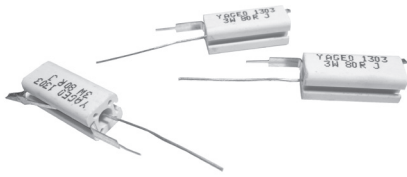


Fiberglass Cement Resistors

Circuit Breaker & Vertical Lead Type

Normal Style [FSM Series]



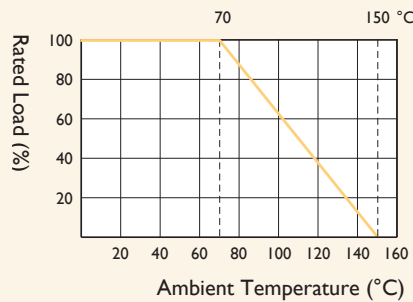
INTRODUCTION

The FSM Series Fiberglass Cement Resistors are wound on fibre glass core, have a special internal direct contact to virtually eliminate resistance changes caused by varying, often high temperatures. It offers a circuit-breaker function when overload is applied.

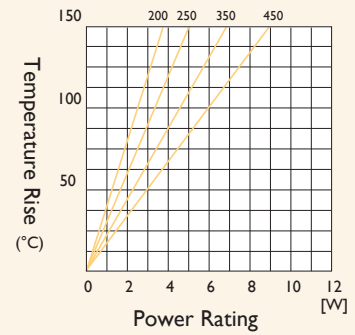
FEATURES

| | |
|----------------------|----------------------|
| Power Rating | 2W, 2.5W, 3.5W, 4.5W |
| Resistance Tolerance | ±5%, ±10% |
| T.C.R. | -80~+500ppm/°C |

DERATING CURVE

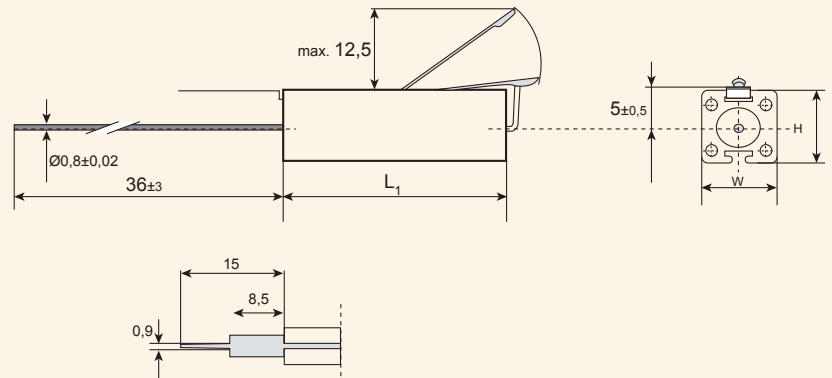
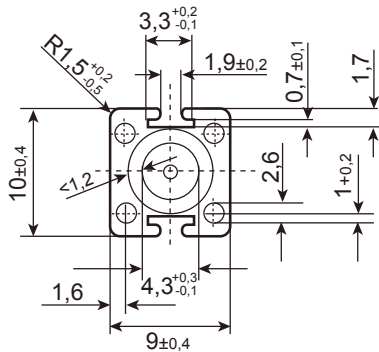


TEMPERATURE RISE



DIMENSIONS

Unit: mm



| STYLE | DIMENSION | | |
|--------|----------------|-------|--------|
| Normal | L ₁ | W | H |
| FSM200 | 25±1.0 | 9±0.4 | 10±0.4 |
| FSM250 | 38±1.0 | 9±0.4 | 10±0.4 |
| FSM350 | 50±1.0 | 9±0.4 | 10±0.4 |
| FSM450 | 75±2.0 | 9±0.4 | 10±0.4 |

Note:

ELECTRICAL CHARACTERISTICS

| STYLE | FSM200 | FSM250 | FSM350 | FSM450 |
|-----------------------------|---------------------|------------|------------|------------|
| Power Rating at 70°C | 2W | 2.5W | 3.5W | 4.5W |
| Maximum Working Voltage | $\sqrt{P \times R}$ | | | |
| Voltage Proof on Insulation | 2000V | | | |
| Resistance Range | 0.15Ω-15KΩ | 0.33Ω-33KΩ | 0.51Ω-47KΩ | 0.91Ω-82KΩ |
| Operating Temp. Range | -55°C to +150°C | | | |
| Temperature Coefficient | -80~+500ppm/°C | | | |

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

| PERFORMANCE TEST | TEST METHOD | APPRAISE |
|-------------------------------|--|---|
| Short Time Overload | IEC 60115-1 4.13 10 times rated power for 5 Sec. | ±2.0%+0.05Ω |
| 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 -55°C to +150°C | By type |
| Insulation Resistance | IEC 60115-1 4.6 in V-block for 60 Sec. | > 10,000M |
| 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 | ≥50N |
| 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 | ±2.0%+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) | ±3.0%+0.05Ω |
| Temperature Cycling | IEC 60115-1 4.19 -55°C ⇌ Room Temp. ⇌ +155°C ⇌ Room Temp. (5 cycles) | ±2.0%+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 | ±0.2%+0.05Ω |

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