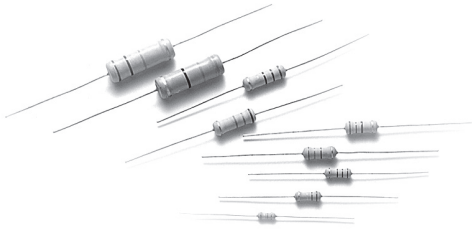


## Metal Oxide Film Resistors

# Flame-Proof Type

## Normal & Miniature Style [ RSF Series ]



### INTRODUCTION

The RSF Series Metal Oxide Film Flame-Proof Resistors offer excellent performance in applications where stability and uniformity of characteristics are desired. The normal style & 'RSF-WV' style of RSF series are coated with layers of gray flame-proof lacquer; and the miniature style are coated with layers of pink colors flame-proof lacquer.

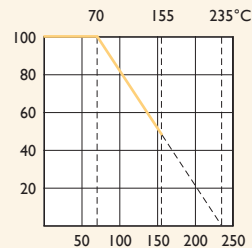
### FEATURES

Power Rating	1/4W, 1/2W, 1W, 2W, 3W, 5W
Resistance Tolerance	±2%, ±5%
T.C.R.	±300ppm/°C
Flameproof Multi-layer Coating Meets	UL-94V-0
Flameproof Feature Meets Overload Test	UL-1412

### DERATING CURVE

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

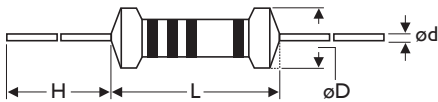
Rated Load (%)



Ambient Temperature (°C)

### DIMENSIONS

Unit: mm



STYLE		DIMENSION			
Normal	Miniature	L	øD	H	ød
RSF-25	RSF50S	6.3±0.5	2.4±0.2	28±2.0	0.55±0.05
RSF-50	RSF1WS	9.0±0.5	3.3±0.3	26±2.0	0.55±0.05
RSF100	RSF2WS	11.5±1.0	4.5±0.5	35±2.0	0.8±0.05
RSF200	RSF3WS	15.5±1.0	5.0±0.5	33±2.0	0.8±0.05
RSF3WM	RSF5SS	17.5±1.0	6.5±1.0	32±2.0	0.8±0.05
RSF300	RSF5WS	24.5±1.0	8.5±1.0	38±2.0	0.8±0.05
RSF500	-	24.5±1.0	8.5±1.0	38±2.0	0.8±0.05

Note: RSF1WS (for MB Type) ød = 0.8±0.05mm

## ELECTRICAL CHARACTERISTICS

### NORMAL STYLE

STYLE	RSF-25	RSF-50	RSF100	RSF200	RSF3WVM	RSF300	RSF500
Power Rating at 70°C	1/4W	1/2W	1W	2W	3W		5W
Maximum Working Voltage	200V	250V	350V		450V	500V	750V
Maximum Overload Voltage	300V	400V	600V		700V	800V	1,000V
Voltage Proof on Insulation	250V	350V	500V				
Resistance Range	1Ω - 1MΩ & for E24 series value						
Operating Temp. Range	-55°C to +155°C						
Temperature Coefficient	±300ppm/°C						

### MINIATURE STYLE

STYLE	RSF50S	RSFIWS	RSF2WS	RSF3WS	RSF5SS	RSF5WS
Power Rating at 70°C	1/2W		2W	3W	5W	5W
Maximum Working Voltage	250V	300V	350V	350V	500V	700V
Maximum Overload Voltage	400V		600V		800V	900V
Voltage Proof on Insulation	350V	400V	500V			
Resistance Range	1Ω - 1MΩ & for E24 series value					
Operating Temp. Range	-55°C to +155°C					
Temperature Coefficient	±300ppm/°C					

Note: Special value is available on request

## ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD	APPRAISE
Short Time Overload	IEC 60115-1 4.13 2.5 times RCWV for 5 sec. (Not more than maximum Overload Voltage)	±1.0%+0.05Ω for normal style ±2.0%+0.05Ω for miniature style
Voltage Proof on Insulation	IEC 60115-1 4.7 In V-Block for 60 sec., test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8 Between -55°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6 in V-block for 60 Sec.	>1,000MΩ
Solderability	IEC 60115-1 4.17 245±5°C for 3±0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30 IPA for 5±0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16 Direct load for 10 Sec. in the direction of the terminal leads	≥2.5kg (24.5N)
Periodic-pulse Overload	IEC 60115-1 4.39 4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	±2.0%+0.05Ω
Damp Heat Steady State	IEC 60115-1 4.24 40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	±5.0%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25 70±2°C at RCWV (or Umax., Whichever less) for 1,000 Hr. (1.5Hr.on, 0.5Hr. Off)	±5.0%+0.05Ω
Temperature Cycling	IEC 60115-1 4.19 -55°C ⇄ Room Temp. ⇄ +155°C ⇄ Room Temp. (5 cycles)	±1.0%+0.05Ω
Resistance to Soldering Heat	IEC 60115-1 4.18 260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05Ω
Accidental Overload Test	IEC 60115-1 4.26 4 times RCWV for 1 Min.	No evidence of flaming or arcing

Note: Rated Continuous Working Voltage (RCWV) =  $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$  or Max. working voltage listed above, whichever less.

Revision: 2020

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