

## Type SMV Series

### Key Features

Flameproof  
UL94V0  
molded  
package,  
resistant to  
sulfuration,  
heat and  
humidity.

Metal-glaze  
elements  
provide high  
stable  
performance  
against  
environmental  
conditions and  
overload.

High surge  
withstanding  
& pulse  
withstanding  
performance.

Excellent  
mechanical  
strength &  
electrical  
stability.



TE Connectivity is pleased to introduce our Metal Glaze high voltage power resistor, the sister to our SM series power resistor, giving UL94V0 flame resistance and resistance to sulfur along with high surge and pulse withstand capabilities

### Characteristics – Electrical

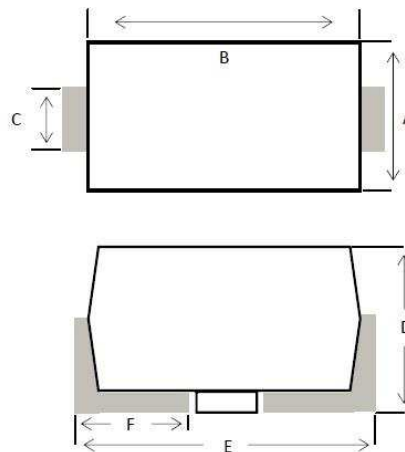
| Characteristics                 | Standards                                                           | Test Methods                                          |
|---------------------------------|---------------------------------------------------------------------|-------------------------------------------------------|
| Resistance Tolerance            | $\pm 5\%$ (J) $\pm 1\%$ (F)                                         |                                                       |
| Resistance Temp. Coeff          | $\pm 200\text{ppm} / ^\circ\text{C}$                                | $-65^\circ\text{C} \sim 200^\circ\text{C}$            |
| Power Rating Load               | Surface Temp. $275^\circ\text{C}$ Max.<br>$\Delta R/R \leq \pm 1\%$ | Rated voltage for 30 minutes                          |
| Short Time Overload             | $\Delta R \pm 1\%$                                                  | 2.5 times of rated voltage for 5 sec.                 |
| Dielectric Withstanding Voltage | No evidence of mechanical damage or insulation breakdown            | AC 1000V for 1min.                                    |
| Insulation Resistance           | 10,000 M $\Omega$                                                   | DC 500V megger                                        |
| Pulse Loading Capability        | $\Delta R/R \leq \pm 2\%$                                           | IEC 60065 14.1                                        |
| Solderability                   | Minimum 95% coverage                                                | $235^\circ\text{C} \pm 5^\circ\text{C}$ for 2 seconds |
| Resistance to Soldering Heat    | No evidence of mechanical damage.<br>$\Delta R/R \leq \pm 1\%$      | $270 \pm 5^\circ\text{C}$ for 10 $\pm 1$ seconds      |

## Environmental Characteristics

| Characteristics          | Standards                 | Test Methods                                                                        |
|--------------------------|---------------------------|-------------------------------------------------------------------------------------|
| Temp. cycle              | $\Delta R/R \leq \pm 2\%$ | -65°C(30mins) → Room Temp.(3mins) → +275°C(30mins) → Room Temp.(3mins) / (5 cycles) |
| Load life                | $\Delta R/R \leq \pm 5\%$ | Rated power load 90 minutes ON<br>30 minutes OFF 70°C<br>1000 hours                 |
| Moisture-proof Load Life | $\Delta R/R \leq \pm 5\%$ | Rated power load 90 minutes ON<br>30 minutes OFF 40°C 95% RH 1000 hours             |

Reference Standards: JIS C 5201

## Dimensions and Resistance Range:



| Rated Power<br>@20°C | A<br>±0.3<br>(mm) | B<br>±0.3<br>(mm) | C<br>±0.3<br>(mm) | D<br>±0.3<br>(mm) | E<br>max.<br>(mm) | F<br>±0.3<br>(mm) | Resistance<br>Range(Ω) | Max. Working<br>Voltage |       |
|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------------|-------------------------|-------|
|                      | DC                | RMS               |                   |                   |                   |                   |                        |                         |       |
| 1W                   | 4.0               | 6.7               | 1.4               | 3.55              | 7.9               | 1.5               | 100K~10M               | 1600V                   | 1150V |
| 2W                   | 5.5               | 10.5              | 1.7               | 5.0               | 12                | 2.3               | 100K~10M               | 3500V                   | 2500V |
| 3W                   | 7.3               | 13.5              | 1.7               | 6.8               | 17                | 2.5               | 100K~10M               | 5000V                   | 3500V |

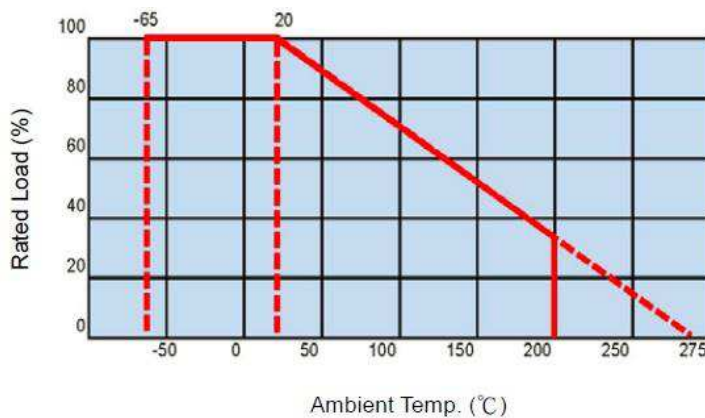
Rated Continuous Working Voltage (RCWV) shall be determined from

$RCWV = \sqrt{\text{Rated Power} \times \text{Resistance Value}}$  or Max. Permissible Voltage listed above

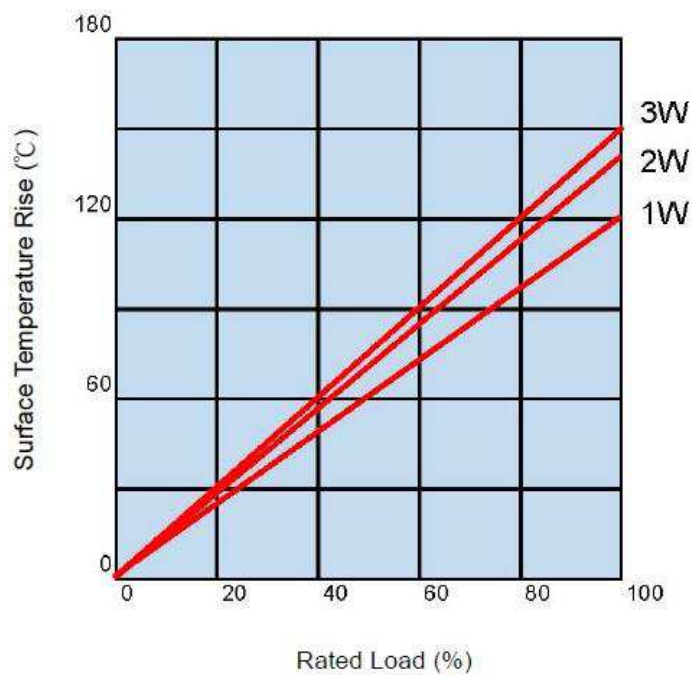
Whichever is lowest

## Derating Curve

For resistors operated in ambient temperatures above 20°C, power rating must be derated in accordance with the curve below



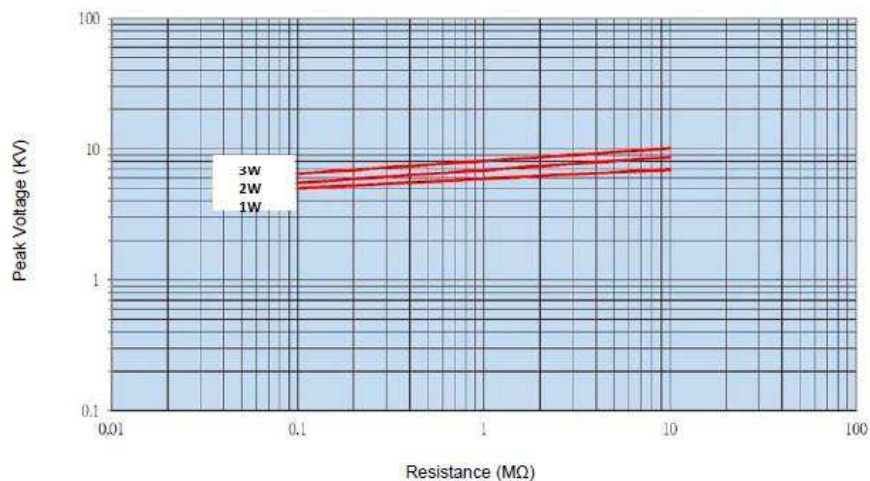
## Surface Temperature rise



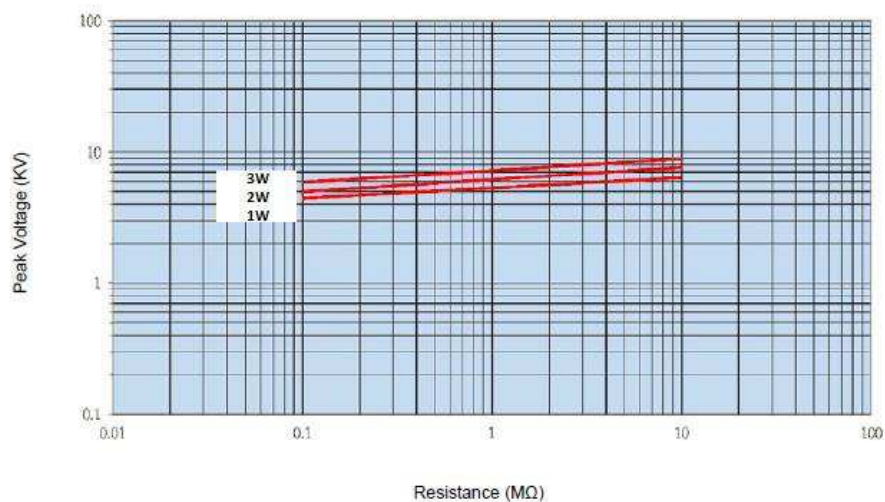
## Lightning Surge

The resistors are designed to withstand 1.2/50  $\mu$ s pulse & 10/700  $\mu$ s according to IEC61000-4-5, 30 pulse per voltage, 30 seconds between each pulse. The resistance value change rate between pre- and post-test shall be within  $\pm 5\%$

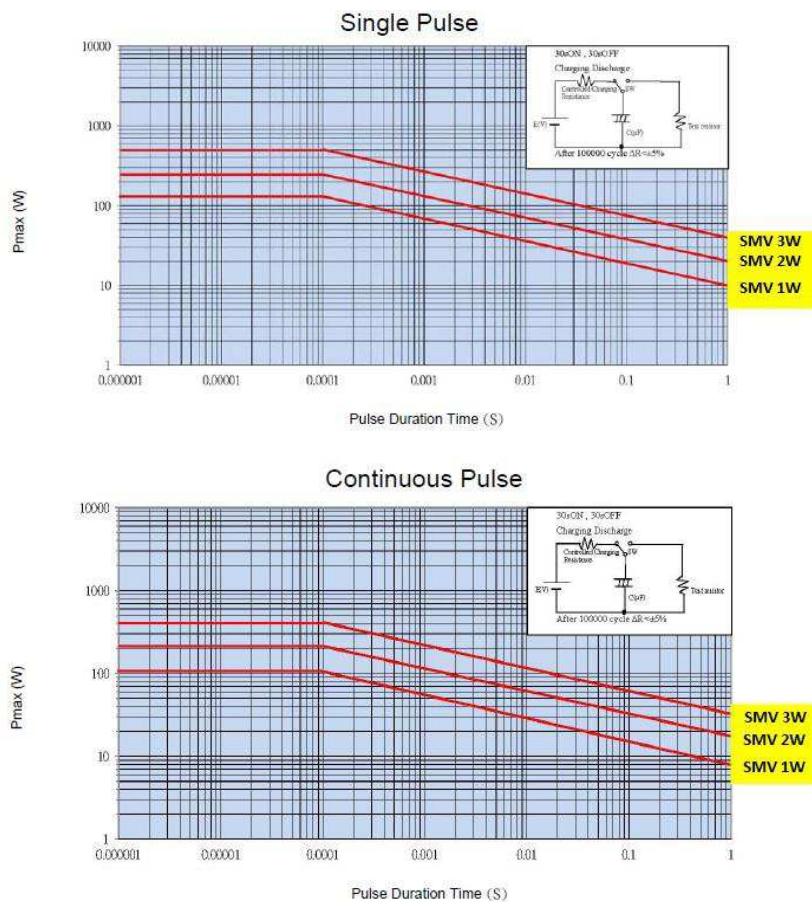
1.2/50  $\mu$ s Lightning Surge



10/700  $\mu$ s Lightning Surge

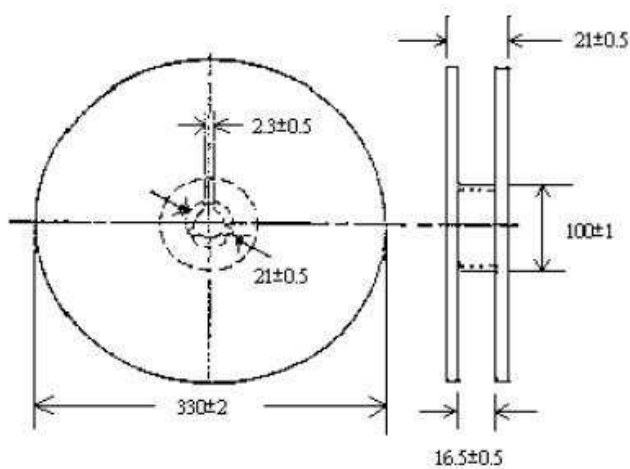


## Pulse Characteristics

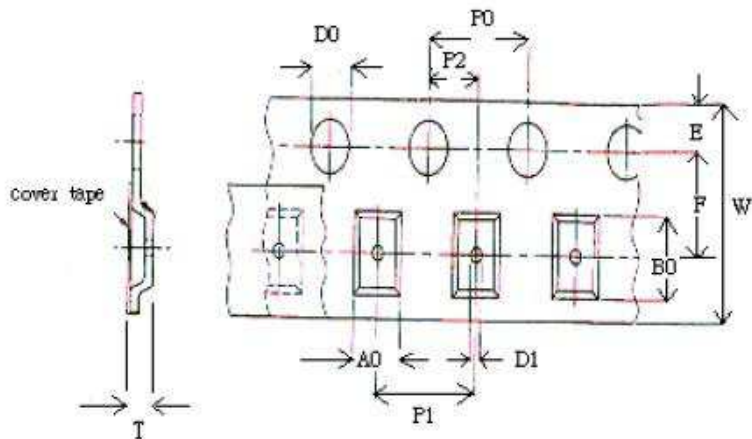


## Packaging

### Reel Dimensions (mm)



## Tape dimensions (mm)



| PWR | B0<br>±0.2 | A0<br>±0.2 | P1<br>±0.1 | P2<br>±0.1 | P0<br>±0.1 | D0<br>±0.1 | E<br>±0.1 | F<br>±0.1 | W<br>±0.3 | D1<br>±0.1 | T<br>±0.1 | RL<br>QTY |
|-----|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|------------|-----------|-----------|
| 1W  | 8          | 4.3        | 8          | 2          | 4          | 1.5        | 1.75      | 7.5       | 16        | 1.5        | 4.15      | 2000      |
| 2W  | 11.8       | 5.8        | 12         | 2          | 4          | 1.5        | 1.75      | 11.5      | 24        | 1.5        | 5.8       | 1000      |
| 3W  | 17.5       | 7.8        | 16         | 2          | 4          | 1.5        | 1.75      | 14.2      | 32        | 1.5        | 7.5       | 500       |

## How To Order

| SMV         | 2W             | 100K                                | J                | T               |
|-------------|----------------|-------------------------------------|------------------|-----------------|
| Common Part | Power rating   | Resistance Value                    | Tolerance        | Pack Style      |
| SMV         |                | 100 K ohms<br>100,000 ohm<br>s100K  | F – 1%<br>J – 5% | T – Tape & Reel |
|             | 1W<br>2W<br>3W | 1 M ohm<br>1,000,000 ohms<br>1M0    |                  |                 |
|             |                | 10 M ohms<br>10,000,000 ohms<br>10M |                  |                 |