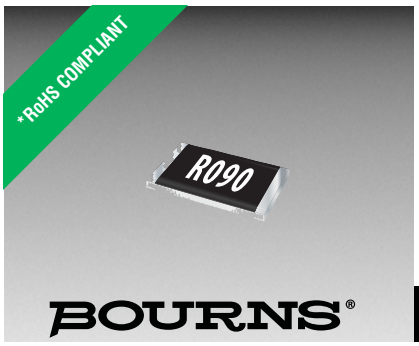


Features

- Ultra-tight tolerance
- Wide resistance range
- RoHS compliant*
- Four package sizes available

Applications

- Current sense
- Precision circuits
- Medical equipment**
- Printers
- Automation equipment
- Navigation equipment

CRT Series - Thin Film Precision Chip Resistors

Electrical Characteristics

Characteristic	Model CRT0402	Model CRT0603	Model CRT0805	Model CRT1206
Power Rating @ 70 °C	1/16 watt	1/16 watt	1/10 watt	1/8 watt
Operating Temperature Range	-55 to +155 °C			
Derated to Zero Load at	+155 °C			
Maximum Working Voltage	25 V	50 V	100 V	150 V
Maximum Overload Voltage	50 V	100 V	200 V	300 V
Resistance Range (E-96 + E-24 Values)	(See Standard Values Table)			
Temperature Coefficient of Resistance (TCR)	5 to 50 PPM/°C (See Value - TCR Table on Page 2)			

Environmental Characteristics

Specification	Test (MIL STD 202)	Limit (ΔR) (Tol. ≤ 0.05 %)	Limit (ΔR) (Tol. > 0.05 %)
Short Time Overload	2.5 x Max. Operating Voltage for 5 seconds	±0.05 %	±0.2 %
Load Life	1000 Hours at Rated Power	±0.05 %	±0.5 %
Humidity (Steady State)	Method 103B	±0.05 %	±0.3 %
Thermal Shock	Method 107	±0.05 %	±0.3 %
Solderability	Method 208H		
Resistance to Soldering Heat	Method 210E	±0.05 %	±0.2 %

How to Order

CRT 0603 - C V - 1003 E LF

Model
(CRT = Thin Film Precision Chip Resistor

Size
- 0402
- 0603
- 0805
- 1206

Resistance Tolerance
F = ±1 % B = ±0.1 %
D = ±0.5 % A = ±0.05 %
C = ±0.25 % P = ±0.01 %

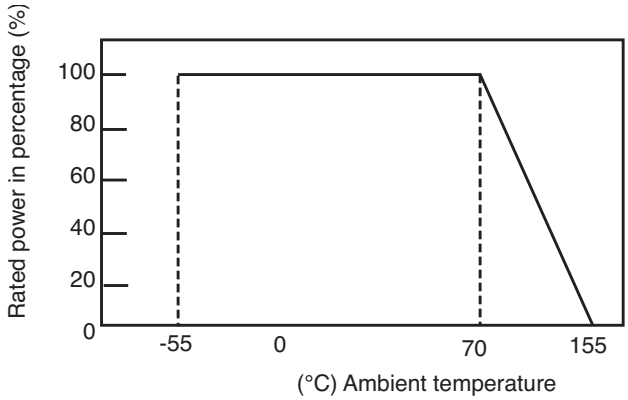
TCR (PPM/°C)
Z = ±50 W = ±10
Y = ±25 V = ±5
X = ±15

Resistance Value
<100 ohms: "R" represents decimal point (example: 24R3 = 24.3 ohms)
≥100 ohms: First three digits are significant, fourth digit represents number of zeroes to follow (example: 8252 = 82.5K ohms)

Packaging
G = Paper tape (10K pcs.) on 7 " plastic reel (CRT0402)
E = Paper tape (5K pcs.) on 7 " plastic reel (CRT0603, CRT0805, CRT1206)

Termination
LF = Tin-plated (RoHS compliant)

Derating Curve



* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.
**Bourns® products have not been specifically designed and tested for FDA Class III applications and their use in such applications is neither recommended nor supported.
Specifications are subject to change without notice.
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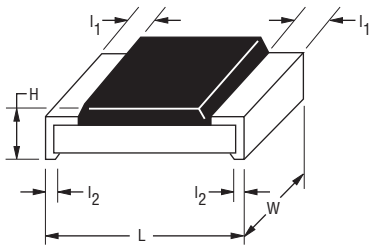
Users should verify actual device performance in their specific applications.

Value - TCR Table

Model	TCR (Code) (PPM/°C)	Resistance Tolerance (Code)					
		±0.01 % (P)	±0.05 % (A)	±0.1 % (B)	±0.25 % (C)	±0.5 % (D)	±1 % (F)
CRT0402	±5 (V)	49.9 ohms to 4.99K ohms					
	±10 (W)	49.9 ohms to 12K ohms					
	±15 (X)	49.9 ohms to 12K ohms		49.9 ohms to 69.8K ohms			
	±25 (Y)			10 ohms to 255K ohms			
	±50 (Z)			10 ohms to 255K ohms		1 ohm to 255K ohms	
CRT0603	±5 (V)	24.9 ohms to 15K ohms					
	±10 (W)	24.9 ohms to 100K ohms	4.7 ohms to 332K ohms				
	±15 (X)						
	±25 (Y)		4.7 ohms to 332K ohms	4.7 ohms to 1 megohm	2 ohms to 1 megohm		
	±50 (Z)				1 ohm to 1 megohm		
CRT0805	±5 (V)	24.9 ohms to 30K ohms					
	±10 (W)	24.9 ohms to 200K ohms	4.7 ohms to 511K ohms				
	±15 (X)						
	±25 (Y)		4.7 ohms to 511K ohms	4.7 ohms to 2 megohms	1 ohm to 2 megohms		
	±50 (Z)						
CRT1206	±5 (V)	24.9 ohms to 49.9K ohms					
	±10 (W)	24.9 ohms to 499K ohms	4.7 ohms to 1 megohm				
	±15 (X)						
	±25 (Y)		4.7 ohms to 1 megohm	4.7 ohms to 2.49 megohms	1 ohm to 2.49 megohms		
	±50 (Z)						

Chip Dimensions

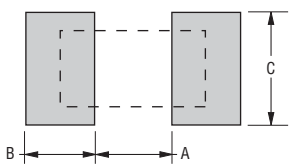
Dimension	Model CRT0402	Model CRT0603	Model CRT0805	Model CRT1206
L	1.00 ± 0.10 (0.040 ± 0.004)	1.55 ± 0.10 (0.061 ± 0.004)	2.00 ± 0.15 (0.079 ± 0.006)	3.05 ± 0.15 (0.120 ± 0.006)
W	0.50 ± 0.05 (0.020 ± 0.002)	0.80 ± 0.10 (0.031 ± 0.004)	1.25 ± 0.15 (0.049 ± 0.006)	1.55 ± 0.15 (0.061 ± 0.006)
H	0.30 ± 0.05 (0.012 ± 0.002)	0.45 ± 0.15 (0.018 ± 0.006)	0.55 ± 0.10 (0.022 ± 0.004)	0.55 ± 0.10 (0.022 ± 0.004)
I_1	0.20 ± 0.10 (0.008 ± 0.004)	0.30 ± 0.20 (0.012 ± 0.008)	0.30 ± 0.20 (0.012 ± 0.008)	0.42 ± 0.20 (0.017 ± 0.008)
I_2	0.20 ± 0.10 (0.008 ± 0.004)	0.30 ± 0.20 (0.012 ± 0.008)	0.40 ± 0.25 (0.016 ± 0.010)	0.35 ± 0.25 (0.014 ± 0.010)



DIMENSIONS: MM / (INCHES)

Recommended Land Pattern

Dimension	Model CRT0402	Model CRT0603	Model CRT0805	Model CRT1206
A	0.50 (0.020)	0.80 (0.031)	1.00 (0.039)	2.00 (0.079)
B	0.50 (0.020)	1.00 (0.039)	1.00 (0.039)	1.15 (0.045)
C	0.60 ± 0.20 (0.024 ± 0.008)	0.90 ± 0.20 (0.035 ± 0.008)	1.35 ± 0.20 (0.053 ± 0.008)	1.70 ± 0.20 (0.067 ± 0.008)



DIMENSIONS: MM / (INCHES)

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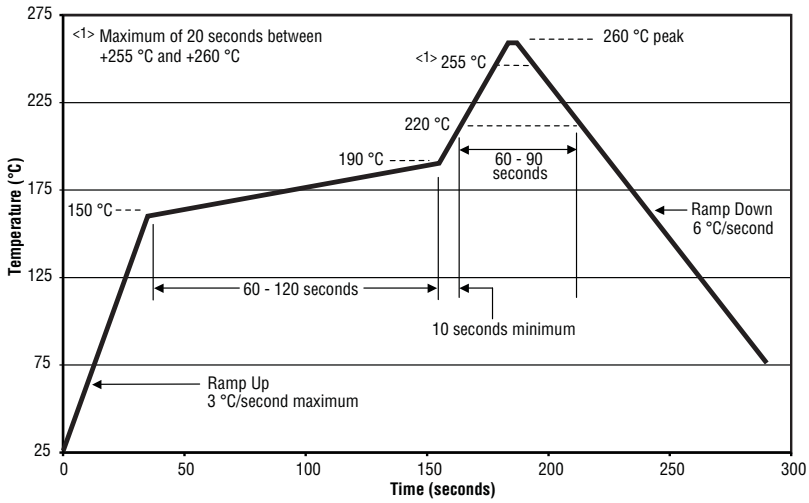
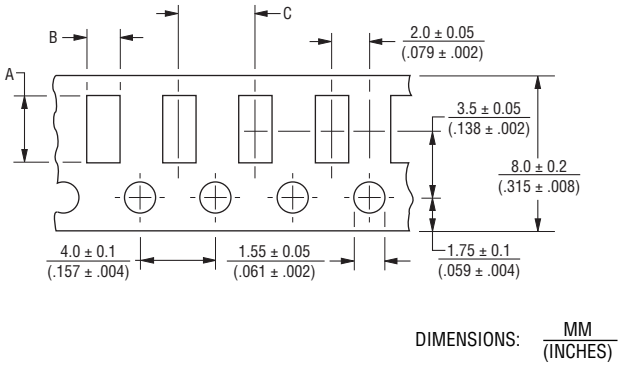
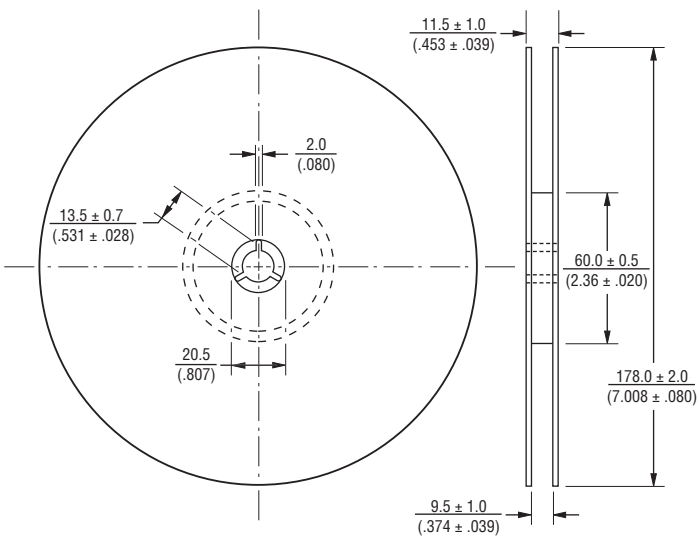
Soldering Profile



Packaging Dimensions - Tape

Dimension	Model CRT0402	Model CRT0603	Model CRT0805	Model CRT1206
A	1.16 ± 0.05 (0.046 ± 0.002)	1.90 ± 0.05 (0.075 ±0.002)	2.37 ± 0.05 (0.094 ± 0.002)	3.55 ± 0.05 (0.140 ± 0.002)
B	0.70 ± 0.05 (0.028 ± 0.002)	1.10 ± 0.05 (0.043 ± 0.002)	1.60 ± 0.05 (0.063 ± 0.002)	2.00 ± 0.05 (0.079 ± 0.002)
C	2.00 ± 0.05 (0.079 ± 0.002)	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)





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