

# Metal Film Resistors

# Fusible Type

## Normal & Miniature Style [ FRM Series ]



### FEATURES

Power Rating : 1/4W, 1/2W, 1W, 2W

Resistance tolerance : ±5%

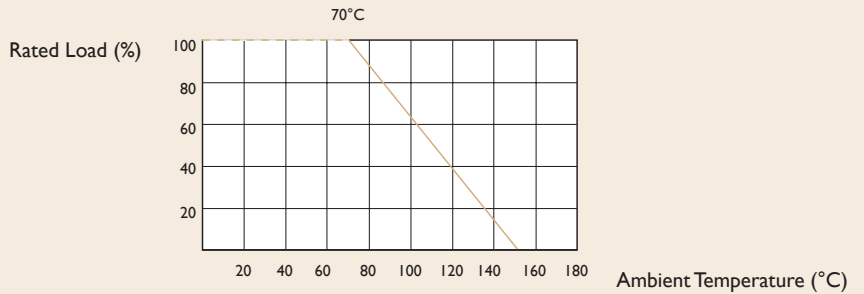
FlameProof Silicone Coating : UL94V-0

Gray body color

The 5th color band is white to represent fusible resistors

### POWER DERATING CURVE

For resistors operated in ambient temperatures above 70°C , power rating must be derated in accordance with the curve below.



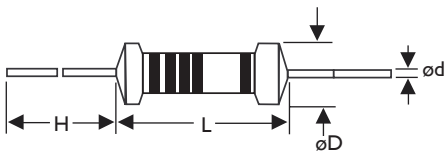
### FUSING CHARACTERISTICS

Fusing time within 30 seconds at 16 times of rated power

Fusing residual resistive value at least 100 times rated resistance

### ZDIMENSIONS

Unit : mm



STYLE		DIMENSION			
Normal	Miniature	L	øD	H	ød
FRM-25	FRM50S	6.3±0.5	2.4±0.2	28±2.0	0.6±0.05
FRM-50	FRM1WS	9.0±0.5	3.3±0.3	26±2.0	0.6±0.05
FRM100	FRM2WS	11.5±1.0	4.5±0.5	35±2.0	0.8±0.05
FRM200	FRM3WS	15.5±1.0	5.0±0.5	33±2.0	0.8±0.05



Note :

## ELECTRICAL CHARACTERISTICS

STYLE	TEST METHOD	FRM-25	FRM50S	FRM-50	FRMIWS	FRM100	FRM2WS	FRM200	FRM3WS
Power Rating at 70°C		1/4W	1/2W		1W		2W		3W
Dielectric Withstanding Voltage	JIS-C-5202 5.7 in V-Block for 60 Seconds	250V	250V	250V	250V	350V	350V	350V	350V
Temperature Coefficient	JIS-C-5202 5.2 Room Temp.Add 100°C	±200ppm/°C							
Short Time Overload	JIS-C-5202 5.5 2.5 Times RCWV for 5 Seconds	±2.0%+0.05Ω							
Insulation Resistance	JIS-C-5202 5.6 in V-Block	>100MΩ							
Pulse Overload	JIS-C-5202 5.8 4 Times RCWV 10,000 Cycles (1 Sec. on , 25 Sec. off )	±1.0%+0.05Ω(for Normal Style) ±2.0%+0.05Ω(for Miniature Style)							
Operating Temp. Range		-55°C to + 155°C							
Value Range		2.2Ω To 1KΩ for E24 Series							

\* Resistance range for standard resistance, below or over this resistance on request.

## ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD	APPRAISE
Terminal Strength	JIS-C-5202 6.1 Direct load for 10 Sec. in the Direction of the Terminal Leads	≥2.5kg (24.5N)
Resistance to Soldering Heat	JIS-C-5202 6.4 350°C ± 10°C for 3 ± 0.5 Seconds	±1.0%+0.05Ω
Solderability	JIS-C-5202 6.5 235±5°C ± 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
Temperature Cycling	JIS-C-5202 7.4 -55°C→Room Temp.→+155°C→Room Temp. for 5 Cycles	±2.0%+0.05Ω
Humidity	JIS-C-5202 7.5 40±2°C, 90~95% RH for 1,000 Hrs.	±5.0%+0.05Ω
Load Life in Humidity	JIS-C-5202 7.9 40±2°C, 90~95% RH at RCWV for 1,000 Hrs. (1.5 Hrs. on , 0.5 Hrs. off )	±5.0%+0.05Ω
Load Life	JIS-C-5202 7.10 70°C at RCWV for 1,000 Hrs. (1.5 Hrs. on, 0.5 Hrs. off )	±5.0%+0.05Ω
Overload Flame Retardant	JIS-C-5202 7.12 4 Times RCWV for 1 minute	No evidence of flaming or arcing

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