

## Features

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

## Applications

- Current sense
- Precision circuits

# 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	1/10 watt	1/8 watt	1/4 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 Value-TCR Table on Page 2)			
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 ( $\Delta R$ ) (Tol. $\leq 0.05$ %)	Limit ( $\Delta R$ ) (Tol. $> 0.05$ %)
Short Time Overload	2.5 x Max. Operating Voltage for 5 seconds	$\pm 0.05$ %	$\pm 0.5$ %
Load Life	1000 Hours at Rated Power	$\pm 0.05$ %	$\pm 0.2$ %
Humidity (Steady State)	Method 103B	$\pm 0.05$ %	$\pm 0.3$ %
Thermal Shock	Method 107	$\pm 0.05$ %	$\pm 0.3$ %
Solderability	Method 208H		
Resistance to Soldering Heat	Method 210E	$\pm 0.05$ %	$\pm 0.2$ %

## How to Order

For Standard Values Used in Capacitors, Inductors, and Resistors, [click here](#).

### CRT 0603 - C V - 1003 E LF

Model \_\_\_\_\_  
(CRT = Thin Film Precision Chip Resistor)

Size \_\_\_\_\_

- 0402
- 0603
- 0805
- 1206

Resistance Tolerance \_\_\_\_\_

F = $\pm 1$ %	B = $\pm 0.1$ %
D = $\pm 0.5$ %	A = $\pm 0.05$ %
C = $\pm 0.25$ %	P = $\pm 0.01$ %

TCR (PPM/°C) \_\_\_\_\_

Z = $\pm 50$	W = $\pm 10$
Y = $\pm 25$	V = $\pm 5$
X = $\pm 15$	

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 (10,000 pcs.) on 7" plastic reel (CRT0402)  
 E = Paper tape (5,000 pcs.) on 7" plastic reel (CRT0603, CRT0805, CRT1206)

Termination \_\_\_\_\_

LF = Tin-plated (RoHS compliant)

\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.  
 Specifications are subject to change without notice.  
 Customers should verify actual device performance in their specific applications

# CRT Series - Thin Film Precision Chip Resistors

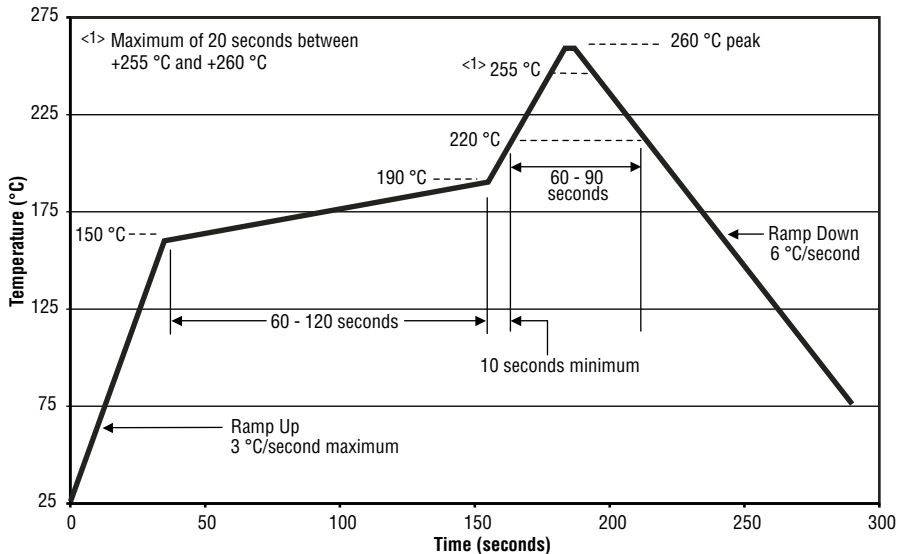


Value-TCR Table

Model	Range (ohms)	Tolerance <1>	TCR (PPM/°C)
CRT0402	50 - 2K	0.01 % to 1.0 %	5
	50 - 12K	0.01 % to 1.0 %	10, 15
	10 - 100K	0.1 % to 1.0 %	25, 50
CRT0603	50 - 8K	0.01 % to 1.0 %	5
	25 - 100K	0.01 % to 1.0 %	10, 15
	47 - 332K	0.1 % to 1.0 %	10, 15
	4.7 - 402K	0.1 % to 1.0 %	25, 50
CRT0805	50 - 50K	0.01 % to 0.5 %	5
	30.1, 50-100K	1.0 %	5
	25 - 200K	0.01 % to 1.0 %	10, 15
	4.7 - 500K	0.1 % to 1.0 %	10, 15
	4.7 - 1M	0.1 % to 1.0 %	25, 50
	1 - 4.6	0.25 % to 1.0 %	25, 50
CRT1206	50 - 300K	0.01 % to 1.0 %	5
	25 - 500K	0.01 % to 1.0 %	10, 15
	4.7 - 1M	0.1 % to 1.0 %	10, 15
	4.7 - 1M	0.1 % to 1.0 %	25, 50
	1 - 4.6; 1M - 2M	0.25 % to 1.0 %	25, 50

<1> Increments of tolerance: 0.01 %, 0.05 %, 0.1 %, 0.25 %, 0.5 %, 1.0 %

Value-TCR Table



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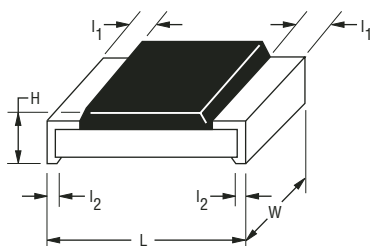
# CRT Series - Thin Film Precision Chip Resistors

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## Chip Dimensions

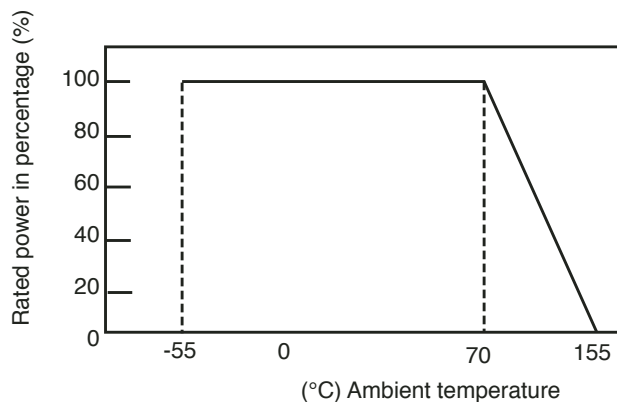
Dimension	Model CRT0402	Model CRT0603	Model CRT0805	Model CRT1206
L	$\frac{1.00 \pm 0.10}{(0.040 \pm 0.004)}$	$\frac{1.55 \pm 0.10}{(0.061 \pm 0.004)}$	$\frac{2.00 \pm 0.15}{(0.079 \pm 0.006)}$	$\frac{3.05 \pm 0.15}{(0.120 \pm 0.006)}$
W	$\frac{0.50 \pm 0.05}{(0.020 \pm 0.002)}$	$\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$	$\frac{1.25 \pm 0.15}{(0.049 \pm 0.006)}$	$\frac{1.55 \pm 0.15}{(0.061 \pm 0.006)}$
H	$\frac{0.30 \pm 0.05}{(0.012 \pm 0.002)}$	$\frac{0.45 \pm 0.15}{(0.018 \pm 0.006)}$	$\frac{0.55 \pm 0.10}{(0.022 \pm 0.004)}$	$\frac{0.55 \pm 0.10}{(0.022 \pm 0.004)}$
l <sub>1</sub>	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.42 \pm 0.20}{(0.017 \pm 0.008)}$
l <sub>2</sub>	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.40 \pm 0.25}{(0.016 \pm 0.010)}$	$\frac{0.35 \pm 0.25}{(0.020 \pm 0.014)}$

## Dimensional Drawing



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

## Derating Curve

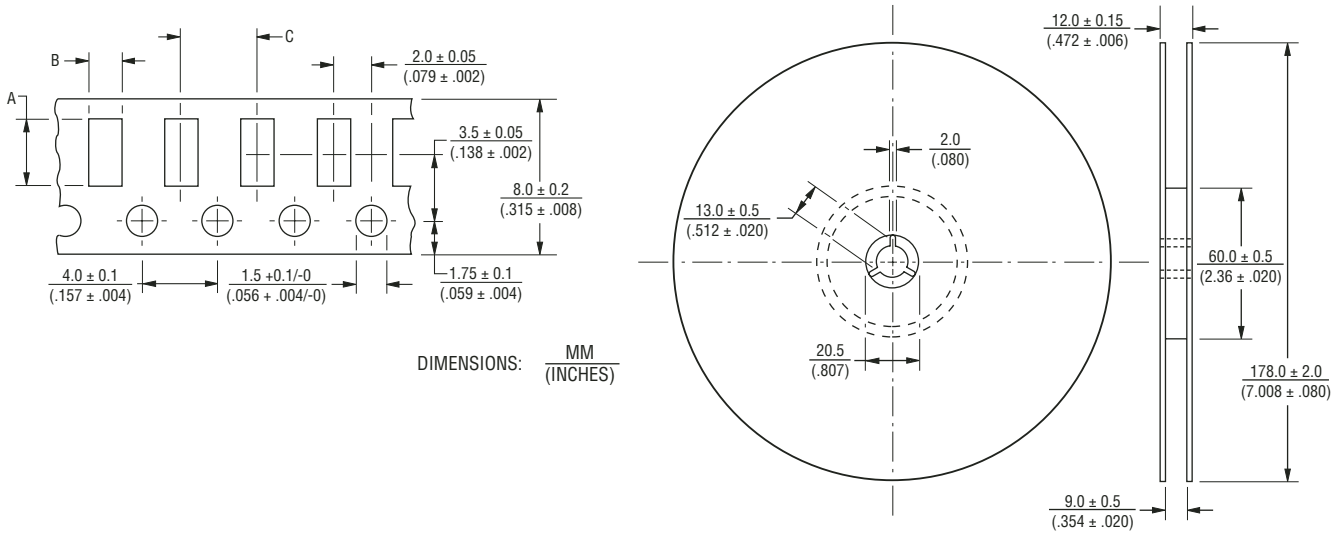


# CRT Series - Thin Film Precision Chip Resistors

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## Packaging Dimensions - Tape

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



REV. 09/08

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