

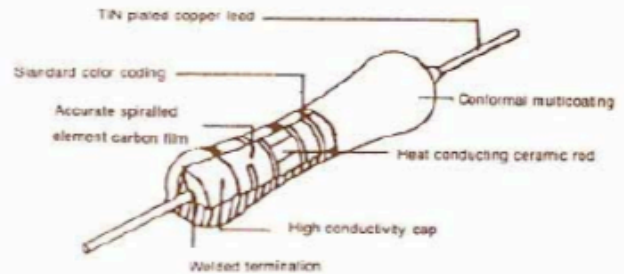


# CARBON FILM FIXED RESISTORS

## INTRODUCTION

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, 26mm and 52mm tape and reel, cut and formed, or radial Panasert/Avisert



## CHARACTERISTICS

REQUIREMENTS	PERFORMANCE					TEST METHOD	
						JIS C 5202	MIL-STD-202
Operating Temp. Range	-55°C ~ + 155°C					---	---
Temp. Coefficient (ppm/°C)	T.C.R. TYPE	±450	-150 -700	-150 -1,000	-150 -1,300	5.2	METHOD 304
	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	2.4MΩ-10MΩ		
Noise (μV/V)	NOISE TYPE	0.1	0.3	0.6	1.0	5.9-11	METHOD 303
	0.125W	-	under 10KΩ	11KΩ-100KΩ	over 110KΩ		
	0.25W & over	under 100KΩ	110KΩ-510KΩ	560KΩ-2.2MΩ	over 2.4MΩ		
Dielectric Withstanding Voltage	No evidence of flashover or breakdown					5.7 - A	METHOD 301
Resistance to solvents	Permanent Marking No physical or electrical damage or deterioration					---	METHOD 215
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	METHOD 210
Temperature Cycling	$\Delta R_{max} \leq \pm (1\% + 0.05\Omega)$					7.4-55°C/ 85°C	METHOD 107
Vibration	$\Delta R_{max} \leq \pm (0.5\% + 0.05\Omega)$					6.3.3-A	METHOD 204
Moisture	R > 100KΩ	$\Delta R_{max} \leq \pm 5\%$				7.9, 40°C 90-95% RH, 1000hrs	METHOD 106
Resistance	R ≤ 100KΩ	$\Delta R_{max} \leq \pm (3\% + 0.05\Omega)$					
Load Life	R > 100KΩ	$\Delta R_{max} \leq \pm 3\%$				7.10 70°C 1000hrs	METHOD 108
	R ≤ 100KΩ	$\Delta R_{max} \leq \pm (2\% \pm 0.05\Omega)$					



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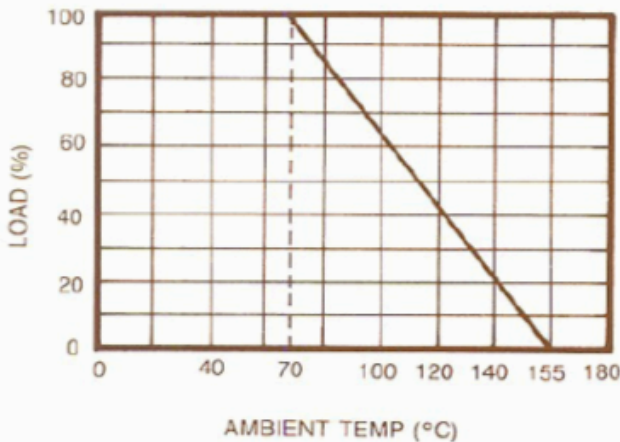
**DIMENSIONS**



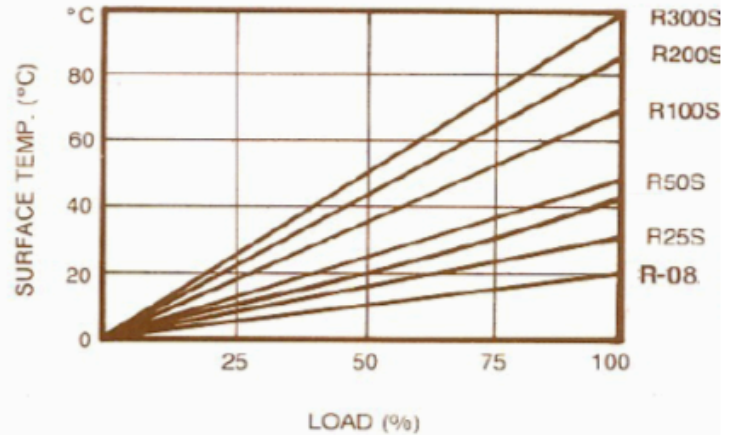
**General Specification**

Style	Power Rating	Dimensions				Max. Working V.	Max. Overload V.	Resistance Range	
		L	D	d	H (MIN)			± 2% (G)	± 5% (J)
R-08	1/8W (0.125W)	3.7 ± 0.4	1.5 ± 0.2	0.45 ± 0.05	25	200V	400V	10 Ω ~470K	1 Ω ~4.7M
R-25	1/4W (0.25W)	6.5 ± 0.5	2.3 ± 0.2	0.50 ± 0.05	25	250V	500V	10 Ω ~1M	1 Ω ~10M
R-50S	1/2W Small Size	8.5 ± 0.5	2.8 ± 0.3	0.55 ± 0.05	25	300V	600V	10 Ω ~1M	1 Ω ~10M
R-50	1/2W (0.5W)	9 ± 1	3.3 ± 0.5	0.55 ± 0.05	25	350V	700V	10 Ω ~1M	1 Ω ~10M
R-100	1W	12 ± 1	4.5 ± 0.5	0.73 ± 0.05	25	500V	1000V	10 Ω ~1M	1 Ω ~10M
R-100S	1W Small Size	9 ± 1	3.3 ± 0.5	0.60 ± 0.05	25	400V	800V	10 Ω ~1M	1 Ω ~10M
R-200	2W	16 ± 1	5.5 ± 0.5	0.75 ± 0.05	25	500V	1000V	10 Ω ~1M	1 Ω ~10M
R-300S	3WS	18 ± 1	6.5 ± 0.5	0.75 ± 0.05	25	650V	1200V	10 Ω ~470K	1 Ω ~4.7M

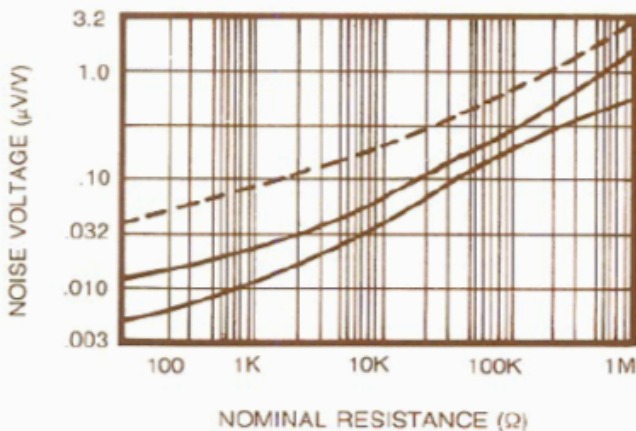
**DERATING CURVE**



**SURFACE TEMP RISE**



**CURRENT NOISE**



**TEMPERATURE COEFFICIENT**

