

## INTRODUCTION

The CR series resistors are manufactured with sophisticated process technology using up-to-date automated production facilities that enable production of small-size, light weight and thin component. They are used in surface mount applications where high density of components with high performance, reliability, precise and very low ohmic values are needed.

## FEATURES

- Low resistance with tight tolerance.
- Wide resistance range.
- Highly reliable multi-layer electrode construction.
- Small size, low resistance.

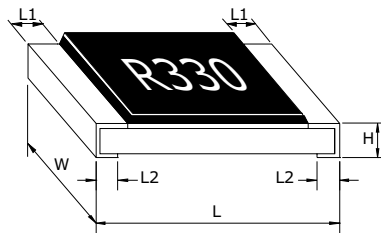
## RATINGS

Type	CR21 0805(2012)	CR32 1206(3216)	CR40 1210(3225)	CR46 <sup>∞</sup> 1218(3246)	CR50 2010(5025)	CR63 2512(6432)
Rated Power at 70°C	1/8W	1/4W	1/3W	1W	3/4W	1W
Operating Temp Range	-55°C to +125°C					
Derating to 0 load at	125°C					
Maximum Working Voltage	150V	200V	200V	200V	200V	200V
Maximum Overload Voltage	300V	400V	400V	400V	400V	400V
Tolerance	Resistance Range					
		RTC(ppm/°C)				
F(± 1%)	0.02≤R<0.04 *	± 200	± 200	± 150	± 150	± 150
	0.04≤R<0.10	± 200	± 200	± 150	± 150	± 150
	0.1≤R<1.0	± 100	± 100	± 100	± 100	± 100
J(± 5%)	0.02≤R<0.04 *	± 200	± 200	± 200	± 200	± 200
	0.04≤R<1.0	± 200	± 200	± 200	± 200	± 200

\* Resistor supplied with double sides resistor layer

<sup>∞</sup> Consult Factory

## DIMENSIONS



Type	DIMENSIONS Inches (Millimeters)					
	L	W	H	H*	L1	L2
CR21 0805(2012)	0.079± 0.006 (2.00± 0.15)	0.049± 0.004 (1.25± 0.10)	0.020± 0.004 (0.50± 0.10)	0.024± 0.002 (0.60± 0.10)	0.016± 0.008 (0.40± 0.20)	0.016± 0.008 (0.40± 0.20)
CR32 1206(3216)	0.122± 0.004 (3.10± 0.10)	0.063± 0.006 (1.60± 0.15)	0.022± 0.002 (0.55± 0.05)	0.024± 0.002 (0.65± 0.10)	0.020± 0.010 (0.50± 0.25)	0.020± 0.010 (0.50± 0.25)
CR40 1210(3225)	0.122± 0.004 (3.10± 0.10)	0.098± 0.006 (2.50± 0.15)	0.022± 0.002 (0.55± 0.05)	0.024± 0.002 (0.65± 0.10)	0.020± 0.010 (0.50± 0.25)	0.016± 0.010 (0.40± 0.20)
CR46 <sup>∞</sup> 1218(3246)	0.122± 0.004 (3.10± 0.10)	0.181± 0.006 (4.60± 0.15)	0.022± 0.002 (0.55± 0.05)	0.024± 0.002 (0.65± 0.10)	0.020± 0.010 (0.50± 0.25)	0.016± 0.010 (0.40± 0.20)
CR50 2010(5025)	0.200± 0.006 (5.00± 0.15)	0.098± 0.006 (2.50± 0.15)	0.022± 0.002 (0.55± 0.05)	0.024± 0.002 (0.65± 0.10)	0.024± 0.010 (0.60± 0.25)	0.016± 0.010 (0.40± 0.20)
CR63 2512(6432)	0.250± 0.006 (6.30± 0.15)	0.126± 0.006 (3.20± 0.15)	0.022± 0.002 (0.55± 0.05)	0.024± 0.002 (0.65± 0.10)	0.024± 0.010 (0.60± 0.25)	0.016± 0.010 (0.40± 0.20)

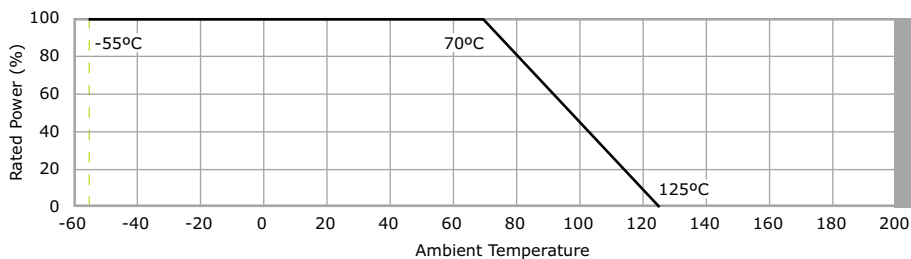
\* Applicable to resistor with double side resistor layers

<sup>∞</sup> Consult Factory

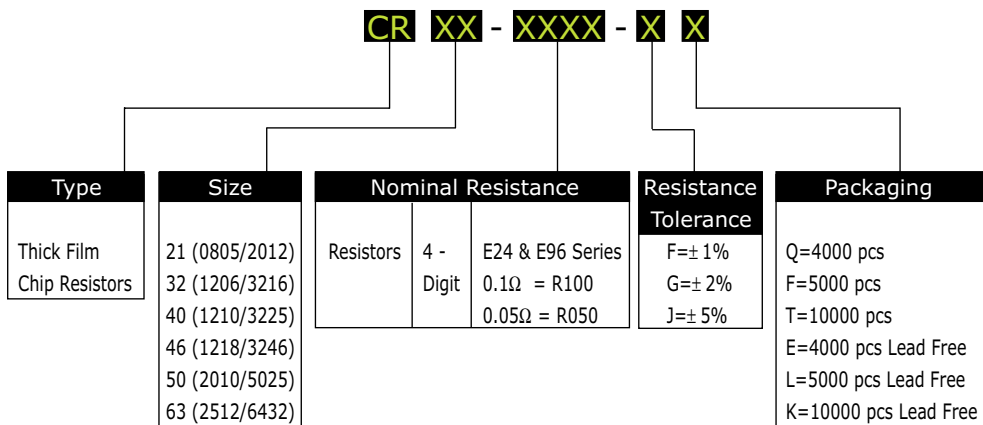
### PERFORMANCE CHARACTERISTICS

Performance Test	Test Method	Specification	
DC Resistance	JIS C 5202 5.1	1% tol	5%
Resistance Temperature Coefficient	JIS C 5202 5.2	± 100 ppm <sup>2</sup> /C	± 200 ppm <sup>2</sup> /C
Voltage Coefficient	JIS C 5202 5.3 Method II	≤ 100 ppm/V	≤ 100 ppm/V
Short Time Overload	JIS C 5202 5.5	± (0.5%+0.05 ohm)	± (1%+0.05 ohm)
Insulation Resistance	JIS C 5202 5.6	>10G ohm	>10G ohm
Dielectric Withstanding Voltage	JIS C 5202 5.7	± (1%+0.05 ohm)	± (1%+0.05 ohm)
Intermittent Overload	JIS C 5202 5.8	± (5%+0.10 ohm)	± (5%+0.10 ohm)
Noise (Applicable for ≥ 1 ohm only)	JIS C 5202 5.9	<-10dB (0.32μv/v)	<-10dB (0.32μv/v)
Terminal Strength	JIS C 5202 6.1		
A) Bend Test (applicable for chip size ≤ 1210)	JIS C 5202 6.1.4(1) Method 2	± (1%+0.05 ohm)	± (1%+0.05 ohm)
B) Pull Test (applicable for chip size ≥ 0805)	JIS C 5202 6.1	± (1%+0.05 ohm)	± (1%+0.05 ohm)
C) Push Test (applicable for chip size >0402)	JIS C 5202 6.1.4(3)	± (1%+0.05 ohm)	± (1%+0.05 ohm)
Resistance to Soldering Heat	JIS C 5202 6.10	± (0.5%+0.05 ohm)	± (0.5%+0.05 ohm)
Solderability	JIS C 5202 6.11	≥ 95% coverage	≥ 95% coverage
Resistance to Solvent	JIS C 5202 6.9	± (1%+0.05 ohm)	± (1%+0.05 ohm)
Low Temperature	JIS C 5202 7.1	± (0.5%+0.05 ohm)	± (1%+0.05 ohm)
Low Temperature with Load	JIS C 5202 7.1	± (0.5%+0.05 ohm)	± (1%+0.05 ohm)
High Temperature	JIS C 5202 7.2	± (1%+0.05 ohm)	± (2%+0.10 ohm)
Terminal Shock (Temperature Cycling)	JIS C 5202 7.4	± (0.5%+0.05 ohm)	± (1%+0.05 ohm)
Resistance to Damp Heat (Humidity)	JIS C 5202 7.5	± (0.5%+0.05 ohm)	± (2%+0.05 ohm)
Loadlife	JIS C 5202 7.10	± (1%+0.05 ohm)	± (2%+0.10 ohm)
Salt Spray	JIS C 5202 7.7	± (3%+0.10 ohm)	± (3%+0.10 ohm)

### DERATING CURVE



### ORDERING CODE



### MARKING DIAGRAMS



#### Marking Explanation

- 4 digit alpha numeric marking for 1%, 2% or 5%
- R denotes the decimal place.