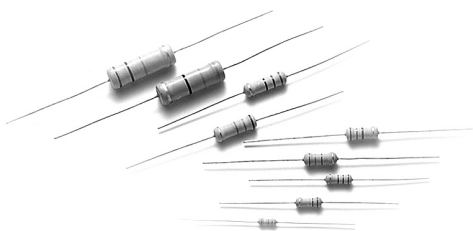


Metal Oxide Film Resistors

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. They provide lower cost alternatives to Carbon Composition Resistors and General Purpose Metal Films. Metal Oxides also can replace many low power General Purpose wirewound applications, saving both money and time, with shorter delivery cycles. The normal style & the miniature style of RSF series are coated with layers of gray and pink colors flame proof lacquer respectively.

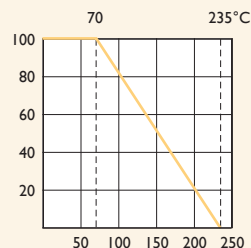
FEATURES

| | |
|--|----------------------------|
| 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.

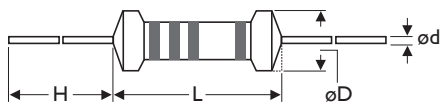
Rated Load (%)



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 | RSF3WM | 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 |
| Dielectric Withstanding Voltage | 250V | 350V | 500V | | 600V | 700V | 750V |
| Resistance Range | 1 Ω - 1M Ω & 0 Ω for E24 series value | | | | | | |
| Operating Temp. Range | -55°C to +235°C | | | | | | |
| Temperature Coefficient | ±300ppm/°C | | | | | | |

MINIATURE STYLE

| STYLE | RSF50S | RSF1WS | RSF2WS | RSF3WS | RSF5SS | RSF5WS |
|---------------------------------|---------------------------------------|--------|--------|--------|--------|--------|
| Power Rating at 70°C | 1/2W | 1W | 2W | 3W | 5W | |
| Maximum Working Voltage | 250V | 300V | 350V | | 500V | 700V |
| Maximum Overload Voltage | 400V | 500V | 600V | | 800V | 900V |
| Dielectric Withstanding Voltage | 350V | 400V | 500V | | 700V | 700V |
| Resistance Range | 1 Ω - 1M Ω & 0 Ω for E24 series value | | | | | |
| Operating Temp. Range | -55°C to +235°C | | | | | |
| Temperature Coefficient | ±300ppm/°C | | | | | |

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

| PERFORMANCE TEST | TEST METHOD | | APPRAISE |
|---------------------------------|-----------------|---|---|
| Short Time Overload | JIS-C-5202 5.7 | 2.5 times RCWV for 5 Sec. | ±1.0%+0.05 Ω for normal style ±2.0%+0.05 Ω for miniature style |
| Dielectric Withstanding Voltage | JIS-C-5202 5.7 | in V-Block for 60 Sec. | By type |
| Temperature Coefficient | JIS-C-5202 5.2 | -55°C to +235°C | By type |
| Insulation Resistance | JIS-C-5202 5.6 | in V-Block | >1,000M Ω |
| Solderability | JIS-C-5202 6.5 | 260±5°C for 5±0.5 Sec. | 95% Min. coverage |
| Resistance to Solvent | JIS-C-5202 6.9 | PA for 1 Min. with ultrasonic | No deterioration of coatings and markings |
| Terminal Strength | JIS-C-5202 6.1 | 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 10,000 cycles (1 Sec. on, 25 Sec. off) | ±2.0%+0.05 Ω |
| Load Life in Humidity | JIS-C-5202 7.9 | 40±2°C, 90-95% RH at RCWV for 1,000 Hr: (1.5 Hr. on, 0.5 Hr. off) | ±5.0%+0.05 Ω |
| Load Life | JIS-C-5202 7.10 | 70°C at RCWV for 1,000 Hr: (1.5 Hr. on, 0.5 Hr. off) | ±5.0%+0.05 Ω |
| Temperature Cycling | JIS-C-5202 7.4 | -55°C ⇒ Room Temp. ⇒ +155°C ⇒ Room Temp. (5 cycles) | ±1.0%+0.05 Ω |
| Resistance to Soldering Heat | JIS-C-5202 6.4 | 350±10°C for 3±0.5 Sec. | ±1.0%+0.05 Ω |
| Overload Flame Retardant | JIS-C-5202 7.12 | 4 times RCWV for 1 Min. | No evidence of flaming or arcing |

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