

Features

- Power rating of 1 or 2 watts at 70 °C
- Low resistance value
- Excellent pulse load capability
- Sulfur resistant
- RoHS compliant* and halogen free**
- AEC-Q200 compliant

Applications

- Current sensing
- Power supplies
- Stepper motor drives

CRG2512 - Metal Strip Current Sense Chip Resistors

General Information

The Bourns® CRG2512 Series is a metal strip current sense resistor with a rating of 1 or 2 watts in a standard 2512 chip format. This product has very low inductance, low noise, excellent reliability and a wide resistance range, making it suitable for different applications in power supply circuits including current sensing and current limiting.

Electrical Characteristics

Characteristic	Model CRG2512
Power Rating @ 70 °C	1 W, 2 W
Resistance Value	110 to 680 mohms
Operation Temperature Range	-55 °C to +170 °C
Temperature Coefficient of Resistance	±50 ppm/°C
Tolerance	±1 %, 5 %
Insulation Resistance	> 100 MΩ
Maximum Working Voltage (V)	√ (P×R)
Flammability	UL94 V-0
Inductance	≤ 5 nH

Notes:
(1) 3 Watts with total solder pad and trace size of 300 mm² and board surface temperature should not exceed 105 °C.
(2) Resistive alloy may vary from resistance value.

Reliability Tests

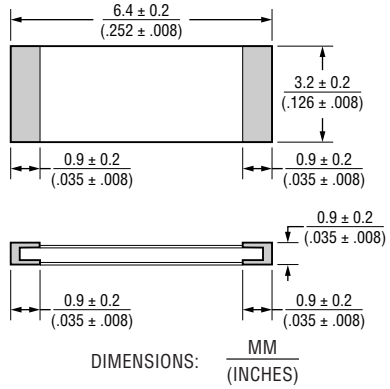
Test	Method	Test Limits
Temperature Coefficient of Resistance	+25 °C ~ +155 °C	±50 ppm/°C
High Temperature Exposure	125 °C, 1000 hours	±1.0 %
Low Temperature Operation	-55 °C, 45 minutes	±0.5 %
Temperature Cycle	-55 °C / +125 °C, 1000 cycles	±0.5 %
Short Time Overload	5x rated power for 5 seconds	±0.5 %
Bias Humidity	1000 hours, 85 °C / 85 % RH, 10 % rated power	±0.5 %
Load Life	70 °C rated voltage 1.5 hours on, 0.5 hour off, 1000 hours	±1.0 %
Resistance to Soldering Heat	260 °C ±5 °C for 10 seconds ± 1 second	±0.5 %
Mechanical Shock	100 grams, hall sine, 6 ms	±0.5 %
Vibration	5 grams, 20 minutes, 12 cycles each of 3 orientations, 10~2,000 Hz	±0.5 %
Board Flex	2 mm, 60 seconds	±0.5 %
Flammability	UL94 V-0 or V-1, Electrical test not required	

Additional Information

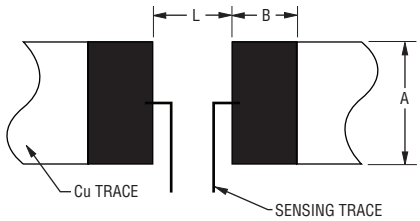
Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Product Dimensions

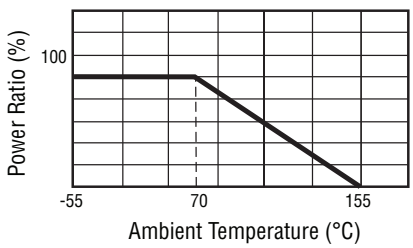


Recommended Solder Pad Layout



Dimension		
A	B	L
4.0 (.0157)	2.1 (0.083)	4.1 (0.161)

Derating Curve



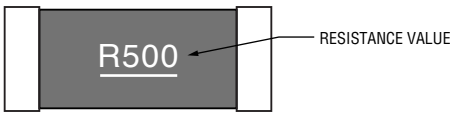
WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

* 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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Users should verify actual device performance in their specific applications.
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Typical Part Marking



UNDERSCORE DENOTES AEC-Q200 COMPLIANCY

Popular Resistance Values

Code	R Value	Code	R Value	Code	R Value
R120	0.120	R200	0.200	R330	0.330
R130	0.130	R220	0.220	R390	0.390
R150	0.150	R240	0.240	R400	0.400
R170	0.170	R250	0.250	R500	0.500
R175	0.175	R270	0.270	R560	0.560
R180	0.180	R300	0.300	R680	0.680

Storage Conditions

5~35 °C, 40~75 % RH, 2 years from manufacturing date

How to Order

CRG 2512 - F Z - R500 E -2

Model
CRG = Current Sense Resistor)

Size
2512 = 2512 Size

Resistance Tolerance
F = ±1 %
J = ±5 %

TCR
Z = ±50 PPM/°C

Resistance Code
1 % or 5 % Tolerance:
"R" represents decimal point followed by three significant digits
(example: R500 = 0.500 ohm)

Packaging
E = 4000 pieces per 180 mm (7-inch) reel

Power Rating
1 = 1 Watt
2 = 2 Watts

Rated Current and Voltage

The rated current and voltage are calculated by the following formula:

$I = \sqrt{P / R}$ $V = \sqrt{P \times R}$

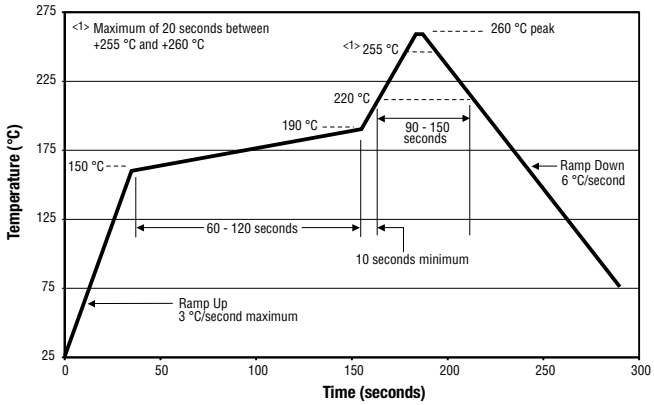
I: Rated Current (I)
V: Rated Voltage (V)
P: Rated Power (W)
R: Resistance Value (Ω)

Packaging

Reel Dimension	7-inch Tape and Reel
Specification	EIA 481
Quantity	4,000 pieces
Packaging Code	E

Soldering Profile

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



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