

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	1/10 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	75 V	150 V	200 V	
Maximum Overload Voltage	50 V	150 V	300 V	400 V	
Resistance Range (E-96 + E-24 Values)	(See Standard Values Table)				
Temperature Coefficient of Resistance (TCR)	2 to 50 PPM/°C (See Value - TCR Table on Page 2)				

Environmental Characteristics

Specification	Test (MIL STD 202)	Limit (∆R) (Tol. ≤ 0.05 %)	Limit (∆R) (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 %	±0.2 %	
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	ELF
Model (CRT = Thin Film F	Precision Chip Resisto	or			
0402 0603 0805 1206					
Resistance Toleran	nce				
F = ±1 %	B = ±0.1 %				
D = ±0.5 %	A = ±0.05 %				
C = ±0.25 %	• P = ±0.01 %				
TCR (PPM/°C) -					
$Z = \pm 50$	$V = \pm 5$				
$Y = \pm 25$	$U = \pm 3$				
$X = \pm 15$	$T = \pm 2$				
$W = \pm 10$					
Resistance Value					
<100 ohms:	"R" represents decim	al point			
	(example: 24R3 = 24	.3 ohms)			
≥100 ohms: I	First three digits are	significant, fourth	n digit		
	represents number of	f zeroes to follow	v		
	(example: 8252 = 82.	.5K ohms)			
Packaging					
G = Paper tape	e (10K pcs.) on 7 ″ pla	stic reel (CRT04	02)		
E = Paper tape CRT1206)	(5K pcs.) on 7 " plast	ic reel (CRT0603	3, ĆRT0	805,	
Termination —					
LF = Tin-plated	(RoHS compliant)				





*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

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WARNING Cancer and Reproductive Harm www.P65Warnings.ca.gov

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Value - TCR Table

TCR			Resistance Tolerance (Code)					
Model	(PPM/°C)	(Code)	±0.01 % (P)	±0.01 % ±0.05 % ±0. (P) (A) (±0.25 % (C)	±0.5 % (D)	±1 % (F)
	±2	(T)		40.0 to 4.00K 0				
	±3	(U)		49.9 10 4.996 12	IN/A			
	±5	(V)			49.9 to 4	9 to 4.99K Ω		
CRT0402	±10	(W)		40.0 to 12K O		49.9 to 60K Ω		
	±15	(X)	49.9 to			49.9 to 69.8K Ω		
	±25	(Y)	(Y) 49.9 to 12K to		10 to 255K O 4 7 to 511K O			
	±50	(Z)			TO TO LOOK 12 T.7 TO OTTIC 12			
	±2	(T)		24.9 to 15K Ω			N/A	
	<u>±3</u>	(U)						
ODTOOO	±5	(V)			24.9 to	15K Ω		
CR10603	±10				4.7 to 332K Ω			
	±15	(X)	24.9 to 100K Ω	4.7 to 332K Ω				
	±23	(1)				4.7 to 1M Ω		
	±30	(<u>Z</u>)						
	+3			24.9 to 30K Ω N/		N/A		
	±5	(V)			24.9 to	30K Ω		
CRT0805	±10	(Ŵ)				4.7 to 5	4.7 to 511K Ω	
	±15	(X)				4.7 to 1M Ω		
	±25	(Y)	24.9 to 200K Ω	$4.7 \text{ to 511K } \Omega$ 4.	4.7 to 1M Ω	1 to 1M O***		
	±50	(Z)						
	±2	(T)		24.0 to 40.0K 0		N/A		
	±3	(U)	24.9 10 49.9K 12 N/A			IN/A		
	±5	(V)			24.9 to 49.9K Ω			
CRT1206	±10	(W)	24.9 to 499K Ω					
	±15	(X)		4 7 to 1M O***				
	±25	(Y)						
	±50	(Z)						

***Select part numbers listed below are not available:

CRT0805-DZ-1504ELF, CRT1206-CY-1R00ELF, CRT1206-DZ-1R74ELF, CRT1206-DZ-2004ELF

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	$\frac{0.50 \pm 0.05}{(0.020 \pm 0.002)}$	$\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$	$\frac{1.25 \pm 0.15}{(0.049 \pm 0.006)}$	$\frac{1.55 \pm 0.15}{(0.061 \pm 0.006)}$
н	$\frac{0.30 \pm 0.05}{(0.012 \pm 0.002)}$	$\frac{0.45 \pm 0.15}{(0.018 \pm 0.006)}$	$\frac{0.55 \pm 0.10}{(0.022 \pm 0.004)}$	$\frac{0.55 \pm 0.10}{(0.022 \pm 0.004)}$
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	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.40 \pm 0.25}{(0.016 \pm 0.010)}$	$\frac{0.35 \pm 0.25}{(0.014 \pm 0.010)}$



DIMENSIONS:

MM

(INCHES)

Recommended Land Pattern

Dimension	Model CRT0402	Model CRT0603	Model CRT0805	Model CRT1206
۸	0.50	0.80	1.00	2.00
A	(0.020)	(0.031)	(0.039)	(0.079)
Р	0.50	1.00	1.00	1.15
D	(0.020)	(0.039)	(0.039)	(0.045)
0	0.60 ± 0.20	0.90 ± 0.20	1.35 ± 0.20	1.70 ± 0.20
U	(0.024 ± 0.008)	(0.035 ± 0.008)	(0.053 ± 0.008)	(0.067 ± 0.008)



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Soldering Profile



Packaging Dimensions - Tape

Dimension	Model CRT0402	Model CRT0603	Model CRT0805	Model CRT1206
А	$\frac{1.16 \pm 0.05}{(0.046 \pm 0.002)}$	$\frac{1.90 \pm 0.05}{(0.075 \pm 0.002)}$	$\frac{2.37 \pm 0.05}{(0.094 \pm 0.002)}$	$\frac{3.55 \pm 0.05}{(0.140 \pm 0.002)}$
В	$\frac{0.70 \pm 0.05}{(0.028 \pm 0.002)}$	$\frac{1.10 \pm 0.05}{(0.043 \pm 0.002)}$	$\frac{1.60 \pm 0.05}{(0.063 \pm 0.002)}$	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
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. 03/20

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