

Type UPF Series

Key Features

High precision

Tolerance
down to
±0.02%

TCR down to
±5PPM/°C

Excellent
stability



The TE Connectivity High Precision Metal Film Led Resistor is available in two sizes with resistance tolerance down to 0.02% and TCR 5% as standard. This high precision, coupled with excellent stability makes it ideal for applications such as precision measurement equipment

Applications

Precision
Equipment

Measurement
Equipment

Characteristics – Electrical

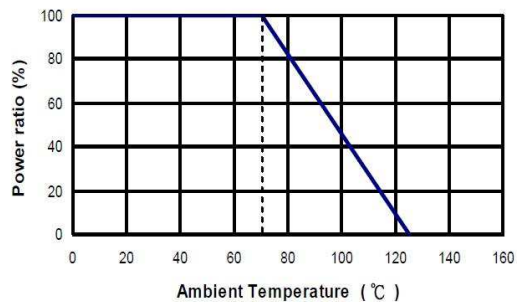
| Type | Power Rating @70°C | Max. Operating Voltage | Max. Overload Voltage | Resistance Range | | | TCR (PPM/°C) |
|-------|--------------------|------------------------|-----------------------|------------------|--------|-------|--------------|
| | | | | ±0.02% | ±0.05% | ±0.1% | |
| UPF25 | 1/4W | 250V | 500V | 10Ω -500KΩ | | | ±5 |
| | | | | 10Ω 1M Ω | | | ±10 |
| | | | | | | | ±15 |
| | | | | | | | ±25 |
| UPF50 | 1/2W | 300V | 600V | 10Ω -500KΩ | | | ±5 |
| | | | | 10Ω 1M Ω | | | ±10 |
| | | | | | | | ±15 |
| | | | | | | | ±25 |

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

Operating Temperature range -55 ~ 125°C

Derating



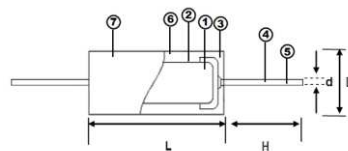
Environmental Characteristics

| Item | Requirement | Test Method |
|--|---|--|
| Temperature Coefficient of Resistance (T.C.R.) | As Spec. | Resistance value at room temperature and room temperature+60°C |
| Short Time Overload | ±(0.05%+0.05Ω) | JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage for 5 seconds |
| Insulation Resistance | > 1,000MΩ | MIL-STD-202F Method 302 Apply 500V _{DC} for 1 minute |
| Endurance | ±(0.2%+0.05Ω) | MIL-STD-202F Method 108A 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" |
| Damp Heat with Load | ±(0.2%+0.05Ω) | MIL-STD-202F Method 103B 40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" |
| Solderability | 95% min. Coverage | MIL-STD-202F Method 208H 245±5°C for 5 seconds |
| Resistance to Soldering Heat | ±(0.05%+0.01Ω) | 350±10°C for 3 seconds or 260±5°C for 10 seconds |
| Terminal Strength | Tensile: ≥2.5kg | Tensile strength: for 10 sec. Torsional strength: Rotated through 360°, 5 rotations. |
| Pulse Overload | ±(0.1%+0.01Ω) | JIS-C-5201-1 5.8 4 times RCWV for 10000 cycles with 1second "ON" and 25 seconds "OFF" |
| Temperature Cycle | ±(0.05%+0.05Ω) | -25°C(30min)/+85°C(30min), 5 cycles |
| Resistance to Solvent | No deterioration of coatings and markings | JIS-C-5201-1 6.9 Trichroethane for 3 min. with ultrasonic |

RCWV (Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower

Storage Temperature: 15~28°C; Humidity < 80%RH

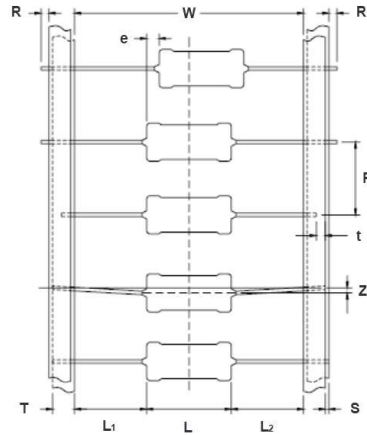
Construction and Dimensions



| | |
|-----------------------------------|---|
| ① Ceramic Core (Alumina ceramic) | ⑤ Lead Wire (Tinned annealed copper wire) |
| ② Resistor Element (Nickel alloy) | ⑥ Molding (Expose) |
| ③ Terminal (Tinned iron cap) | ⑦ Marking (expose based ink) |
| ④ Connection | |

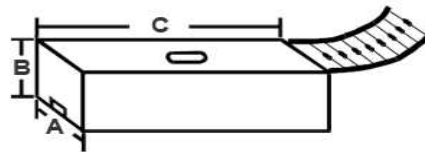
| Type | L | D | H | d | Weight (g) (1000pcs) |
|-------|----------|---------|------|----------|----------------------|
| UPF25 | 7.0±0.3 | 2.7±0.4 | 26±3 | 0.6±0.05 | 230 |
| UPF50 | 10.2±0.3 | 4.0±0.4 | 25±3 | 0.6±0.05 | 430 |

Taping Specification



| Type | L | W | P | L1- L2 Max. | T | Z Max. | R Max. | t Max. | e Max. | S Max. |
|-------|----------|------|-------|-------------------|-------|-----------|-----------|-----------|-----------|-----------|
| UPF25 | 7.0±0.3 | 52±1 | 5±0.3 | 1.0 | 6±0.5 | 0.8 | 0 | 2.5 | 0.5 | 0.5 |
| UPF50 | 10.2±0.3 | 52±1 | 5±0.3 | 1.0 | 6±0.5 | 0.8 | 0 | 2.5 | 0.5 | 0.5 |

Ammo Packing



| Type | A | B | C | Pack Qty |
|-------|------|------|-------|----------|
| UPF25 | 85±1 | 78±1 | 260±1 | 2,000 |
| UPF50 | 85±1 | 78±1 | 260±1 | 1,000 |

How To Order

| UPF | 50 | B | 500R | V | |
|--------------|---------------------|-----------|--|---|-------------------|
| Product Type | Power Rating | Tolerance | Resistance | TCR | Packing |
| UPF | 25: ¼ W 50 : ½ W | B: ±0.1% | 10R 10Ω 100R : 100Ω 1K0 : 1,000Ω 100K : 100KΩ | V: ±5PPM B – 10ppm Y – 15ppm D – 25ppm | T: AMMO : BULK |