

CR THICK FILM CHIP RESISTOR SERIES

INTRODUCTION

The most popular type of chip resistor developed for surface mount technology. Ideal for general purpose applications. Unique construction and special termination techniques ensure high quality and reliability. Extremely compact size for miniaturization.

FEATURES

- Excellent Long Term stability
- Available in Bulk and Tape & Reel packing.
- Available in Tolerances of $\pm 5\%$ ($\pm 1\%$ On Request)
- Uniform body size ensures compatibility with High Speed automatic handling machines
- Compatible with flow and re-flow soldering methods

SPECIFICATIONS

Resistance Range: 10 Ohms to 1.0 M Ohms in E 24 Series. (Please also see Power Ratings Table.)

Rated Power: 1/16 to 1/4W. (Please also see Power Ratings Table.)

Rated Voltage: \checkmark Rated Power x Nominal Resistance.

Overload Voltage: Please refer to Rated Voltage Table.

Temperature Coefficient: ± 250 ppm per $^{\circ}\text{C}$.

Temperature Range: -55°C to $+125^{\circ}\text{C}$ with derating above 70°C

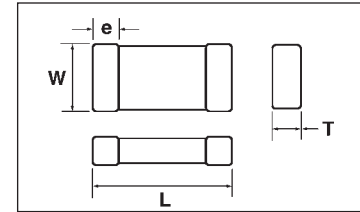
Tolerance: $\pm 5\%$ ($\pm 1\%$ On request.).

Load Life:

The component will be subjected to 1000 hours of testing at rated voltage and 70°C , with duty cycles of 1.5 hours "on" and 0.5 hours "off". After the test the Resistance change will remain within $\pm 3\%$ of the initial value + 0.1 Ohm for values above 1 M Ohm and 5% for values less than 1 M Ohm.

Resistance to Soldering Heat:

The component can be subjected to a soldering temperature of 270°C for 10 seconds. After the test the Resistance change will remain within $\pm 3\% + 0.1$ Ohms.

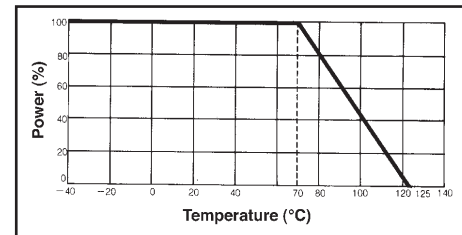


Tolerance on Dimensions:
"L" and "W": $\pm 0.25\text{mm}(0.01")$

Case Dimensions Table

Dimensions in mm				
Case Code	L	W	T Max	e
0402	1.0 ± 0.05	0.5 ± 0.05	0.35 ± 0.05	0.25 ± 0.15
0603	1.6 ± 0.1	0.8 ± 0.15	0.45 ± 0.10	0.30 ± 0.1
0805	2.0 ± 0.1	1.25 ± 0.10	0.55 ± 0.10	0.35 ± 0.2
1206	3.2 ± 0.15	1.6 ± 0.15	0.55 ± 0.10	0.55 ± 0.25
2010	5.0 ± 0.15	2.5 ± 0.15	0.55 ± 0.15	0.45 ± 0.2
2510	6.3 ± 0.15	3.2 ± 0.15	0.55 ± 0.15	0.5 ± 0.2

Power Derating Curve



Tape, Reel and Packing Specifications

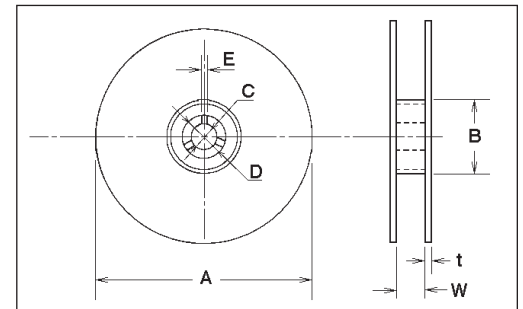
Reel Dimensions;

Reel Dimensions in Millimeters

A	B	C	D	E	W	t
$\phi 178 \pm 2.0$	$\phi 50$ min.	13.0 ± 0.5	21.0 ± 0.8	2.0 ± 0.8	$8.8/12.8 \pm 1.5$	2.0 ± 0.5
$\phi 330 \pm 2.0$	$\phi 100$ min.	13.0 ± 0.5	21.0 ± 0.8	2.0 ± 0.8	$8.8/12.8 \pm 1.5$	2.0 ± 0.6

Reel Dimensions in Inches

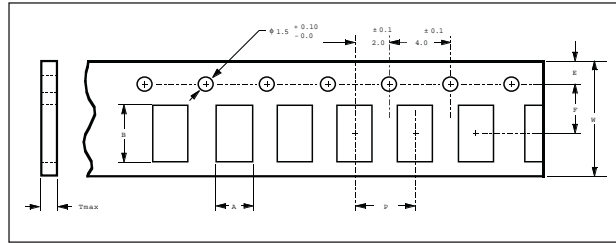
A	B	C	D	E	W	t
$\phi 7 \pm 0.08$	$\phi 2.0$ min.	5.0 ± 0.02	0.83 ± 0.03	0.08 ± 0.3	$0.35/0.50 \pm 0.06$	0.08 ± 0.02
$\phi 13 \pm 0.08$	$\phi 4.0$ min.	5.0 ± 0.3	0.83 ± 0.03	0.08 ± 0.3	$0.35/0.50 \pm 0.06$	0.08 ± 0.02



Power Ratings Table

SIZE	Rate Power at 70C	Rate Current of Jumper A	Maximum Working Voltage Vw	Maximum Overload Voltage Vo	Temperature Coefficient of Resistance ppm/C	Combination of Resistance Range of Tolerance		Operating Temperature Range C
						F (+1%)	J (+ 5%)	
0402	0.063		25	50	± 100	100 Ohms - 100 K	100 Ohms - 560 K	
					± 200	100 K - 560 K	10 Ohms - 2.2 M Ohms	
0603	0.063 (0.1)	1	50	100	± 100	100 Ohms - 1 M Ohms	10 Ohms - 10 M Ohms	
					± 200	1 Ohm - 9.1 Ohms	1 Ohm - 9.1 Ohms	
0805	0.1 (0.125)		150	300 (200)	± 100	10 Ohms - 1 M Ohms	10 Ohms - 10 M Ohms	
					± 200	1 Ohm - 9.1 Ohms	1 Ohm - 9.1 Ohms	
1206	0.125 (0.25)	2			± 100	10 Ohms - 1 M Ohms	10 Ohms - 10 M Ohms	-55 - + 125
					± 200	1 Ohm - 9.1 Ohms	1 Ohm - 9.1 Ohms	
2010	0.5		200	400	± 100	10 Ohms - 1 M Ohms	10 Ohms - 10 M Ohms	
					± 200	1 Ohm - 9.1 Ohms	1 Ohm - 9.1 Ohms	
2512	1.0				± 100	10 Ohms - 1 M Ohms	10 Ohms - 10 M Ohms	
					± 200	1 Ohm - 9.1 Ohms	1 Ohm - 9.1 Ohms	

Carrier Tape Dimensions;

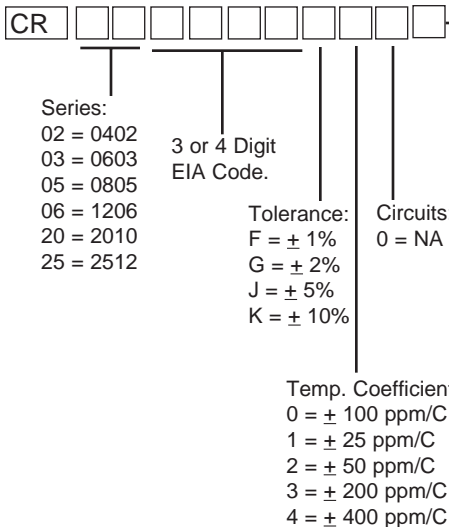


SIZE CODE	A	B	W	F	E	P	Tmax
	±0.2 mm or ±0.008"	±0.2 mm or ±0.008"	±0.3 mm or ±0.012"	±0.1 mm or ±0.004"	±0.1 mm or ±0.004"	±0.1 mm or ±0.004"	
0402	0.65 (0.026")	1.15 (0.045")	8.0mm (0.315")	3.5mm (0.138")	1.75mm (0.069")	2mm (0.079")	0.43mm (0.018")
0603	1.1 (0.043")	1.9mm (0.075")	8.0mm (0.315")	3.5mm (0.138")	1.75mm (0.069")	4mm (0.157")	0.60mm (0.024")
0805	1.65 (0.065")	2.4mm (0.094")	8.0mm (0.315")	3.5mm (0.138")	1.75mm (0.069")	4mm (0.157")	0.75mm (0.030")
1206	1.9 (0.075")	3.5mm (0.138")	8.0mm (0.315")	3.5mm (0.138")	1.75mm (0.069")	4mm (0.157")	0.75mm (0.030")
2010	2.8 (0.011")	5.6mm (0.22")	12.0mm (0.472")	5.5mm (0.217")	1.75mm (0.069")	4mm (0.157")	0.20mm (0.080")
2512	3.6 (0.142")	6.7mm (0.264")	12.0mm (0.472")	5.5mm (0.217")	1.75mm (0.069")	8mm (0.315")	0.20mm (0.080")

Packing Methods;

Style	PACKING				
	Paper Taping Reel (R)			Embossed Taping Reel (K)	Bulk Cassette (K)
	7" (178mm)	10" (254mm)	13" (330mm)	7" (178mm)	
CR02 (0402)	10,000	10,000	10,000	-	50,000
CR03 (0603)	5,000	5,000	5,000	-	25,000
CR05 (0805)	5,000	5,000	5,000	-	10,000
CR06 (1206)	5,000	5,000	5,000	-	5,000
CR20 (2010)	-	-	-	4,000	-
CR25 (2512)	-	-	-	4,000	-

PART NUMBERING



Packaging:
 1 = 5K Paper Taping
 2 = 10K Paper Taping
 3 = 20K Paper Taping
 4 = 4K Plastic Taping
 5 = Loose Packing
 A = 5K Cassette
 B = 10K Cassette
 C = 25K Cassette
 D = 50K Cassette