



## Features

- Special alloy resistor
- Power rating at 70 °C: CRA2010 - 1 W, CRA2512 - 3 W
- Inductance less than 5 nH
- RoHS compliant\*

## Applications

- Power supplies
- Stepper motor drives

# CRA2010/CRA2512 - High Power Current Sense Chip Resistor

## Electrical Characteristics

Characteristic	CRA2010	CRA2512
Power Rating @ 70 °C	1 W	3 W
Operating Temperature Range	-55 °C to +170 °C	
Derated to Zero Load at	+170 °C	
Maximum Working Voltage	$(P \times R)^{1/2}$	
Insulation Resistance	> 100 megohms	
Resistance Range	0.005 - 0.020 $\Omega$	0.010 - 0.100 $\Omega$
Resistance Tolerance	$\pm 1\%$ , $\pm 5\%$	
Temperature Coefficient	$\pm 75$ PPM/°C	

## Performance Characteristics

Test	Conditions	Specification
Thermal Shock	-55 °C to + 150 °C, 1000 Cycles, 15 minutes	$\Delta R \pm(0.5\% + 0.0005 \Omega)$
Short Time Overload	5 X Rated Power for 5 seconds	$\Delta R \pm(0.5\% + 0.0005 \Omega)$
Low Temperature Storage	-65 °C for 24 hours	$\Delta R \pm(0.5\% + 0.0005 \Omega)$
High Temperature Exposure	10000 hours @ + 170 °C	$\Delta R \pm(1.0\% + 0.0005 \Omega)$
Bias Humidity	+ 85 °C, 85 % RH, 10 % Bias, 1000 hours	$\Delta R \pm(0.5\% + 0.0005 \Omega)$
Mechanical Shock	100 g's for 6 milliseconds, 5 pulses	$\Delta R \pm(0.5\% + 0.0005 \Omega)$
Vibration	Frequency varied 10 to 2000 KHz in one minute, 3 directions, 12 hours	$\Delta R \pm(0.5\% + 0.0005 \Omega)$
Load Life	1000 hours at rated power at +70 °C, 1.5 hours on, 0.5 hours off	$\Delta R \pm(1.0\% + 0.0005 \Omega)$
Resistance to Solder Heat	+260 °C Solder, 10-12 second dwell, 25 mm/second emergence	$\Delta R \pm(0.5\% + 0.0005 \Omega)$
Moisture Resistance	MIL-STD-202 Method 106, 0 % power (7a and 7b not required)	$\Delta R \pm(0.5\% + 0.0005 \Omega)$

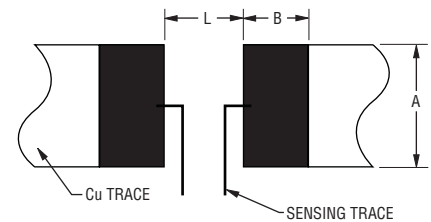
## Product Dimensions



Model	A	B	C	T	Resistor Material
CRA2010	$\frac{5.0 \pm 0.20}{(0.1962 \pm 0.008)}$	$\frac{2.5 \pm 0.20}{(0.0984 \pm 0.008)}$	$\frac{0.65 \pm 0.20}{(0.0256 \pm 0.008)}$	$\frac{0.6 \pm 0.20}{(0.0236 \pm 0.008)}$	Resistor Cu-Ni or Cu-Mn
CRA2512	$\frac{6.45 \pm 0.20}{(0.254 \pm 0.008)}$	$\frac{3.35 \pm 0.20}{(0.131 \pm 0.008)}$	$\frac{0.95 \pm 0.10}{(0.037 \pm 0.004)}$	$\frac{0.7 \pm 0.20}{(0.0276 \pm 0.008)}$	Resistor Cu-Ni or Cu-Mn

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

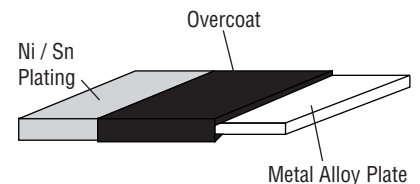
## Recommended Solder Pad Layout



Model	A	B	L
CRA2010	$\frac{3.1}{(0.122)}$	$\frac{2.7}{(0.106)}$	$\frac{3.1}{(0.122)}$
CRA2512	$\frac{4.0}{(0.157)}$	$\frac{2.1}{(0.083)}$	$\frac{4.1}{(0.161)}$

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

## Construction

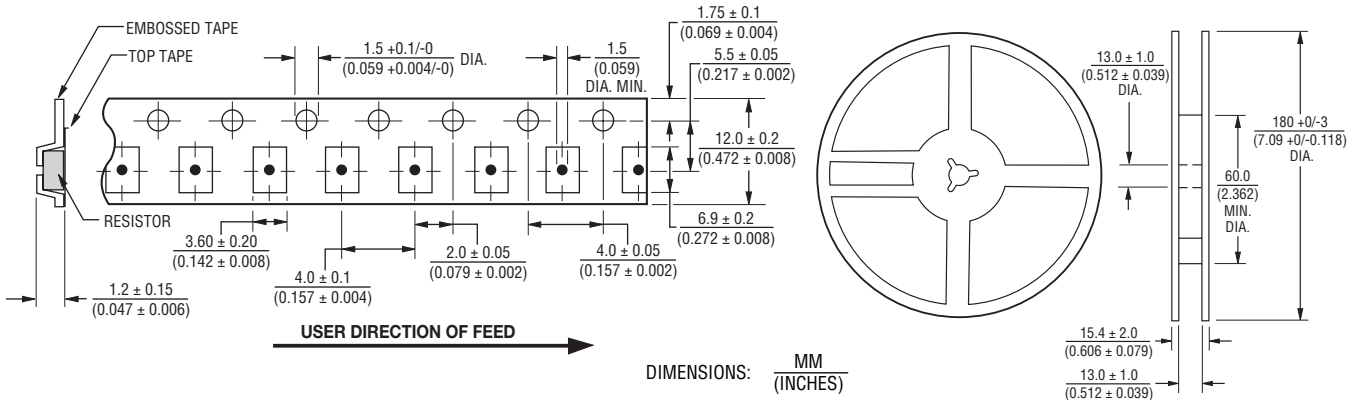


\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

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



### CRA2010 Resistance Values Available

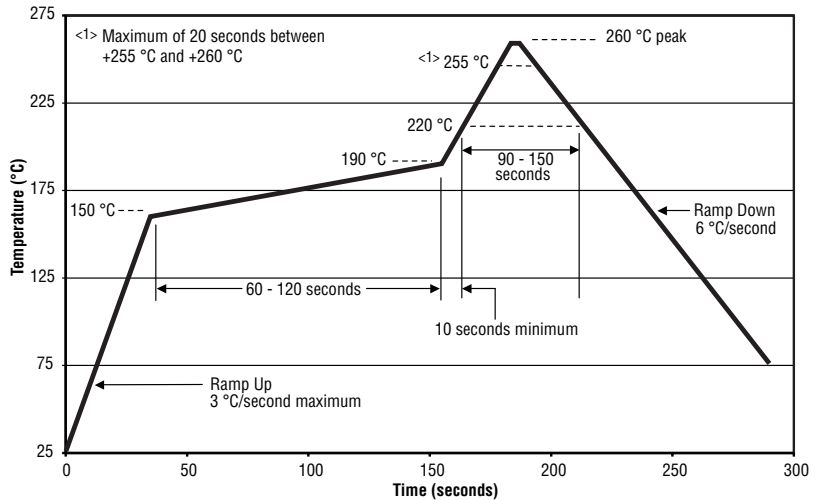
Code	R Value	Code	R Value
R005	0.005	R015	0.015
R010	0.010	R020	0.020

### CRA2512 Resistance Values Available

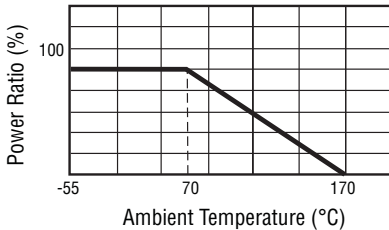
Code	R Value	Code	R Value
R010	0.010	R050	0.050
R015	0.015	R060	0.060
R020	0.020	R070	0.070
R025	0.025	R075	0.075
R030	0.030	R080	0.080
R040	0.040	R100	0.100

Consult factory for other resistance values.

### Soldering Profile



### Derating Curve



### How to Order

**CRA 2512 - F Z - R020 E LF**

Model \_\_\_\_\_  
 (CRA = Precision Chip Resistor)

Size \_\_\_\_\_  
 2010 = 2010 Size  
 2512 = 2512 Size

Resistance Tolerance \_\_\_\_\_  
 • F = ±1 %  
 • J = ±5 %

TCR (PPM/°C) \_\_\_\_\_  
 • Z = ±75 PPM/°C

Resistance Value \_\_\_\_\_  
 "R" (decimal point) followed by three significant digits (example: R025 = 0.025 ohm)

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

Termination \_\_\_\_\_  
 • LF = Tin-plated (RoHS compliant)

REV. 12/11

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