$ | Cu-Mn |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

Recommended Pad Layout



Recommended Measurements



Electrical Schematic



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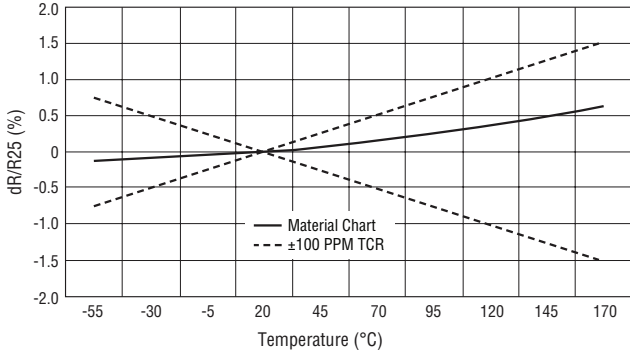
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Model CSS2H-2512 Series Current Sense Resistor

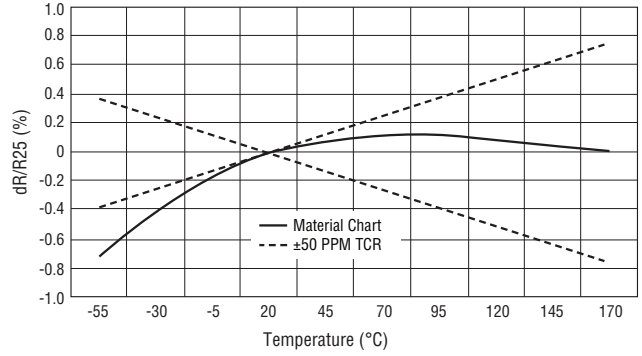


TCR Curves

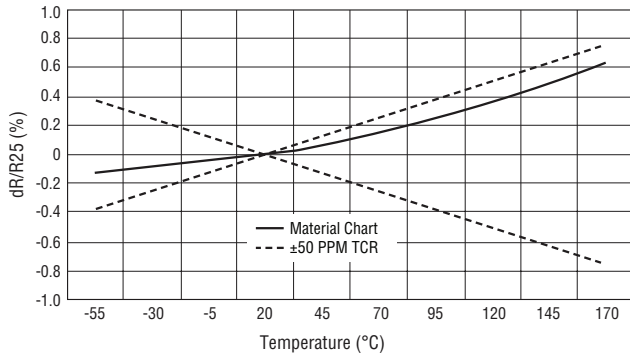
K-Type Resistive Material



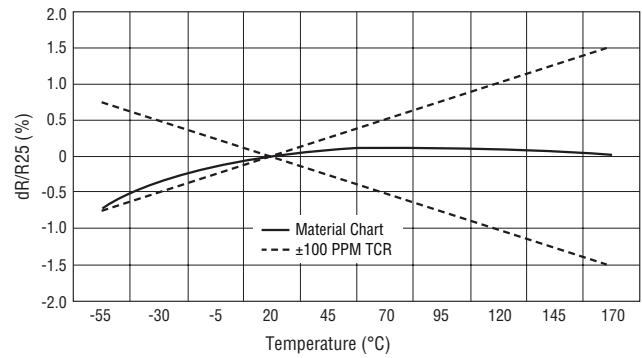
R-Type Resistive Material



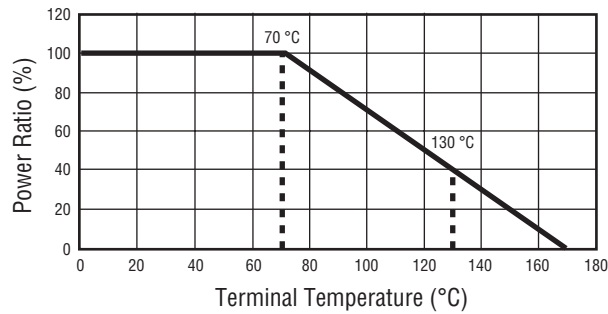
K-Type Resistive Material



R-Type Resistive Material



Terminal Temperature Derating Curve



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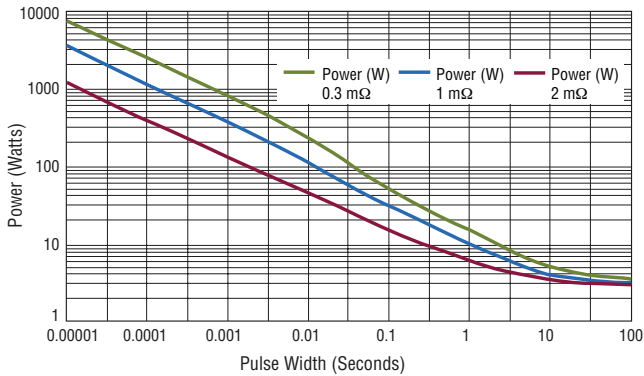
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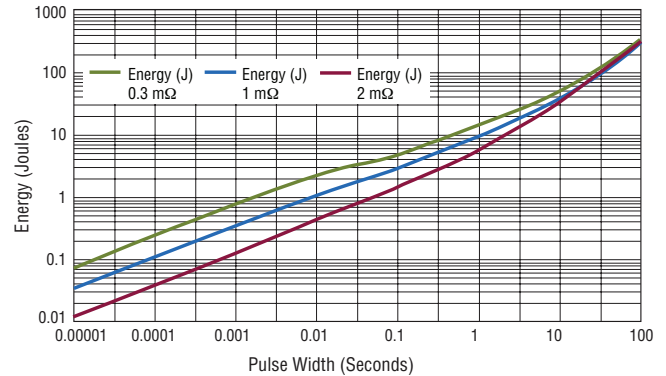
Model CSS2H-2512 Series Current Sense Resistor

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Maximum Pulse Power



Maximum Pulse Energy

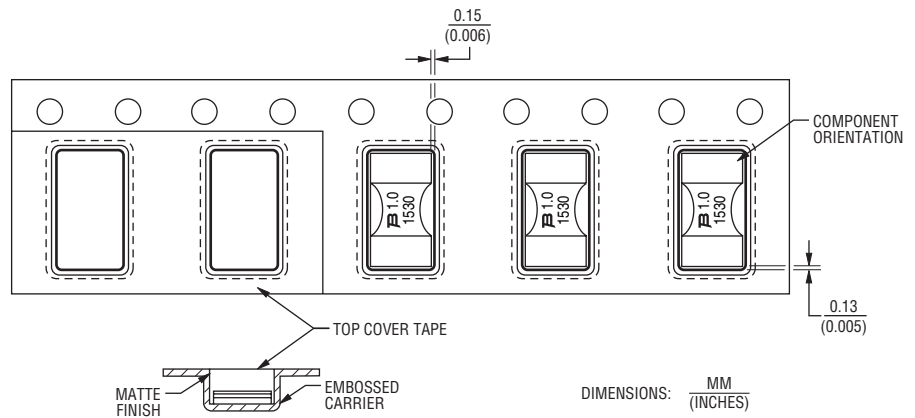


Packaging Specifications

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



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REV. 05/23

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