



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 Pages 2 & 3)			
Temperature Coefficient of Resistance (TCR)	5 to 50 PPM/°C (See Value -TCR Table on Pages 2 & 3)			

Environmental Characteristics

Specification	Test (MIL STD 202)	Limit (ΔR) (Tol. \leq 0.05 %)	Limit (ΔR) (Tol. $>$ 0.05 %)
Short Time Overload	2.5 x Max. Operating Voltage for 5 seconds	± 0.05 %	± 0.5 %
Load Life	1000 Hours at Rated Power	± 0.05 %	± 0.2 %
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 = $\pm 1\%$ B = $\pm 0.1\%$
 D = $\pm 0.5\%$ A = $\pm 0.05\%$
 C = $\pm 0.25\%$ P = $\pm 0.01\%$

TCR (PPM/°C) _____

Z = ± 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 (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)

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

*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.
 Specifications are subject to change without notice.
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Value - TCR Table

Part Number	TR Range (Ohms)	TR Tolerance	TCR (PPM/°C)
CRT0402-AV	50 to 2K	0.05 %	5
CRT0402-AW	25 to 12K	0.05 %	10
CRT0402-AX	25 to 12K	0.05 %	15
CRT0402-AY	10 to 100K	0.05 %	25
CRT0402-AZ	10 to 100K	0.05 %	50
CRT0402-BV	50 to 20K	0.10 %	5
CRT0402-BW	10 to 100K	0.10 %	10
CRT0402-BX	10 to 100K	0.10 %	15
CRT0402-BY	10 to 205K	0.10 %	25
CRT0402-BZ	10 to 205K	0.10 %	50
CRT0402-CV	50 to 20K	0.25 %	5
CRT0402-CW	10 to 100K	0.25 %	10
CRT0402-CX	10 to 100K	0.25 %	15
CRT0402-CY	10 to 205K	0.25 %	25
CRT0402-CZ	10 to 205K	0.25 %	50
CRT0402-DV	50 to 20K	0.50 %	5
CRT0402-DW	10 to 100K	0.50 %	10
CRT0402-DX	10 to 100K	0.50 %	15
CRT0402-DY	10 to 205K	0.50 %	25
CRT0402-DZ	10 to 205K	0.50 %	50
CRT0402-FV	50 to 20K	1.00 %	5
CRT0402-FW	10 to 100K	1.00 %	10
CRT0402-FX	10 to 100K	1.00 %	15
CRT0402-FY	10 to 205K	1.00 %	25
CRT0402-FZ	10 to 205K	1.00 %	50
CRT0402-PV	50 to 2K	0.01 %	5
CRT0402-PW	25 to 12K	0.01 %	10
CRT0402-PX	25 to 12K	0.01 %	15
CRT0402-PY	10 to 100K	0.01 %	25
CRT0402-PZ	10 to 100K	0.01 %	50
CRT0603-AV	50 to 4K	0.05 %	5
CRT0603-AW	25 to 100K	0.05 %	10
CRT0603-AX	25 to 100K	0.05 %	15
CRT0603-AY	10 to 332K	0.05 %	25
CRT0603-AZ	10 to 332K	0.05 %	50
CRT0603-BV	25 to 100K	0.10 %	5
CRT0603-BW	4.7 to 390K	0.10 %	10
CRT0603-BX	4.7 to 390K	0.10 %	15
CRT0603-BY	4.7 to 1M	0.10 %	25
CRT0603-BZ	4.7 to 1M	0.10 %	50
CRT0603-CV	4.7 to 332K	0.25 %	5
CRT0603-CW	4.7 to 390K	0.25 %	10
CRT0603-CX	4.7 to 390K	0.25 %	15
CRT0603-CY	4.7 to 1M	0.25 %	25
CRT0603-CZ	4.7 to 1M	0.25 %	50
CRT0603-DV	50 to 100K	0.50 %	5
CRT0603-DW	4.7 to 390K	0.50 %	10
CRT0603-DX	4.7 to 390K	0.50 %	15
CRT0603-DY	4.7 to 1M	0.50 %	25
CRT0603-DZ	4.7 to 1M	0.50 %	50
CRT0603-FV	50 to 100K	1.00 %	5

Part Number	TR Range (Ohms)	TR Tolerance	TCR (PPM/°C)
CRT0603-BW	4.7 to 390K	0.10 %	10
CRT0603-BX	4.7 to 390K	0.10 %	15
CRT0603-BY	4.7 to 1M	0.10 %	25
CRT0603-BZ	4.7 to 1M	0.10 %	50
CRT0603-CV	4.7 to 332K	0.25 %	5
CRT0603-CW	4.7 to 390K	0.25 %	10
CRT0603-CX	4.7 to 390K	0.25 %	15
CRT0603-CY	4.7 to 1M	0.25 %	25
CRT0603-CZ	4.7 to 1M	0.25 %	50
CRT0603-DV	50 to 100K	0.50 %	5
CRT0603-DW	4.7 to 390K	0.50 %	10
CRT0603-DX	4.7 to 390K	0.50 %	15
CRT0603-DY	4.7 to 1M	0.50 %	25
CRT0603-DZ	4.7 to 1M	0.50 %	50
CRT0603-FV	50 to 100K	1.00 %	5
CRT0603-FW	4.7 to 390K	1.00 %	10
CRT0603-FX	4.7 to 390K	1.00 %	15
CRT0603-FY	4.7 to 1M	1.00 %	25
CRT0603-FZ	4.7 to 1M	1.00 %	50
CRT0603-PV	50 to 8K	0.01 %	5
CRT0603-PW	25 to 100K	0.01 %	10
CRT0603-PX	25 to 100K	0.01 %	15
CRT0603-PY	10 to 332K	0.01 %	25
CRT0603-PZ	10 to 332K	0.01 %	50
CRT0805-AV	50 to 10K	0.05 %	5
CRT0805-AW	25 to 200K	0.05 %	10
CRT0805-AX	25 to 200K	0.05 %	15
CRT0805-AY	4.7 to 1M	0.05 %	25
CRT0805-AZ	4.7 to 1M	0.05 %	50
CRT0805-BV	25 to 100K	0.10 %	5
CRT0805-BW	4.7 to 800K	0.10 %	10
CRT0805-BX	4.7 to 800K	0.10 %	15
CRT0805-BY	4.7 to 2M	0.10 %	25
CRT0805-BZ	4.7 to 2M	0.10 %	50
CRT0805-CV	4.7 to 500K	0.25 %	5
CRT0805-CW	4.7 to 800K	0.25 %	10
CRT0805-CX	4.7 to 800K	0.25 %	15
CRT0805-CY	2R0, 4.7 to 2M	0.25 %	25
CRT0805-CZ	4.7 to 2M	0.25 %	50
CRT0805-DV	50 to 100K	0.50 %	5
CRT0805-DW	4.7 to 800K	0.50 %	10
CRT0805-DX	4.7 to 800K	0.50 %	15
CRT0805-DY	2R0, 4.7 to 2M	0.50 %	25
CRT0805-DZ	4.7 to 2M	0.50 %	50
CRT0805-FV	50 to 100K	1.00 %	5
CRT0805-FW	4.7 to 800K	1.00 %	10
CRT0805-FX	4.7 to 800K	1.00 %	15
CRT0805-FY	2R0, 4.7 to 2M	1.00 %	25
CRT0805-FZ	3R0, 4.7 to 2M	1.00 %	25
CRT0805-PV	50 to 16K	0.01 %	5
CRT0805-PW	25 to 200K	0.01 %	10

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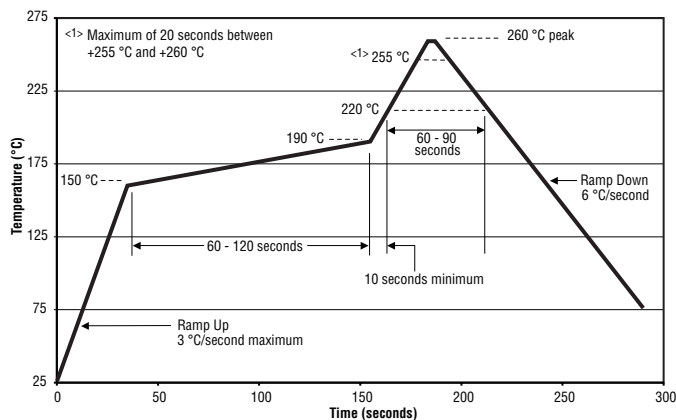
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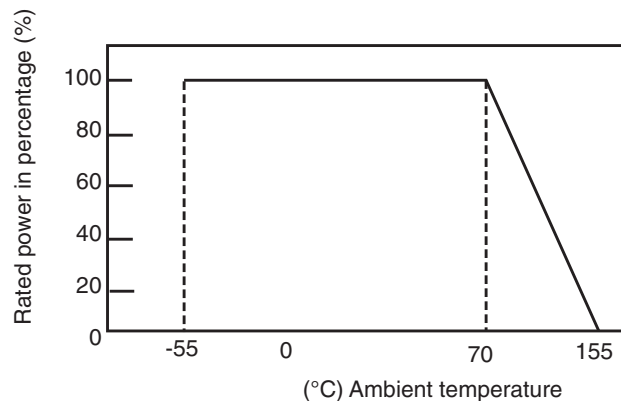
Value - TCR Table (Continued)

Part Number	TR Range (Ohms)	TR Tolerance	TCR (PPM/°C)
CRT0805-PX	25 to 200K	0.01 %	15
CRT0805-PY	4.7 to 1M	0.01 %	25
CRT0805-PZ	4.7 to 1M	0.01 %	50
CRT1206-AV	50-15K	0.05 %	5
CRT1206-AW	25-400K	0.05 %	10
CRT1206-AX	25-400K	0.05 %	15
CRT1206-AY	4.7-100K	0.05 %	25
CRT1206-AZ	4.7-1M	0.05 %	50
CRT1206-BV	25-100K	0.10 %	5
CRT1206-BW	4.7-1M	0.10 %	10
CRT1206-BX	4.7-100K	0.10 %	15
CRT1206-BY	4.7-2.5M	0.10 %	25
CRT1206-BZ	4.7-2.5M	0.10 %	50
CRT1206-CV	4.7-1M	0.25 %	5
CRT1206-CW	4.7-1M	0.25 %	10
CRT1206-CX	4.7-100K	0.25 %	15
CRT1206-CY	1R0, 4.7-2.5M	0.25 %	25
CRT1206-CZ	4.7-2.5M	0.25 %	50
CRT1206-DV	50-100K	0.50 %	5
CRT1206-DW	4.7-1M	0.50 %	10
CRT1206-DX	4.7-100K	0.50 %	15
CRT1206-DY	4.7-2.5M	0.50 %	25
CRT1206-DZ	4.7-2.5M	0.50 %	50
CRT1206-FV	50-100K	1.00 %	5
CRT1206-FW	4.7-1M	1.00 %	10
CRT1206-FX	4.7-100K	1.00 %	15
CRT1206-FY	4.7-2.5M	1.00 %	25
CRT1206-FZ	2R7, 4.7-2.5M	1.00 %	50
CRT1206-PV	50-30K	0.01 %	5
CRT1206-PW	25-500K	0.01 %	10
CRT1206-PX	25-400K	0.01 %	15
CRT1206-PY	4.7-1M	0.01 %	25
CRT1206-PZ	4.7-1M	0.01 %	50

Soldering Profile

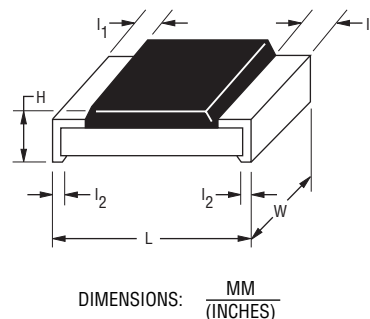


Derating Curve



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 ₁	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.42 \pm 0.20}{(0.017 \pm 0.008)}$
l ₂	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.40 \pm 0.25}{(0.016 \pm 0.010)}$	$\frac{0.35 \pm 0.25}{(0.020 \pm 0.014)}$



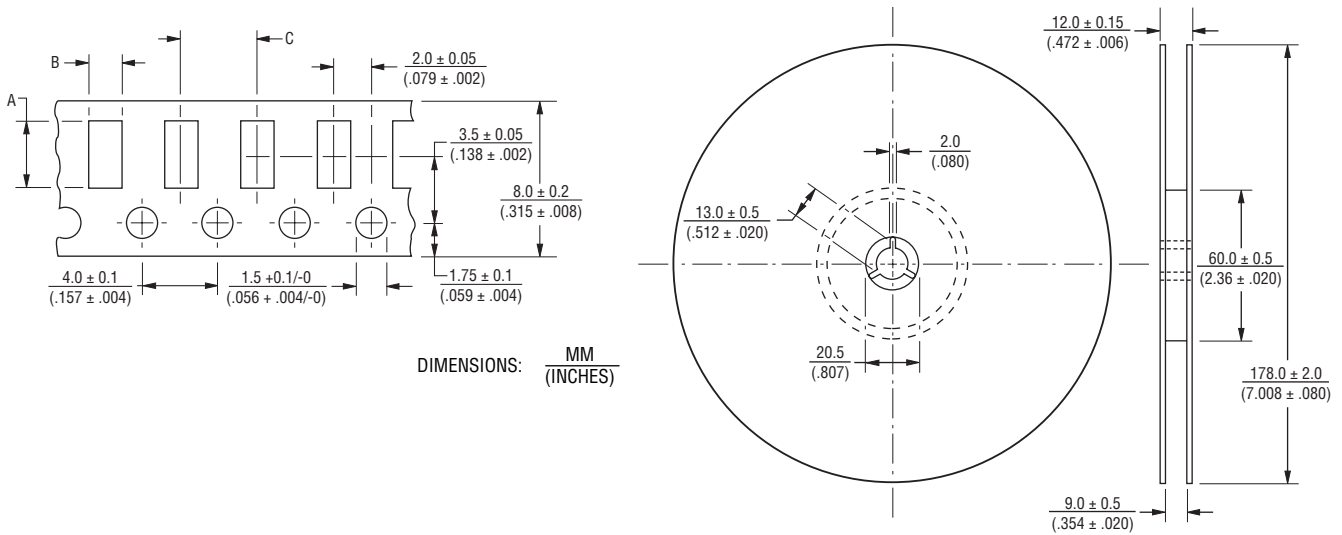
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Packaging Dimensions - Tape

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	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$



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