



Features

- Special alloy resistor
- Power rating at 70 °C: 3 W
- Inductance less than 5 nH
- RoHS compliant*
- AEC-Q200 compliant

Applications

- Power supplies
- Stepper motor drives
- Input amplifiers

CRA2512 - High Power Current Sense Chip Resistor

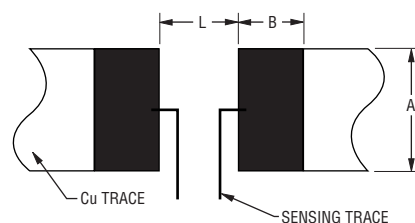
Electrical Characteristics

Characteristic	CRA2512
Power Rating @ 70 °C	3 W
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	0.010 - 0.100 Ω
Resistance Tolerance	$\pm 1\%$, $\pm 5\%$
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)	$\Delta R < \pm 0.5\%$

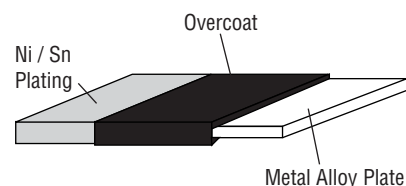
Recommended Solder Pad Layout



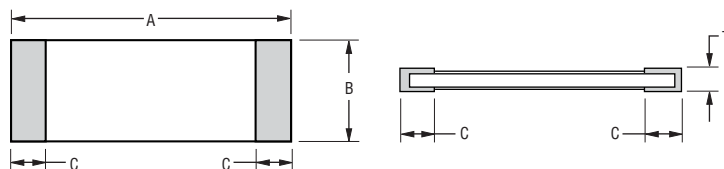
Model	A	B	L
CRA2512	$\frac{4.0}{(0.157)}$	$\frac{2.1}{(0.083)}$	$\frac{4.1}{(0.161)}$

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

Construction



Product Dimensions



Model	A	B	C	T	Resistor Material
CRA2512	$\frac{6.40 \pm 0.20}{(0.252 \pm 0.008)}$	$\frac{3.20 \pm 0.20}{(0.126 \pm 0.008)}$	$\frac{0.90 \pm 0.10}{(0.035 \pm 0.004)}$	$\frac{0.7 \pm 0.20}{(0.0276 \pm 0.008)}$	Resistor Cu-Ni or Cu-Mn

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



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

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

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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Technical drawing of a resistor assembly showing side and end views with dimensions in mm and inches.

Side View Dimensions:

- EMBOSSD TAPE
- TOP TAPE
- RESISTOR
- 1.2 ± 0.15 (0.047 ± 0.006)
- 3.60 ± 0.20 (0.142 ± 0.008)
- 4.0 ± 0.1 (0.157 ± 0.004)
- 2.0 ± 0.05 (0.079 ± 0.002)
- 4.0 ± 0.05 (0.157 ± 0.002)
- 6.9 ± 0.2 (0.272 ± 0.008)
- 12.0 ± 0.2 (0.472 ± 0.008)
- 5.5 ± 0.05 (0.217 ± 0.002)
- 1.75 ± 0.1 (0.069 ± 0.004)
- 1.5 (0.059) DIA. MIN.
- 1.5 ± 0.1/-0 (0.059 ± 0.004/-0) DIA.

End View Dimensions:

- 13.0 ± 1.0 (0.512 ± 0.039) DIA.
- 180 ± 0.3 (7.09 ± 0.0118) DIA.
- 60.0 (2.362) MIN. DIA.
- 15.4 ± 2.0 (0.606 ± 0.079)
- 13.0 ± 1.0 (0.512 ± 0.039)

USER DIRECTION OF FEED

DIMENSIONS: MM (INCHES)

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

The graph plots Power Ratio (%) on the y-axis against Ambient Temperature (°C) on the x-axis. The y-axis has a major tick at 100 and a grid line at 50. The x-axis has major ticks at -55, 70, and 170. A solid black line represents the power ratio, which is constant at 100% from -55°C to 70°C and then decreases linearly to 0% at 170°C. A dashed vertical line is drawn at 70°C, and a solid horizontal line connects the y-axis at 100% to the point (70, 100) on the curve.

Ambient Temperature (°C)	Power Ratio (%)
-55	100
70	100
170	0

The graph illustrates a thermal cycle with the following parameters:

- Temperature (°C):** Y-axis ranging from 25 to 275.
- Time (seconds):** X-axis ranging from 0 to 300.
- Ramp Up:** 3 °C/second maximum.
- Temperature Milestones:** 150 °C, 190 °C, 220 °C, 260 °C peak.
- Time Intervals:**
 - 60 - 120 seconds (between 150 °C and 190 °C)
 - 10 seconds minimum (between 190 °C and 220 °C)
 - 90 - 150 seconds (between 220 °C and 260 °C peak)
- Notes:**
 - <1> Maximum of 20 seconds between +255 °C and +260 °C
 - <1> 255 °C
 - 260 °C peak
 - Ramp Down 6 °C/second

Model _____
(CRA = Precision Chip Resistor)

Size _____
2512 = 2512 Size

Resistance Tolerance _____
• F = $\pm 1\%$
• J = $\pm 5\%$

TCR (PPM/ $^{\circ}$ C) _____
• Z = ± 50 PPM/ $^{\circ}$ 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)

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