Features

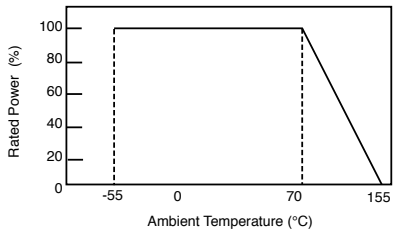
- RoHS compliant*
- Power rating at 70 °C: CR2010 - 1/2 W, CR2512 - 1 W
- Tight tolerances of bottom electrode width
- Three layer termination process with nickel barrier prevents leaching and provides excellent solderability
- Suitable for most types of soldering processes
- Standard packaging on tape and reel
- AEC-Q200 approval upon request

CR2010/CR2512 - Chip Resistors

Electrical Characteristics

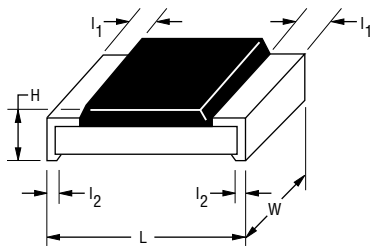
Characteristic	Model CR2010	Model CR2512
Power Rating @ 70 °C	1/2 W	1 W
Operating Temperature Range	-55 °C to +155 °C	
Derated to 0 Load at	+155 °C	
Maximum Working Voltage	200 V	
Maximum Overload Voltage	400 V	
Resistance Range: 1 % E-96 + E-24	10 ohms ≤ R ≤ 1M ohms ±100 PPM/°C 1M ohms < R ≤ 10M ohms ±200 PPM/°C	
Resistance Range: 5 % E-24	10 ohms ≤ R ≤ 10M ohms ±200 PPM/°C 1 ohm ≤ R < 10 ohms 10M ohms < R ≤ 20M ohms ±400 PPM/°C	
Zero Ohm Jumper <0.05 ohm Rated/Maximum Current	2 A/5 A	2 A/5 A

Derating Curve



For Standard Values Used in Capacitors, Inductors, and Resistors, click here.

Dimensional Drawing



DIMENSIONS: MM / (INCHES)

Chip Dimensions

Dimension	Model CR2010	Model CR2512
L	5.00 ± 0.20 (0.197 ± 0.008)	6.30 ± 0.20 (0.248 ± 0.008)
W	2.50 ± 0.20 (0.098 ± 0.008)	3.10 ± 0.20 (0.122 ± 0.008)
H	0.60 ± 0.10 (0.024 ± 0.004)	0.60 ± 0.15 (0.024 ± 0.006)
I1	0.60 ± 0.25 (0.024 ± 0.010)	0.60 ± 0.25 (0.024 ± 0.010)
I2	0.60 ± 0.25 (0.024 ± 0.010)	0.60 ± 0.25 (0.024 ± 0.010)

Performance Characteristics

Test	Procedure	Method	Test Limits ΔR	
			1 %	5 %
Thermal Shock	-55 °C for 30 minutes, +155 °C for 30 minutes, 5 cycles	IEC60115-1-4.19	≤±(0.5 % + 0.05 Ω)	≤±(1 % + 0.05 Ω)
Short Time Overload	2.5 X rated voltage for 5 seconds	IEC60115-1-4.13	≤±(1 % + 0.05 Ω)	
Resistance to Solder Heat	270 ±5 °C for 10 ±1 seconds	IEC60115-1-4.18	≤±(0.5 % + 0.05 Ω)	≤±(1 % + 0.05 Ω)
Resistance to Dry Heat	125 ±5 °C for 96 ±4 hours	IEC60115-1-4.23.2	≤±(1 % + 0.05 Ω)	≤±(2 % + 0.1 Ω)
Load Life	Rated voltage for 1000 hours, 70 °C, 1.5 hours "ON", 0.5 hours "OFF"	IEC60115-1-4.25.1	≤±(1 % + 0.05 Ω)	≤±(3 % + 0.1 Ω)
Load Life with Humidity	Rated voltage for 1000 hours, 40 ±2 °C, 90~95 % RH, 1.5 hours "ON", 0.5 hours "OFF"	IEC60115-1-4.24	≤±(1 % + 0.05 Ω)	≤±(3 % + 0.1 Ω)
Solderability	245 ±5 °C, 2 ±0.5 seconds	IEC60115-1-4.17	≥95 % of area covered	
Bending	3 mm	IEC60115-1-4.33	≤±(0.5 % + 0.05 Ω)	≤±(1 % + 0.05 Ω)
Dielectric Withstanding Voltage	--	IEC60115-1-4.7	>500 V	
Insulation Resistance	100 V	IEC60115-1-4.6	≥1 GΩ	

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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How to Order

CR 2010 - F X - 8252 E LF

Model
(CR = Chip Resistor)

Size
- 2010
- 2512

Resistance Tolerance
F = ±1 % ..... Use with “X” TCR code only for values from 10 ohms through 1 megohm;
Use with “W” TCR code only for values from 1 megohm through 10 megohms
J = ±5 % ..... Use with “W” TCR code for values from 10 ohms through 10 megohms;
Use with “Z” TCR code for values above 10 megohms through 20 megohms;
Use with “/” TCR code for zero ohm (jumper) and values from 1 ohm through 9.1 ohms.

TCR (ppm/°C)
X = ±100
W = ±200
Z = ±400
/ = Used with “J” Resistance Tolerance code for zero ohm (jumper) and values from 1 ohm through 9.1 ohms.

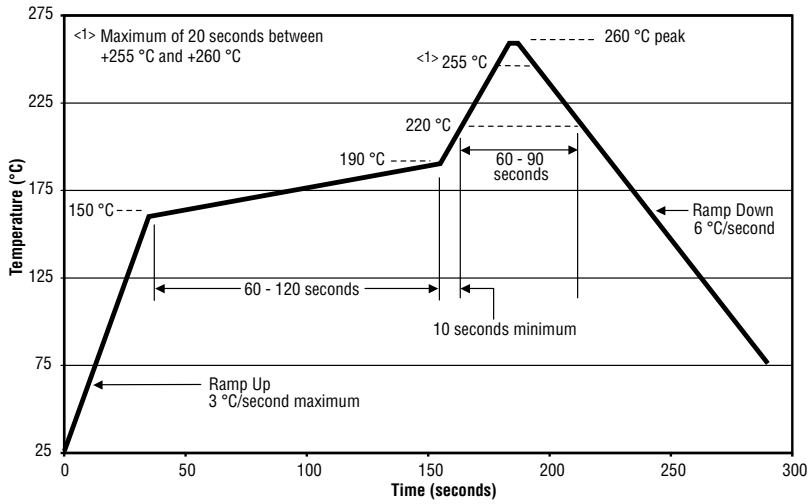
Resistance Value
For 1 % Tolerance:
<100 ohms.....“R” represents decimal point (example: 24R3 = 24.3 ohms)
≥100 ohms.....First three digits are significant, fourth digit represents number of zeros to follow (example: 8252 = 82.5k W)

For 5 % Tolerance:
<10 ohms ..... “R” represents decimal point (example: 4R7 = 4.7 ohms)
≥10 ohms..... First two digits are significant, third digit represents number of zeros to follow (example: 474 = 470k ohms; 000 = Jumper)

Packaging
E = Embossed Plastic Tape (4,000 pcs.) on 7 ˝ Plastic Reel

Termination
LF = Tin-plated (RoHS compliant)

Soldering Profile for RoHS Compliant Chip Resistors and Arrays

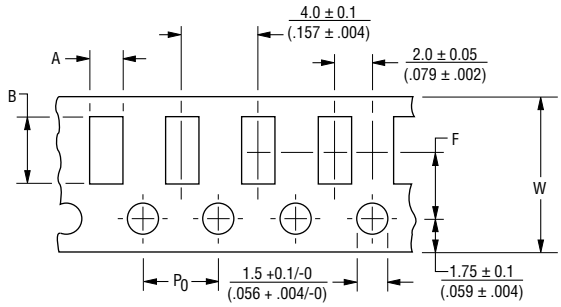


Marking Explanation

Resistors with 5 % tolerance may have a 3-digit or 4-digit resistance code. Complete information about resistance value and tolerance is found on the label of the reel of chip resistors.

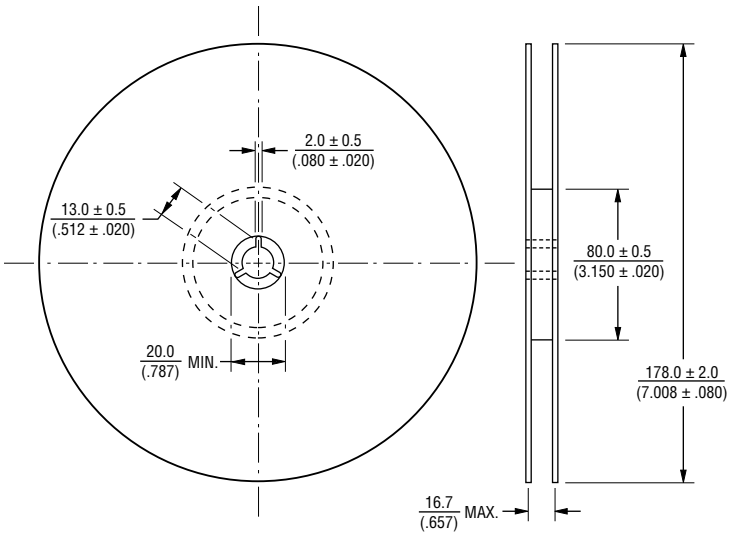
- 5 %: 3 digits, first two digits are significant, third digit is number of zeros to follow. Letter R is decimal point for values from 1 to 9.9 ohms.
- 5 %: 4 digits, first three digits are significant, fourth digit is number of zeros to follow. Letter R is decimal point for values from 1 to 99.9 ohms.
- 1 %: 4 digits, first three digits are significant, fourth digit is number of zeros to follow. Letter R is decimal for values from 1 to 99.9 ohms.

Packaging Dimensions



Dimension	Model CR2010	Model CR2512
A	2.8 ± 0.2 (0.110 ± 0.008)	3.5 ± 0.2 (0.138 ± 0.008)
B	5.5 ± 0.2 (0.217 ± 0.008)	6.7 ± 0.2 (0.264 ± 0.008)
W	12.0 ± 0.3 (0.472 ± 0.012)	12.0 ± 0.3 (0.472 ± 0.012)
F	5.5 ± 0.05 (0.217 ± 0.002)	5.5 ± 0.05 (0.217 ± 0.002)
P0	4.0 ± 0.1 (0.157 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)

DIMENSIONS: MM (INCHES)



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