Carbon Film Resistors

CFR Type

Normal & Miniature Style [CFR Series]

FEATURES

- Industry's Lowest Cost
- Delivery From Stock in Bulk, Taped and Strip Pack
- Exceptional Long-Term Stability
- Exceeds Carbon Comp MIL-R-11 Performance
- Resistance Tolerance: ±2%, ±5%
- Variety of Packaging-Bulk, Strip Pack, 26mm and 52mm Tape and Reel, Cut and Formed, or Radial Panasert/Avisert

INTRODUCTION

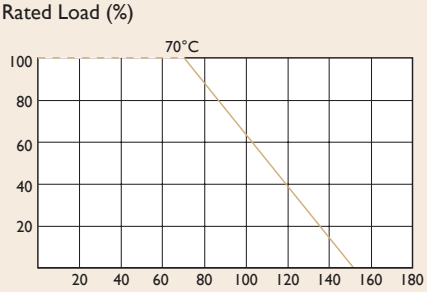
Billions of products are already in use worldwide in all types of applications-from process control instrumentation to telephone receivers and FM radio to color television.

The secret is in a proprietary production system and baking by a uniquely designed and automated production technique. Years of experience in making raw materials and production machinery prove the unique quality and high reliability of these products.

The meet-or far exceed-such specifications as EIA RS196A. JIS-C-6402 and IEC-115.

The resistors are coated with layers of tan color lacquer.

DERATING CURVE



HOT-SPOT TEMPERATURE

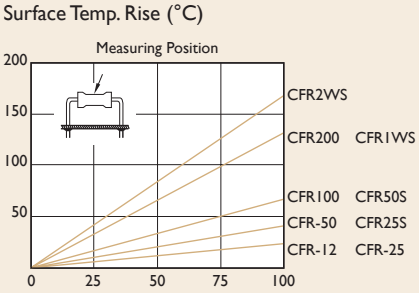
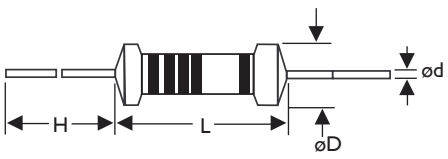


TABLE I TEMPERATURE COEFFICIENT

STYLE	Max. Value of Temp. Coefficient ppm/°C		
	under 100KΩ	100KΩ ~ 1MΩ	1MΩ ~ 10MΩ
CFR100, CFR200, CFR2WS	±350	-500	-1500
CFR-12, CFR-25, CFR-50, CFR25S, CFR50S, CFR1WS	+350 -500	-700	-1500

DIMENSIONS



Unit : mm

STYLE		DIMENSION			
Normal	Miniature	L	øD	H	ød
CFR-12	CFR25S	3.4±0.3	1.9±0.2	28±2.0	0.5±0.05
CFR-25	CFR50S	6.3±0.5	2.4±0.2	28±2.0	0.6±0.05
CFR-50	CFR1WS	9.0±0.5	3.3±0.3	26±2.0	0.6±0.05
CFR100	CFR2WS	11.5±1.0	4.5±0.5	35±2.0	0.8±0.05
CFR200	-	15.5±1.0	5.0±0.5	33±2.0	0.8±0.05

Note :

ELECTRICAL CHARACTERISTICS

STYLE	CFR-12	CFR25S	CFR-25	CFR50S	CFR-50	CFR1WS	CFR100	CFR2WS	CFR200
Power Rating at 70°C	1/6W	1/4W		1/2W		1W		2W	
Operating Temp. Range	-55°C to +155°C								
Maximum Working Voltage	150V	200V	250V	300V	350V	400V	500V	500V	500V
Maximum Overload Voltage	300V	400V	500V	600V	700V	800V	1000V	1000V	1000V
Dielectric Withstanding Voltage	300V	400V	500V	500V	500V	700V	1000V	1000V	1000V
Value Range ±2%, ±5%	1Ω~10MΩ								
Temperature Coefficient (by Type)	see TABLE 1								

* Standard resistance is 1Ω~10MΩ, below or over this resistance on request.

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	JIS-C-5202 5.5	2.5 Times RCWV for 5 Seconds	±(0.75%+0.05Ω)
Dielectric Withstanding Voltage	JIS-C-5202 5.7	in V-Block for 60 Seconds	by Type
Temperature Coefficient of Resistance	JIS-C-5202 5.2	-55°C to +155°C	by Type
Insulation Resistance	JIS-C-5202 5.6	in V-Block	>1000MΩ
Solderability	JIS-C-5202 6.5	235±5°C for 5±0.5 Seconds	95% Min. Coverage
Resistance to Solvent	JIS-C-5202 6.9	IPA for 1 Min. with Ultrasonic	No Deterioration of Coatings and Markings
Terminal Strength	Direct Load for 10 Sec. in The Direction of The Terminal Leads		≥2.5kg (24.5N)
Pulse Overload	JIS-C-5202 5.8	4 Times RCWV 10000 Cycles (1 Sec. on , 25 Sec. off)	±(1%+0.05Ω)
Load Life in Humidity	JIS-C-5202 7.9	40±2°C, 90~95% RH at RCWV for 1000 Hrs. (1.5 Hrs. on , 0.5 Hrs. off)	±(3%+0.05Ω)
Load Life	JIS-C-5202 7.10	70°C at RCWV for 1000 Hrs. (1.5 Hrs. on , 0.5 Hrs. off)	±(3%+0.05Ω)
Temperature Cycling	JIS-C-5202 7.4	-55°C→Room Temp.→+155°C→Room Temp. for 5 Cycles	±(1%+0.05Ω)
Resistance to Soldering Heat	JIS-C-5202 6.4	350°C±10°C for 3±0.5 Seconds	±(1%+0.05Ω)

* Rated Continuous Working Voltage (RCWV)= $\sqrt{\text{Power Rating x Resistance Value}}$