



Features

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

Applications

- Power supplies
- Stepper motor drives
- Input amplifiers

CRA2512 - High Power Current Sense Chip Resistor

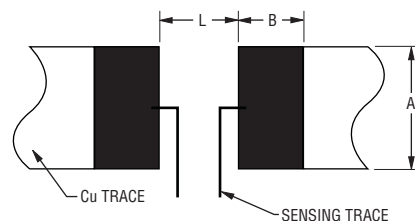
Electrical Characteristics

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	±1 %, ±5 %
Temperature Coefficient	±75 PPM/°C

Performance Characteristics

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

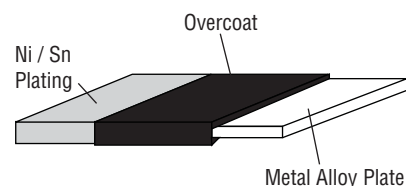
Recommended Solder Pad Layout



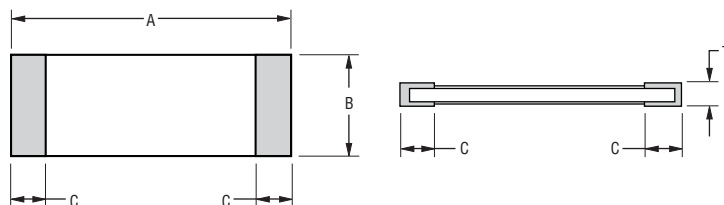
Model	A	B	L
CRA2512	$\frac{4.0}{(0.157)}$	$\frac{2.1}{(0.083)}$	$\frac{4.1}{(0.161)}$

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

Construction



Product Dimensions



Model	A	B	C	T	Resistor Material
CRA2512	$\frac{6.45 \pm 0.20}{(0.254 \pm 0.008)}$	$\frac{3.35 \pm 0.20}{(0.131 \pm 0.008)}$	$\frac{0.95 \pm 0.10}{(0.037 \pm 0.004)}$	$\frac{0.7 \pm 0.20}{(0.0276 \pm 0.008)}$	Resistor Cu-Ni or Cu-Mn

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

*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.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

BOURNS®

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

Side View Dimensions:

- EMBOSSED 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:

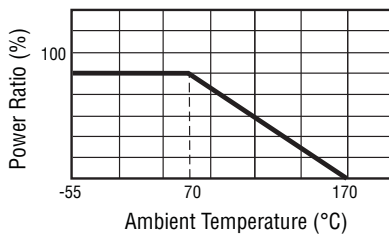
- 13.0 ± 1.0 (0.512 ± 0.039) DIA.
- 180 ± 0.3 (7.09 ± 0.0118) DIA.
- 60.0 (2.362) MIN. DIA.
- 15.4 ± 2.0 (0.606 ± 0.079)
- 13.0 ± 1.0 (0.512 ± 0.039)

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

Derating Curve



The graph illustrates a thermal cycle with the following parameters:

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

CRA 2512 - F Z - R020 E LF

Model _____
(CRA = Precision Chip Resistor)
Size _____
2512 = 2512 Size
Resistance Tolerance _____
• F = ± 1 %
• J = ± 5 %
TCR (PPM/ $^{\circ}$ C) _____
• Z = ± 75 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)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Bourns:

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