

## ■ Features

- Very tight tolerance down to  $\pm 0.02\%$
- Extremely low TCR down to  $\pm 5\text{PPM}/^\circ\text{C}$
- High precision
- Excellent stability

## ■ Applications

- Precision Equipment
- Measurement Equipment

## ■ Construction



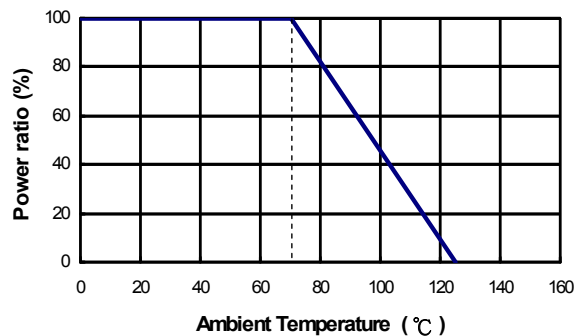
① Ceramic Core (Alumina ceramic)	⑤ Lead Wire (Tinned annealed copper wire)
② Resistor Element (Nickel alloy)	⑥ Molding (Expose)
③ Terminal (Tinned iron cap)	⑦ Marking (Expose based ink)
④ Connection	

## ■ Dimensions

Unit : mm

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

## ■ Derating Curve



## Part Numbering

UPF	50	B	1K0	V
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Product Type	Power Rating	Tolerance	Resistance	TCR
UPF	25 : ¼ W 50 : ½ W	B : ±0.1%	1R0 : 1Ω 100R : 100Ω 1K0 : 1,000Ω 100K : 100,000Ω	V : ±5PPM

## Standard Electrical Specifications

Item Type	Power Rating	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range			TCR (PPM/°C)
	70°C				±0.02%	±0.05%	±0.1%	
25	1/4W	-55 ~ +125°C	250V	500V	10Ω -500KΩ			±5
50	1/2W		300V	600V	10Ω -500KΩ			±5

Operating Voltage  $V = \sqrt{P \cdot R}$

## 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)	<b>JIS-C-5201-1 5.5</b> RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	> 1,000MΩ	<b>MIL-STD-202F Method 302</b> Apply 500V <sub>DC</sub> for 1 minute
Endurance	±(0.2%+0.05Ω)	<b>MIL-STD-202F Method 108A</b> 70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(0.2%+0.05Ω)	<b>MIL-STD-202F Method 103B</b> 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	<b>MIL-STD-202F Method 208H</b> 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)	<b>JIS-C-5201-1 5.8</b> 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	<b>JIS-C-5201-1 6.9</b> Trichroethane for 3 min. with ultrasonic

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