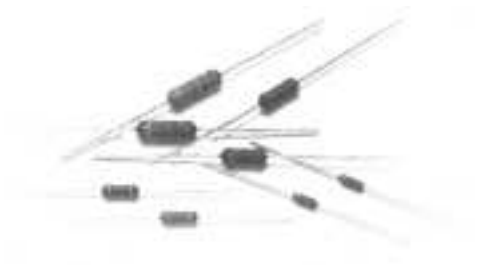
Carbon Film Resistors

JARO COMPONENTS, INC. **LEADED RESISTORS**

FLAME-PROOF TYPE

Normal & Miniature Style [F Series]



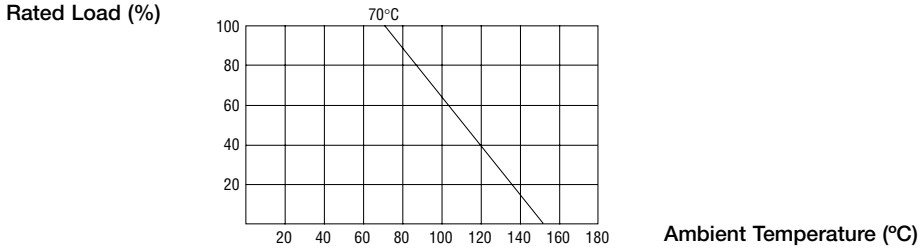
FEATURES

- Low Cost. Prompt Delivery
- High Power-to-Size Ratio for Significant Space Savings
- Complete Flameproof Construction-UL 1412
- Excellent Long-Term Stability
- Wide Resistance Range: 1Ω~10MΩ
- Resistance Tolerance: ±5%
- Coating and Marking Resist Trichlorethelyne, Freon, and Other Cleaning Agents

INTRODUCTION

The F Series flame-proof Carbon Film Resistors are manufactured by Coating a homogeneous film of pure carbon on high grade ceramic rods, resistance less than 10Ω have an electroless deposited nickel film, and are coated with layers of green or grey color flame-proof lacquer: These resistors meet overload tests in accordance with UL specification #1412 without producing a fire hazard.

DERATING CURVE



HOT-SPOT TEMPERATURE

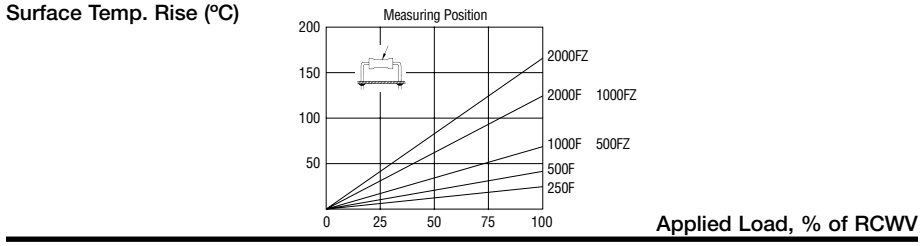
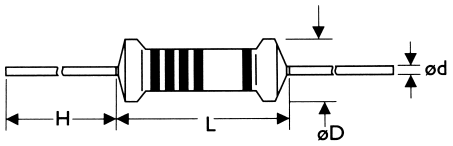


FIG. 1 TEMPERATURE COEFFICIENT

STYLE	Max. Value of Temp. Coefficient ppm/ºC		
	under 100KΩ	100K to 1MΩ excl.	1MΩ and over
1000F, 2000F, 2000FZ	±350	+350 -500	+350 -1000
250F, 500F 500FZ, 1000FZ	±350 -500	+350 -700	+350 -1000

DIMENSIONS



*The 5th is black color band for FCR series

Unit : mm

STYLE		DIMENSION			
Normal	Miniature	L	øD	H	ød
250F	500FZ	6.3±0.5	2.3±0.3	28±2.0	0.6±0.05
500F	1000FZ	9.0±0.5	3.2±0.5	26±2.0	0.6±0.05
1000F	2000FZ	11.5±1.0	4.5±0.5	35±2.0	0.8±0.05
2000F	–	15.5±1.0	5.0±0.5	32±2.0	0.8±0.05

How to order…see page 40

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F Series

ELECTRICAL CHARACTERISTICS

STYLE	250F	500FZ	500F	1000FZ	1000F	2000FZ	2000F
Power Rating at 70ºC	1/4W	1/2W		1W		2W	
Operating Temp. Range	-55ºC to +155ºC						
Maximum Working Voltage	250V	300V	350V	400V	500V	500V	500V
Maximum Overload Voltage	500V	600V	700V	800V	1000V	1000V	1000V
Dielectric Withstanding Voltage	400V	400V	500V	600V	750V	750V	750V
Value Range ±2%, ±5%	1Ω~10MΩ						
Temperature Coefficient (by Type)	see FIG. 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	-55ºC to +155ºC	by Type
Insulation Resistance	JIS-C-5202 5.6	in V-Block	>1000MΩ
Solderability	JIS-C-5202 6.5	235ºC for 5±0.5 Seconds	95% Min. Coverage
Resistance to Solvent	JIS-C-5202 6.9	Trichroethane 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±2ºC, 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	70ºC at RCWV for 1000 Hrs. (1.5 Hrs. on , 0.5 Hrs. off)	±(3%+0.05Ω)
Temperature Cycling	JIS-C-5202 7.4	-65ºC›Room Temp.›150ºC›Room Temp. for 5 Cycles	±(1%+0.05Ω)
Resistance to Soldering Heat	JIS-C-5202 6.4	350ºC±10ºC for 3±0.5 Seconds	±(1%+0.05Ω)

* Rated Continuous Working Voltage (RCWV)=√Power Rating x Resistance Value

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