

**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**

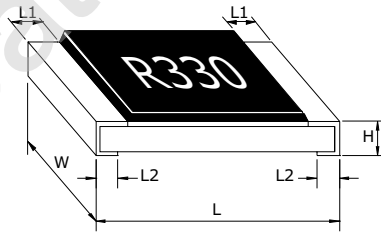
- Low resistance with tight tolerance.
- Wide resistance range.
- Highly reliable multi-layer electrode construction.
- Small size, low resistance.

**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  
 ∞ 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)

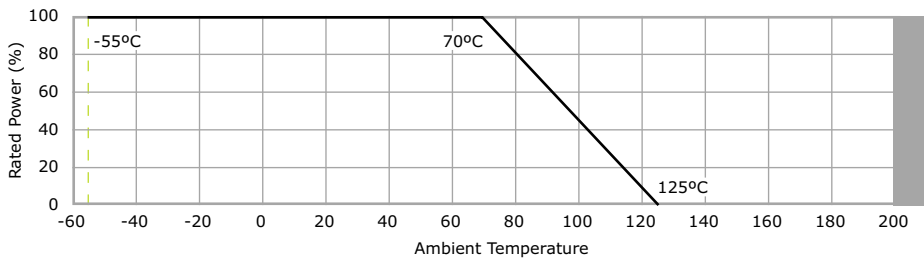
\* Applicable to resistor with double side resistor layers  
 ∞ Consult Factory

**PERFORMANCE CHARACTERISTICS**

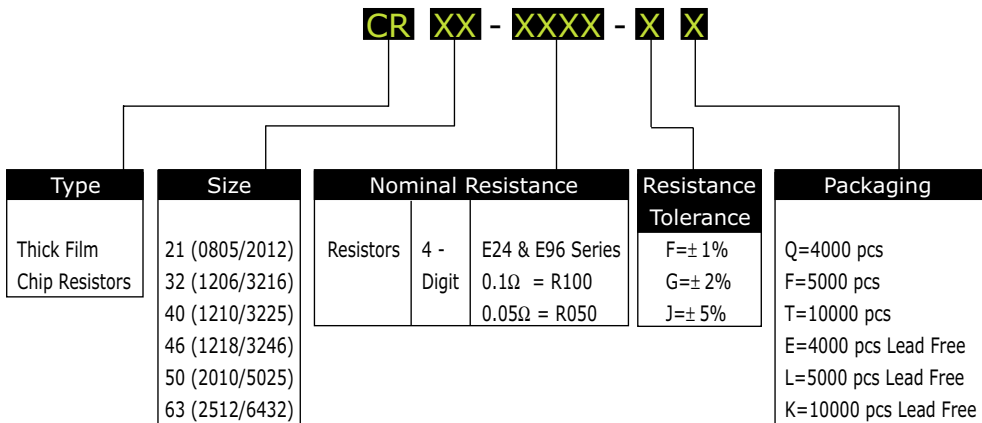
Performance Test	Test Method	Specification	
DC Resistance	JIS C 5202 5.1	1% tol	5%
Resistance Temperature Coefficient	JIS C 5202 5.2	± 100 ppm <sup>2</sup> /C	± 200 ppm <sup>2</sup> /C
Voltage Coefficient	JIS C 5202 5.3 Method II	≤ 100 ppm/V	≤ 100 ppm/V
Short Time Overload	JIS C 5202 5.5	± (0.5%+0.05 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)

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**DERATING CURVE**



**ORDERING CODE**



**MARKING DIAGRAMS**



**Marking Explanation**

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

