

## Extra Precision Network Resistors

### Ultra Precision Networks Take Accuracy Pole Position

#### ► Preview

Providing design engineers with an economical means of creating precision voltage dividers and set accurate amplifier gains for a wide range of applications, Token Electronics is offering its series of precision thin-film resistor networks.

Constructed with Token EE/RE 1/10 series to form a stable, high precision, and low temperature coefficient network resistors. The networks are protected from moisture by a proprietary passivation material.

Customer can specify Tolerance and Temperature Coefficient range designed to satisfy challenging and specific technical requirements. The resistance and TCR range makes these resistor networks ideal for a number of applications, including test and measurement devices, commercial avionics and medical equipment or devices. Other applications for the networks are instrumentation amplifiers, measurement bridge circuitry, data convertors and precision analogue circuits.

The thin-film resistor networks also can be designed with custom schematics to meet individual customer specifications. The networks provide excellent resistor precision and accuracy with resistor tolerances to  $\pm 0.01\%$ . They have TCR values to  $\pm 2\text{ppm}/^\circ\text{C}$ , providing superior performance over the military temperature range.

UPR Series equate IRC, EBG Precision Devices with fast delivery and more competitive price. For non-standard technical requirements and special applications, please contact us.

#### Applications :

- Bridge Circuitry.
- Precision Amplifiers.
- Test and Measurement.
- Medical, Precision Bypass.
- Simulation Equipment, Divider.
- High Precision Instrumentation.
- Audio (High End Stereo Equipment).
- Commercial Avionics, Data Convertors.

#### Features :

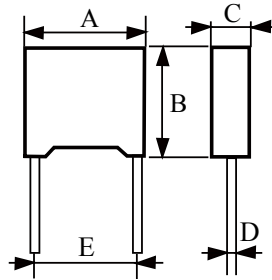
- Precision tolerance tight to  $T(\pm 0.01\%)$ .
- Superior TCR narrowed to C10 ( $\pm 2\text{ppm}/^\circ\text{C}$ ).
- Metal film precision networks, Lead (Pb)-free and RoHS compliant.
- Any value available within resistance range, excellent stability and reliability.

#### UPSC Versus UPR Series :

- UPSC Series have the advantage of compact body size.
- The electric characteristics of UPR and UPSC are the same.
- UPR Series have the advantage of wider resistance range  $10\Omega\sim 5\text{M}\Omega$ .



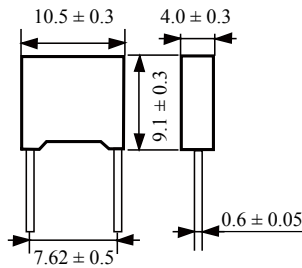
## ► Dimensions & Technical Characteristics



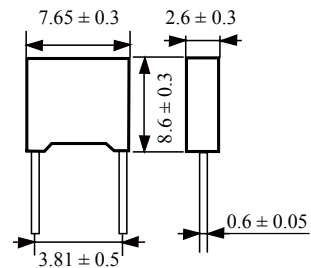
Dimensions (mm)	A	10.5 ± 0.3	
	B	9.1 ± 0.3	
	C	4.0 ± 0.3	
	D	0.6 ± 0.05	
	E	7.62 ± 0.5	
Working Temperature (°C)		-10 ~ +70	
Rated Wattage at 70°C (W)		0.25	
Maximum Working Voltage (V)		250	
Nominal Resistance Range (Ω)		10 ~ 5M	1K ~ 1M
Nominal Resistance Tolerance (%)		A2(±0.02), A5(±0.05), B(±0.1)	T(±0.01), A2(±0.02), A5(±0.05), B(±0.1)
Temperature Coefficient (ppm/°C) [TCR: +25°C ~ +85°C]		C9(±3), C7(±5), C6(±10), C5(±15), C3(±25)	C10(±2), C9(±3), C7(±5), C6(±10), C5(±15), C3(±25)

Remark: 1. Customer can specify Tolerance and Temperature Coefficient range to meet your own needs.  
2. It can be required to Token's representatives if customer's requirement beyonds the range of Token's specifications.

## ► UPSC Versus UPR Series



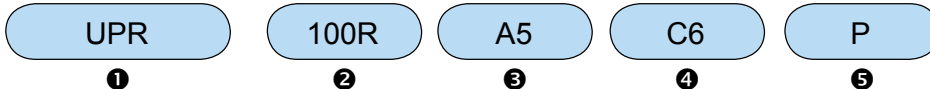
Extra Precision Network Resistor  
(UPR) Dimensions (Unit: mm)



Extra Precision Network Resistors  
(UPSC) Dimensions (Unit: mm)

Nominal Resistance Range (Ω)		Nominal Resistance Tolerance (%)	Temperature Coefficient (ppm/°C) [TCR: +25°C ~ +85°C]
UPR	UPSC		
10~5M	40~5M	A2 ± 0.02 A5 ± 0.05 B ± 0.1	C9 ± 3ppm/°C C7 ± 5ppm/°C C6 ± 10ppm/°C C5 ± 15ppm/°C C3 ± 25ppm/°C
1K~1M	1K~1M	T ± 0.01 A2 ± 0.02 A5 ± 0.05 B ± 0.1	C10 ± 2ppm/°C C9 ± 3ppm/°C C7 ± 5ppm/°C C6 ± 10ppm/°C C5 ± 15ppm/°C C3 ± 25ppm/°C

## ▶ (UPR) Resistance Value 10Ω ~ 5MΩ How to Order



❶ Part Number: UPR

❷ Resistance Value (Ω):

Code	Resistance Value (Ω)
10R	10Ω
100R	100Ω
1K	1KΩ
1K1	1.1KΩ
11K	11KΩ
1M1	1.1MΩ
10M	10MΩ

❸ Resistance Tolerance (%)

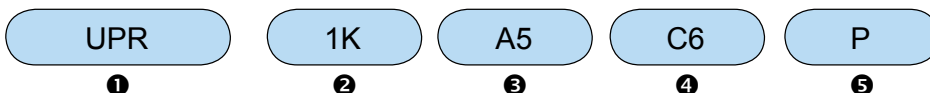
Code	Resistance Tolerance (%)
A2	±0.02%
A5	±0.05%
B	±0.10

❹ Temperature Coefficient (ppm/°C)

Code	Temperature Coefficient (ppm/°C)
C3	±25ppm/°C
C5	±15ppm/°C
C6	±10ppm/°C
C7	±5ppm/°C
C9	±3ppm/°C

❺ Package: P (Bulk)

## ▶ (UPR) Resistance Value 1KΩ ~ 1MΩ How to Order



❶ Part Number: UPR

❷ Resistance Value (Ω):

Code	Resistance Value (Ω)
1K	1KΩ
1K1	1.1KΩ
11K	11KΩ
110K	110KΩ
1M	1MΩ

❸ Resistance Tolerance (%)

Code	Resistance Tolerance (%)
T	±0.01%
A2	±0.02%
A5	±0.05%
B	±0.10%

❹ Temperature Coefficient (ppm/°C)

Code	Temperature Coefficient (ppm/°C)
C3	±25ppm/°C
C5	±15ppm/°C
C6	±10ppm/°C
C7	±5ppm/°C
C9	±3ppm/°C
C10	±2ppm/°C

❺ Package: P (Bulk)

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