



## Features

- Mn/Cu alloy resistor
- Power rating at 70 °C: 2 W, 3 W
- Inductance less than 5 nH
- Low EMF
- RoHS compliant\*
- AEC-Q200 compliant

## Applications

- Power supplies
- Stepper motor drives
- Battery packs
- White goods
- Input amplifiers

# CRE2512 - High Power Current Sense Chip Resistor

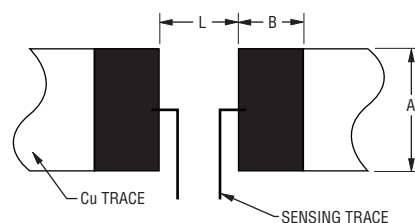
## Electrical Characteristics

| Characteristic              | CRE2512           |     |
|-----------------------------|-------------------|-----|
| Power Rating @ 70 °C        | 2 W               | 3 W |
| Metal Strip Alloy           | Mn/Cu             |     |
| Operating Temperature Range | -55 °C to +170 °C |     |
| Derated to Zero Load at     | +170 °C           |     |
| Maximum Working Current     | $(P / R)^{1/2}$   |     |
| Insulation Resistance       | > 100 megohms     |     |
| Resistance Range            | 1 mΩ ~ 9 mΩ       |     |
| Resistance Tolerance        | ±1 %              |     |
| Temperature Coefficient     | ±50 PPM/°C        |     |

## Performance Characteristics

| Test                      | Conditions                                                            | Specification           |
|---------------------------|-----------------------------------------------------------------------|-------------------------|
| Thermal Shock             | -55 °C to + 150 °C, 1000 Cycles, 15 minutes                           | $\Delta R < \pm 0.5 \%$ |
| Short Time Overload       | 5 X Rated Power for 5 seconds                                         | $\Delta R < \pm 0.5 \%$ |
| Low Temperature Storage   | -55 °C for 24 hours                                                   | $\Delta R < \pm 0.5 \%$ |
| High Temperature Exposure | 1000 hours @ + 170 °C                                                 | $\Delta R < \pm 1.0 \%$ |
| Bias Humidity             | + 85 °C, 85 % RH, 10 % Bias, 1000 hours                               | $\Delta R < \pm 0.5 \%$ |
| Mechanical Shock          | 100 g's for 6 milliseconds, 5 pulses                                  | $\Delta R < \pm 0.5 \%$ |
| Vibration                 | Frequency varied 10 to 2000 KHz in one minute, 3 directions, 12 hours | $\Delta R < \pm 0.5 \%$ |
| Load Life                 | 1000 hours at rated power at +70 °C, 1.5 hours on, 0.5 hours off      | $\Delta R < \pm 1.0 \%$ |
| Resistance to Solder Heat | +260 °C Solder, 10-12 second dwell, 25 mm/second emergence            | $\Delta R < \pm 0.5 \%$ |
| Moisture Resistance       | MIL-STD-202 Method 106, 0 % power (7a and 7b not required)            | $\Delta R < \pm 0.5 \%$ |

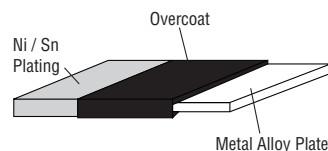
## Recommended Solder Pad Layout



| Model                       | Dimension      |                |                |
|-----------------------------|----------------|----------------|----------------|
|                             | A              | B              | L              |
| CRE2512-R001 ~ CRE2512-R004 | 4.0<br>(.0157) | 3.1<br>(0.122) | 1.3<br>(0.052) |
| CRE2512-R005 ~ CRE2512-R009 | 4.0<br>(.0157) | 2.1<br>(0.083) | 4.1<br>(0.161) |

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

## Construction

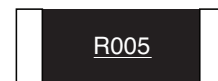


## Typical Part Marking

CRE2512-R001 ~ CRE2512-R004



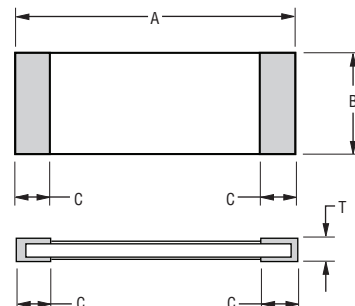
CRE2512-R005 ~ CRE2512-R009



## Product Dimensions

| Model                       | Dimension                          |                                   |                                    |                                     |
|-----------------------------|------------------------------------|-----------------------------------|------------------------------------|-------------------------------------|
|                             | A                                  | B                                 | C                                  | T                                   |
| CRE2512-R001 ~ CRE2512-R004 | $6.40 \pm 0.20$<br>(0.252 ± 0.008) | $3.2 \pm 0.20$<br>(0.126 ± 0.008) | $2.00 \pm 0.20$<br>(0.079 ± 0.008) | $0.70 \pm 0.20$<br>(0.0276 ± 0.008) |
| CRE2512-R005 ~ CRE2512-R009 | $6.40 \pm 0.20$<br>(0.252 ± 0.008) | $3.2 \pm 0.20$<br>(0.126 ± 0.008) | $0.90 \pm 0.20$<br>(0.035 ± 0.008) | $0.70 \pm 0.20$<br>(0.0276 ± 0.008) |

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



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

\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

Specifications are subject to change without notice.

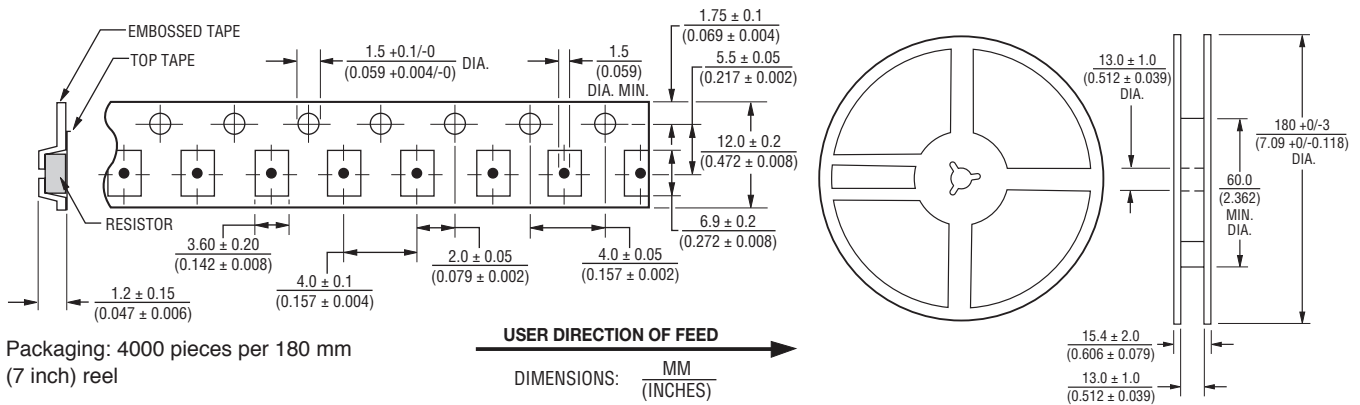
Users should verify actual device performance in their specific applications.

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# CRE2512 - High Power Current Sense Chip Resistor

**BOURNS®**

## Packaging Dimensions (Conforms to EIA RS-481A)

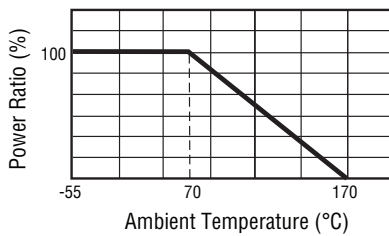


## CRE2512 Resistance Values Available

| Code | R Value | Code | R Value |
|------|---------|------|---------|
| R001 | 0.0010  | R006 | 0.0060  |
| R002 | 0.0020  | R007 | 0.0070  |
| R003 | 0.0030  | R008 | 0.0080  |
| R004 | 0.0040  | R009 | 0.0090  |
| R005 | 0.0050  |      |         |

Consult factory for other resistance values.

## Derating Curve

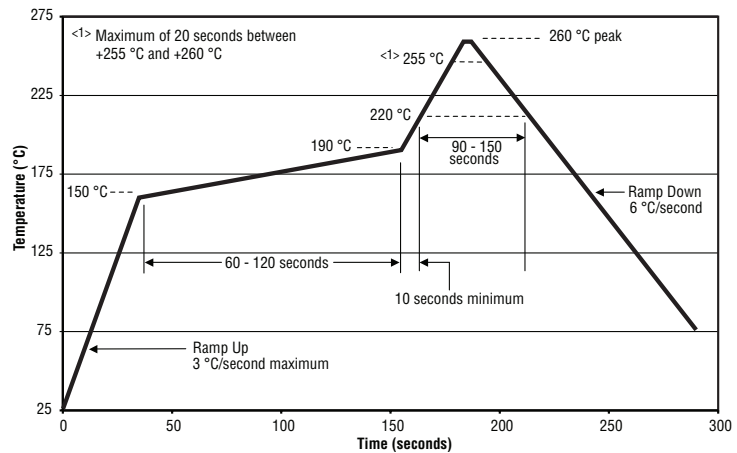


## Environmental Specifications

Moisture Sensitivity Level ..... 1  
ESD Classification (HBM) ..... 1A

## Soldering Profile

Can be soldered in accordance with IPC/JEDEC-J-STD-020.



## How to Order

Model \_\_\_\_\_  
CRE = Precision Chip Resistor

Size \_\_\_\_\_  
2512 = 2512 Size

Resistance Tolerance \_\_\_\_\_  
F = ±1 %

TCR \_\_\_\_\_  
Z = ±50 PPM/°C

Resistance Value \_\_\_\_\_  
"R" (decimal point) followed by three significant digits (example: R004 = 0.0040 ohm)

Packaging \_\_\_\_\_  
E = 4000 pieces on 180 mm (7 inch) reel

Power Rating \_\_\_\_\_  
2 = 2 Watts  
3 = 3 Watts

**CRE 2512 - F Z - R001 E - 2**

REV. 06/19

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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