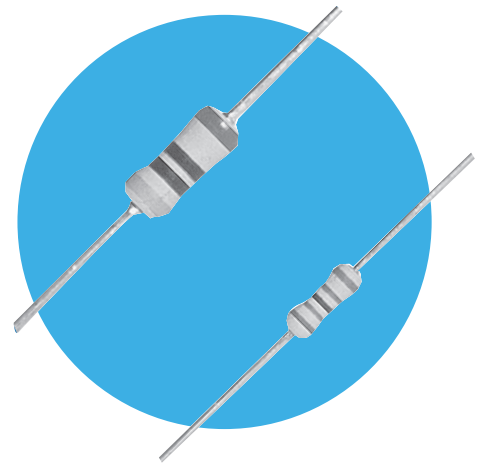


## Flameproof Power Metal Film Resistors

### MFP Series

- Smallest size for power rating
- Resistance range 0.1 ohms to 1M ohms
- Flameproof protection
- Surface mount ZI-form option



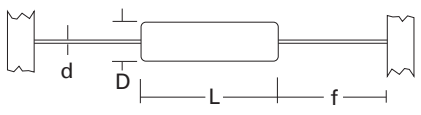
All parts are Pb-free and comply with EU Directive 2011/65/EU (RoHS2)

### Electrical Data

|                           |         | MFP1                                        | MFP2     |
|---------------------------|---------|---------------------------------------------|----------|
| Power rating at 70°C      | watts   | <1 Ω: 0.7    ≥1 Ω: 1.0                      | 2        |
| Resistance range          | ohms    | 0R1 – 1M                                    | 1R0 – 1M |
| Limiting element voltage  | volts   | 350                                         |          |
| TCR                       | ppm/°C  | < 1 Ω: 300    1 Ω - 9.1 Ω: 200    ≥10 Ω: 50 | 100      |
| Resistance tolerance      | %       | 1, 2, 5                                     |          |
| Standard values           |         | E24 preferred                               |          |
| Thermal impedance         | °C/watt | 120                                         | 82       |
| Ambient temperature range | °C      | -55 to 155                                  |          |

### Physical Data

| Dimensions (mm) & Weight (g) |       |       |       |       |                      |                  |        |
|------------------------------|-------|-------|-------|-------|----------------------|------------------|--------|
| Type                         | L Max | D Max | f min | d nom | PCB mounting centres | Min. bend radius | Wt.nom |
| MFP1                         | 6.2   | 2.5   | 21.0  | 0.6   | 10.2                 | 0.6              | 0.3    |
| MFP2                         | 10.0  | 4.0   | 27.0  | 0.8   | 18.4                 | 1.2              | 0.55   |



#### Construction

The resistance element is a precisely controlled thin film of metal alloy on a high purity ceramic core, protected by a cement coating applied so that terminations remain completely clear. This permits a well defined body length (clean lead to clean lead dimension L).

#### Terminations

- Material** Solder-coated copper wire.
- Strength** The terminations meet the requirements of IEC 68.2.21
- Solderability** The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2

#### Marking

Resistors are colour coded with 4 or 5 bands depending on value and tolerance. IEC 62 colours are used.

#### Solvent Resistance

The body protection and marking are resistant to all normal industrial cleaning solvents suitable for printed circuits.

#### Flammability

The resistor coating will not burn or emit incandescent particles under any condition of applied temperature or power overload.

#### General Note

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MFP Series

## Performance Data

|                                            |       | Maximum       |
|--------------------------------------------|-------|---------------|
| Load at rated power : 1000 hours at 70°C   | ΔR %  | 5             |
| Shelf life : 12 months at room temperature | ΔR %  | 2             |
| Derating from rated power at 70°C          | ΔR %  | zero at 155°C |
| Climatic                                   | ΔR %  | 3             |
| Climatic category                          |       | 50/155/56     |
| Temperature rapid change                   | ΔR %  | 0.5           |
| Resistance to solder heat                  | ΔR %  | 0.5           |
| Voltage proof                              | volts | 500 min       |

## Application Notes

1. If the resistors are to dissipate full rated power, it is recommended that the terminations should not be soldered closer than 4mm from the body.
2. Due to operating temperature limitations imposed by some pcb materials, derating may be necessary. An estimate of the temperature rise to be expected can be calculated using the thermal impedance figures given under Electrical Data.
3. These products are also available in a range of lead forming options. In particular, MFP2 is available in ZI-form SMD format packed in blister tape - see:  
<http://www.ttelectronics.com/themes/ttelectronics/datasheets/resistors/ZI-form.pdf>

### Packaging

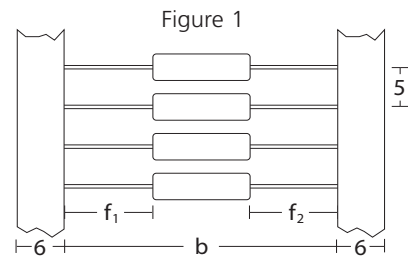
MFP resistors are normally supplied tape packed ready for loading onto automatic sequencing and insertion machines.

The standard taping method and critical dimensions are shown in Figure 1.

Component wires will not protrude beyond the outside edge of the tapes.

Alternative packaging available by request.

| Type   | MFP1 | MFP2 |
|--------|------|------|
| b (mm) | 52   | 68   |

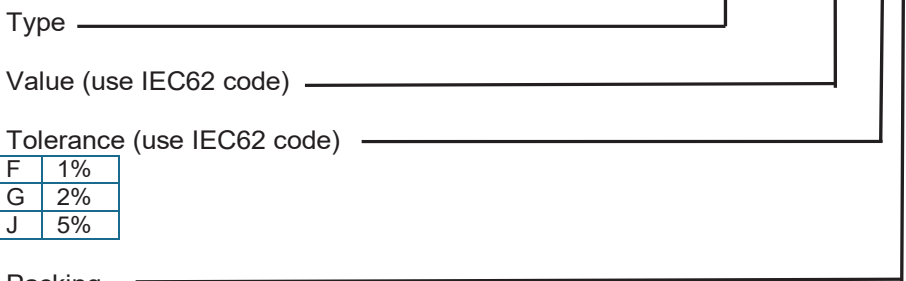


Body location  $f_1 - f_2 \leq 1.4 \text{ mm}$

## Ordering Procedure

Example: MFP2 at 4.7 kilohms and 1% tolerance in ammo pack box of 2000 pieces –

**MFP2 - 4K7 F I**



|   |    |
|---|----|
| F | 1% |
| G | 2% |
| J | 5% |

| Packing |      |      |          |          |
|---------|------|------|----------|----------|
| I       | Ammo | MFP1 | 5000/box | Standard |
|         |      | MFP2 | 2000/box |          |

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