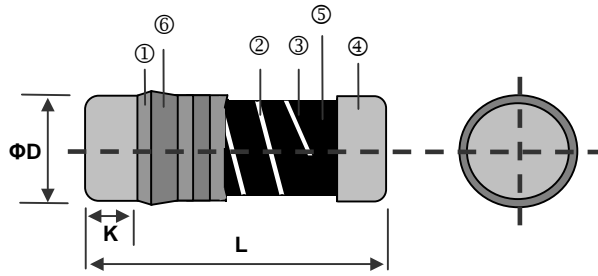




**Construction**



|                      |                  |
|----------------------|------------------|
| ① Insulation Coating | ④ Electrode Cap  |
| ② Trimming Line      | ⑤ Resistor Layer |
| ③ Ceramic Rod        | ⑥ Marking        |

**Features**

- Excellent overall stability
- Tight tolerance down to  $\pm 0.1\%$
- Extremely low TCR down to  $\pm 10 \text{ PPM}/^\circ\text{C}$
- High power rating up to 1 Watt

**Dimensions**

Unit: mm

| Type     | L         | ΦD        | K min. | Weight (g)<br>(1000pcs) | Packaging  |
|----------|-----------|-----------|--------|-------------------------|------------|
|          |           |           |        |                         | 180mm (7") |
| MFMP0204 | 3.50±0.20 | 1.40±0.15 | 0.5    | 18.7                    | 3,000EA    |
| MFMP0207 | 5.90±0.20 | 2.20±0.20 | 0.5    | 80.9                    | 2,000EA    |

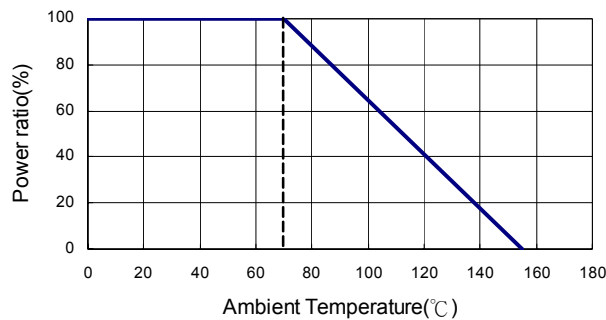
**Applications**

- Automotive
- Telecommunication
- Medical Equipment

**Part Numbering**

| MFMP         | 0204                           | V                           | 1000   | D   | D  |
|--------------|--------------------------------|-----------------------------|--|---|--|
| Product Type | Dimensions (L×ΦD)              | Power Rating                | Resistance   | Resistance Tolerance  | TCR (PPM/°C)   |
|              | 0204: 3.5x1.4<br>0207: 5.9x2.2 | T: 1W<br>U: 1/2W<br>V: 1/4W | 0100: 10ohm<br>1000: 100ohm<br>2201: 2200ohm<br>1001: 1Kohm<br>1004: 1Mohm | B: $\pm 0.1\%$<br>C: $\pm 0.25\%$<br>D: $\pm 0.5\%$<br>F: $\pm 1\%$<br>J: $\pm 5\%$ | B: $\pm 10$<br>N: $\pm 15$<br>C: $\pm 25$<br>D: $\pm 50$<br>E: $\pm 100$ |

**Derating Curve**



## Standard Electrical Specifications

| Item<br>Type | Power<br>Rating<br>at 70°C | Operating<br>Temp.<br>Range | Max.<br>Operating<br>Voltage | Max.<br>Overload<br>Voltage | Resistance Range |           |            |           |             | TCR<br>(PPM/°C) |
|--------------|----------------------------|-----------------------------|------------------------------|-----------------------------|------------------|-----------|------------|-----------|-------------|-----------------|
|              |                            |                             |                              |                             | ±0.1%            | ±0.25%    | ±0.5%      | ±1%       | ±5%         |                 |
| 0204         | 1/4W                       | -55 ~<br>+155°C             | 200V                         | 400V                        | 100Ω-20KΩ        | 10Ω-20KΩ  |            |           |             | ±10             |
|              |                            |                             |                              |                             | 100Ω-100KΩ       | 10Ω-100KΩ |            |           |             | ±15             |
|              |                            |                             |                              |                             | 100Ω-270KΩ       | 10Ω-330KΩ | 4.7Ω-560KΩ | 4.7Ω-1MΩ  |             | ±25             |
|              |                            |                             |                              |                             | 100Ω-270KΩ       | 1Ω-330KΩ  | 1Ω-1MΩ     | 1Ω-10MΩ   |             | ±50             |
|              |                            |                             |                              |                             |                  |           |            |           | 5.11MΩ-10MΩ | -               |
|              |                            |                             |                              |                             | 0.1Ω-0.91Ω       |           |            |           |             |                 |
| 0207         | 1/2W                       | -55 ~<br>+155°C             | 300V                         | 500V                        | 100Ω-20KΩ        | 10Ω-20KΩ  |            |           |             | ±10             |
|              |                            |                             |                              |                             | 100Ω-100KΩ       | 10Ω-100KΩ |            |           |             | ±15             |
|              |                            |                             |                              |                             | 100Ω-400KΩ       | 10Ω-400KΩ | 10Ω-560KΩ  | 10Ω-560KΩ |             | ±25             |
|              |                            |                             |                              |                             | 100Ω-400KΩ       | 1Ω-330KΩ  | 1Ω-1MΩ     | 1Ω-5.1MΩ  |             | ±50             |
|              |                            |                             |                              |                             |                  |           |            |           | 0.1Ω-0.91Ω  |                 |

## High Power Rating Electrical Specifications

| Item<br>Type | Power<br>Rating<br>at 70°C | Operating<br>Temp.<br>Range | Max.<br>Operating<br>Voltage | Max.<br>Overload<br>Voltage | Resistance Range |            |            |            |              | TCR<br>(PPM/°C) |
|--------------|----------------------------|-----------------------------|------------------------------|-----------------------------|------------------|------------|------------|------------|--------------|-----------------|
|              |                            |                             |                              |                             | ±0.1%            | ±0.25%     | ±0.5%      | ±1%        | ±5%          |                 |
| 0207         | 1W                         | -55 ~<br>+155°C             | 350V                         | 700V                        | 100Ω-100KΩ       | 10Ω-100KΩ  |            |            |              | ±15             |
|              |                            |                             |                              |                             | 100Ω-100KΩ       | 4.7Ω - 1MΩ | 4.7Ω - 1MΩ | 4.7Ω-560KΩ |              | ±25             |
|              |                            |                             |                              |                             | 100Ω-100KΩ       | 10Ω - 1MΩ  | 1Ω - 1MΩ   | 1Ω - 2.2MΩ |              | ±50             |
|              |                            |                             |                              |                             |                  |            |            |            | 0.1Ω - 0.91Ω |                 |

## Environmental Characteristics

| Item   | Requirement      | Test Method   |
|--|------------------|---|
| Temperature Coefficient of Resistance (T.C.R.) | As Spec.         | +20/-15/+20/+100/+20°C  |
| Short Time Overload                            | △R±0.5%          | RCWV*2.5 or Max. overload voltage for 5 seconds   |
| Endurance                                      | △R±2%            | 70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"             |
| Humidity with Load                             | △R±2%            | 40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" |
| Dry Heat                                       | △R±2%            | at +155°C for 1000 hrs  |
| Solderability                                  | 95%min. coverage | 245±5°C for 3 seconds   |
| Resistance to Soldering Heat                   | △R±0.5%          | 260±5°C for 10 seconds  |

### Reference Standards: JIS-C 5201-1

### Storage Temperature: 25±3°C; Humidity < 80%RH