

# CARBON FILM FIXED RESISTORS

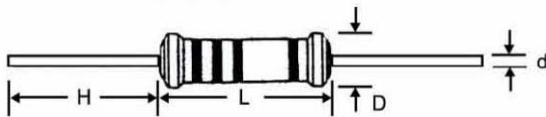
## (CR SERIES)

The resistance temperature coefficient of carbon film resistors is relatively high. Their resistance value changes inversely with temperature. But as they are big in volume, causing quick dissipation of heat and low temperature rise, they are good enough in quality stability and reliability, and are therefore popularly used in consumer electronic appliances. In addition to the above general features, our CR series carbon film fixed resistors have the following features in particular:

- \*Automated mass production, low prices.
- \*Selected superior quality materials to ensure stability and reliability.
- \*Variety of packaging-bulk, strip pack, ammo box tape box, tape reel, cut and formed, or radial Panasert/Avisert



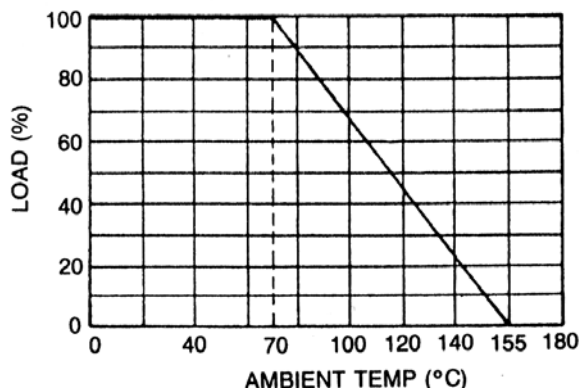
### Dimensions



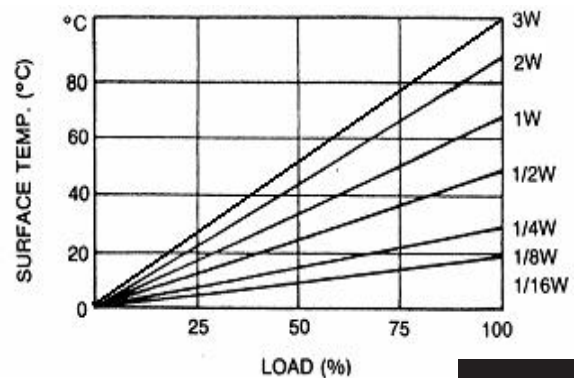
### General Specification

MIL Style	Style	Power Rating	Dimensions				Max. Working V.	Max. Overload V.	Resistance Range	
			L	D	d	H (MIN)			±2% (G)	±5% (J)
RD-50	CR-12	1/8W (0.125W)	3.7 ± 0.4	1.7 ± 0.2	0.45 ± 0.05	25	200V	400V	10Ω~470K	1Ω~10M
	CR-16	1/6W(0.16W)	3.7 ± 0.4	1.7 ± 0.2	0.45 ± 0.05	25	200V	400V	10Ω~470K	1Ω~10M
RD-55	CR-25	1/4W(0.25W)	6.5 ± 0.5	2.3 ± 0.2	0.50 ± 0.05	25	250V	500V	10Ω~10M	10Ω~10M
	CR-33	1/2W Small Size	8.5 ± 0.5	2.8 ± 0.3	0.55 ± 0.05	25	300V	600V	10Ω~10M	10Ω~10M
RD-60	CR-50	1/2W (0.5W)	9 ± 1	3.3 ± 0.5	0.55 ± 0.05	25	350V	700V	10Ω~10M	10Ω~10M
	CR-100	1W	12 ± 1	4.5 ± 0.5	0.73 ± 0.05	25	500V	1000V	10Ω~10M	10Ω~10M
RD-65	CR-100S	1W Small Size	9 ± 1	3.3 ± 0.5	0.60 ± 0.05	25	400V	800V	10Ω~10M	10Ω~10M
RD-70	CR-200	2W	16 ± 1	5.0 ± 0.5	0.75 ± 0.05	25	500V	1000V	10Ω~10M	10Ω~10M
RD-75	CR-300S	3WS	18 ± 1	6.5 ± 0.5	0.75 ± 0.05	25	650V	1200V	10Ω~470K	1Ω~1M

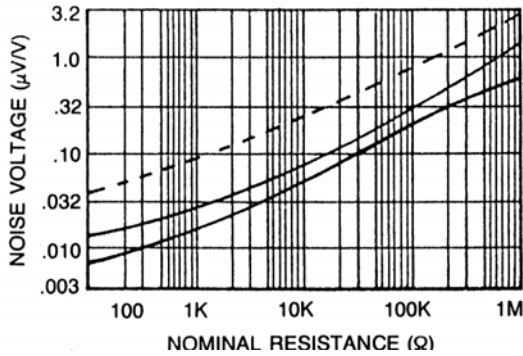
### Derating Curve



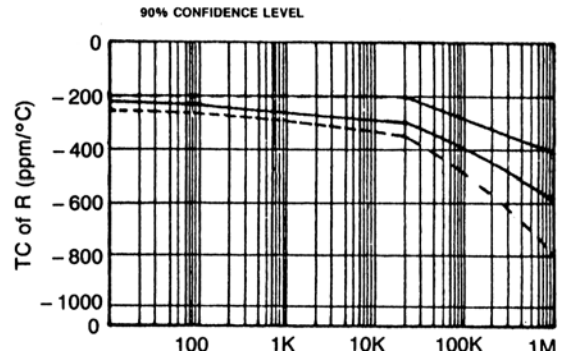
### Surface Temp Rise



## Current Noise



## Temperature Coefficient



\*For CR12 and CR25, tin plated copper clad steel lead wire also available  
0 ohm available for CR12 and CR25, only one black color ring at the body center.

## Characteristics

REQUIREMENTS	PERFORMANCE					TEST METHOD		
						JIS C 5202	MIL-STD-202	
Operating Temp. Range	-55°C ~ +155°C					—	—	
Temp. Coefficient (ppm°C)	TCR	±450	-150 -700	-150 -1,000	-150 -1,300	5.2	METHOD304	
	TYPE	0.125W	under 1KΩ	1.1KΩ-47KΩ	51KΩ-510KΩ			560KΩ-1MΩ
		0.25W	under 10KΩ	1.1KΩ-150KΩ	160KΩ-2.2MΩ			2.4MΩ-5.1MΩ
		0.5W & over	under 22KΩ	24KΩ-470KΩ	510KΩ-2.2MΩ			2.4KΩ-10MΩ
Noise (µV/V)	NOISE	0.1	0.3	0.6	1.0	5.9-11	METHOD308	
	TYPE	0.125W & 0.16W	—	under 10KΩ	11KΩ-100KΩ			over 110KΩ
		0.25W & over	under 100KΩ	110KΩ~510KΩ	560KΩ~2.2MΩ			over 2.4KΩ
Dielectric Withstanding Voltage	No evidence of flashover or breakdown					5.7. - A	METHOD301	
Resistance to solvents	Permanent Marking No physical or electrical damage or deterioration					—	METHOD215	
Short Time Overload	$\Delta R_{max} \leq \pm(1\%+0.05\Omega)$					5.5- A		
Resistance to Soldering Heat	$\Delta R_{max} \leq \pm(1\%+0.05\Omega)$					6.4 350°C 3 sec	METHOD210	
Temperature Cycling	$\Delta R_{max} \leq \pm(1\%+0.05\Omega)$					7.4-55°C/ 85°C	METHOD107	
Vibration	$\Delta R_{max} \leq \pm(0.5\%+0.05\Omega)$					6.3.3-A	METHOD204	
Moisture	R > 100KΩ	$\Delta R_{max} \leq \pm 5\%$				7.9.40°C 90-65% RH.	METHOD106	
Resistance	R ≤ 100KΩ	$\Delta R_{max} \leq \pm(3\%+0.05\Omega)$				1000hrs		
Load Life	R > 100KΩ	$\Delta R_{max} \leq \pm 3\%$				7.10	METHOD108	
	R ≤ 100KΩ	$\Delta R_{max} \leq \pm(2\%+0.05\Omega)$				70°C 1000hrs		

## Parts Number system

CR	-	25	103	J	T
CR-Carbon film resistor FPC-Carbon film resistor with flameproof coating	Wattages	Resistance	Tolerance	Packing code	
		3-digit code 103=10K ohm	J=5% G=2%	T= Ammo pack R= Tape/reel B= Bulk pack	

Note: 26, 52, 63 and 73 mm taping are available for different wattages, consult with factory before ordering

