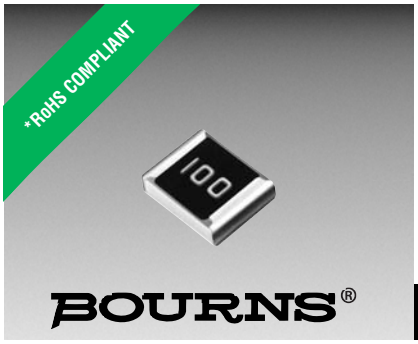


Features

- Resistance value as low as 0.001 ohm
- High power density
- Inductance less than 5 nH
- RoHS compliant*

Applications

- Power supplies
- Stepper motor drives

CRF Series - High Power Current Sense Chip Resistor

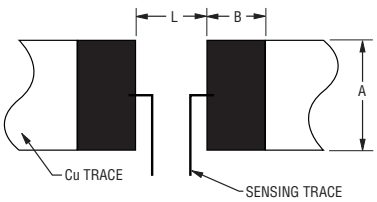
Electrical Characteristics

	CRF1206	CRF2512
Power Rating @ 70 °C	1 W	(0.001 to 0.010 Ω) 2 W (0.015 to 0.050 Ω) 1 W
Operating Temperature Range	-55 °C to +170 °C	
Derated to Zero Load at	+170 °C	
Maximum Working Voltage	(P x R)1/2	
Insulation Resistance	> 100 megohms	
Resistance Range	0.01 - 0.02 Ω	0.001 - 0.050 Ω
Resistance Tolerance	±1 %	±1 %, ±5 %
Temperature Coefficient 0.001 to 0.002 ohms 0.003 to 0.010 ohms 0.015 to 0.050 ohms	 ±275 PPM/°C ±100 PPM/°C ±75 PPM/°C	

Performance Characteristics

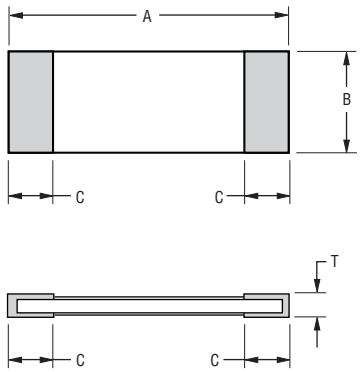
Test	Conditions	Specification
Thermal Shock	-55 ˚C to + 150 ˚C, 1000 Cycles, 15 minutes	ΔR ±(0.5 % + 0.0005 Ω)
Short Time Overload	5 X Rated Power for 5 seconds	ΔR ±(0.5 % + 0.0005 Ω)
Low Temperature Storage	-55 ˚C for 24 hours	ΔR ±(0.5 % + 0.0005 Ω)
High Temperature Exposure	1000 hours @ + 170 ˚C	ΔR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

Recommended Solder Pad Layout



Resistance Range (Ω)	A	B	L	Model
0.01-0.02	1.8 (0.07)	1.9 (0.075)	1.4 (0.055)	CRF1206
0.001-0.002	4.0 (0.157)	3.1 (0.122)	1.3 (0.051)	CRF2512
0.003-0.050	4.0 (0.157)	2.1 (0.083)	4.1 (0.161)	

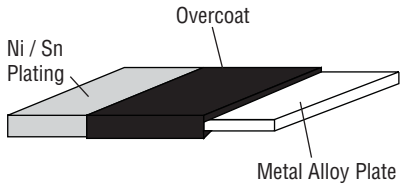
Product Dimensions



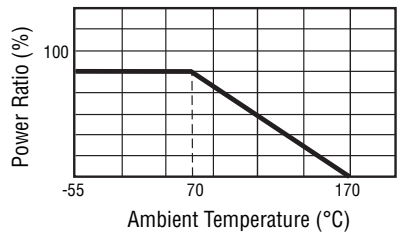
Dim.	CRF1206	CRF2512
A	3.20 ± 0.20 (0.126 ± 0.008)	6.40 ± 0.20 (0.252 ± 0.008)
B	1.65 ± 0.20 (0.064 ± 0.008)	3.20 ± 0.20 (0.126 ± 0.008)
C	0.5 ± 0.3 (0.0197 ± 0.012)	2.0 ± 0.20 (R ≤ 2m Ω) (0.079 ± 0.008 (R > 2m Ω)) 0.9 ± 0.2 (R > 2m Ω) (0.035 ± 0.008 (R ≤ 2m Ω))
T	0.6 ± 0.20 (0.0236 ± 0.008)	0.6 ± 0.20 (0.0236 ± 0.008)

DIMENSIONS: MM / (INCHES)

Construction

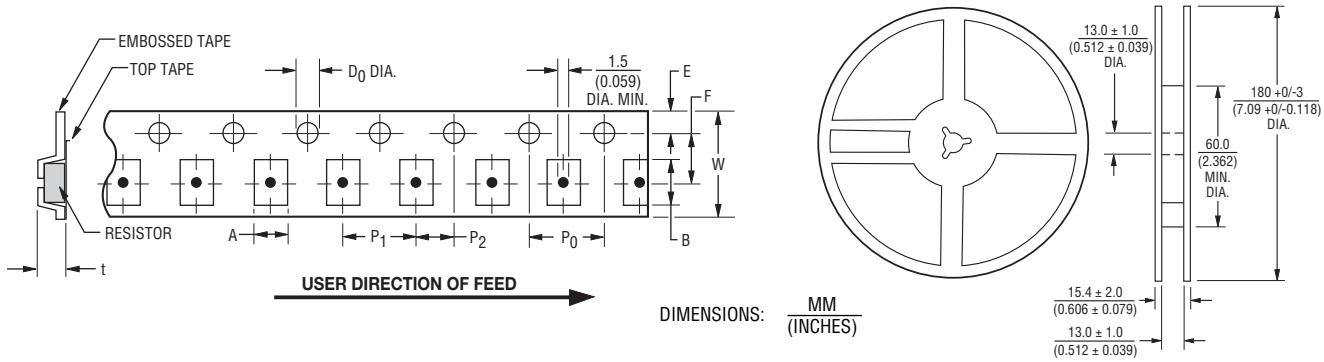


Derating Curve



*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.

Packaging Dimensions (Conforms to EIA RS-481A)



Packing	Model	A	B	W	F	E	P1	P2	P0	D0	t
Paper Tape	CRF1206	2.0 ± 0.15 (0.079 ± 0.006)	3.6 ± 0.2 (0.142 ± 0.008)	8.0 ± 0.2 (0.315 ± 0.008)	3.5 ± 0.05 (0.138 ± 0.002)	1.75 ± 0.1 (0.069 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	2.0 ± 0.05 (0.079 ± 0.002)	4.0 ± 0.05 (0.157 ± 0.002)	1.5+0.1/-0 (0.059+0.004/-0)	0.85 ± 0.15 (0.033 ± 0.006)
Embossed Tape	CRF2512	3.60 ± 0.20 (0.142 ± 0.008)	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)	4.0 ± 0.1 (0.157 ± 0.004)	2.0 ± 0.05 (0.079 ± 0.002)	2.0 ± 0.05 (0.079 ± 0.002)	1.5+0.1/-0 (0.059+0.004/-0)	0.85 ± 0.15 (0.033 ± 0.006)

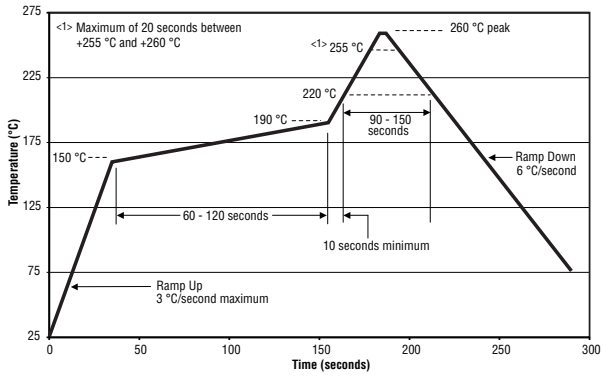
Model CRF1206 Resistance Value Table

Code	R Value
R010	0.010
R020	0.020

Model CRF2512 Resistance Value Table

Code	R Value	Code	R Value
R001	0.0010	R011	0.0110
R0015	0.0015	R012	0.0120
R002	0.0020	R015	0.0150
R003	0.0030	R018	0.0180
R004	0.0040	R020	0.020
R005	0.0050	R025	0.025
R006	0.0060	R030	0.030
R007	0.0070	R033	0.033
R008	0.0080	R040	0.040
R010	0.0100	R050	0.050

Soldering Profile



How to Order

CRF 2512 - F X - R010 E LF

Model
(CRF = Precision Chip Resistor)

Size
1206 = 1206 Size
2512 = 2512 Size

Resistance Tolerance
- F = ±1 % (Available on models CRF1206 & CRF2512)
- J = ±5 % (Available on model CRF2512)

TCR (PPM/°C)
- Z = ±75 PPM/°C, 0.015 ohm or greater
- X = ±100 PPM/°C, 0.003 ohm through 0.010 ohm
- V = ±275 PPM/°C, 0.001 ohm through 0.002 ohm

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

Packaging
- E = 5,000 pieces (CRF1206) or 4,000 pieces (CRF2512) on 180 mm (7 inch) reel

Termination
- LF = Tin-plated (RoHS compliant)

REV. 06/13