



**(UAR) High Precision,  
High Frequency  
Resistors**

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## ► Product Introduction

### ||| Token's low noise precision resistors define accuracy.

#### Features :

- Very tight tolerances: down to A2( $\pm 0.02\%$ ).
- Exceptionally low noise; typically  $0.05 \mu\text{V/V}$ .
- 0.125 W to 0.33 W at  $85^\circ\text{C}$ , Electrical Insulation  $> 1000 \text{ M}\Omega$ .
- Very Low temperature coefficient:  $\pm 3, \pm 5, \pm 10$  and  $\pm 15 \text{ ppm}/^\circ\text{C}$ .
- Excellent high frequency performance, industrial grades, RoHS Compliant.

#### Applications :

- All General Purpose Applications,
- Medical Electronics, Current Pulse Limiters,
- Precision Instruments,
- Telecom, Test and Measurement.

The high precision (UAR) resistor represents a significant technical advancement in resistive technology, combining low temperature coefficients with high environmental stabilities, and high frequency performance.

Laser beam trimming gives tolerance accuracies from 0.02 % to 1 %.

The precision (UAR) range effectively bridges the gap that has hitherto existed between the high precision, high stability networks or wire wound technology and conventional film technology.

Full lines equate Vishay, IRC, Ohmite, Caddock, and Panasonic precision resistors with fast delivery and more competitive price.

The metal film series is RoHS compliant with Pb-free terminations. Detailed specifications, both mechanical and electrical, please contact our sales representative. Besides, you can link to Token official website "[Precision Resistors](http://www.token.com.tw)" to get more information.

#### **Mil-Std-202 Standard:**

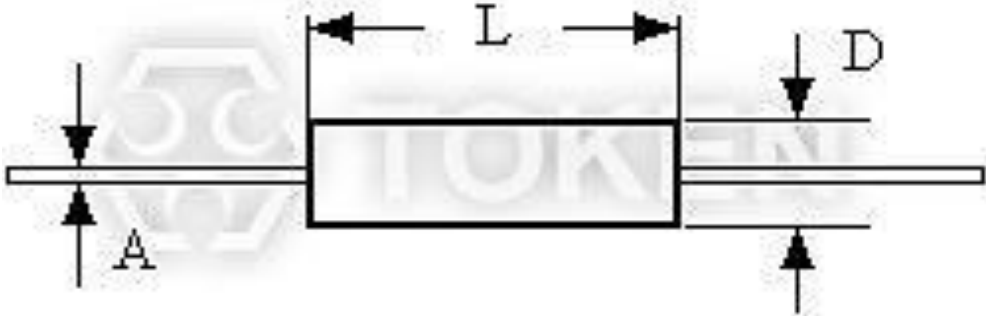
This standard establishes uniform methods for testing electronic and electrical component parts, including basic environmental tests to determine resistance to deleterious effects of natural elements and conditions surrounding military operations, and physical and electrical tests.



## ► Dimensions & Technical Characteristics

### Dimensions & Technical Characteristics (UAR)

Type		UAR1/4	UAR1/8	UAR1/10
Power Rating at 85°C (W)		0.33	0.25	0.125
Max. Working Voltage (V)		300	300	300
Resistance Range (Ω)		500.0~1.0M	100.0~1.0M	100.0~1.0M
Dimensions (Unit: mm)	L±0.3	14.8	10.0	6.8
	D±0.3	5.2	3.7	2.5
	A±0.05	0.60	0.60	0.60

(UAR) Dimensions

## ► Specification

### Specification (UAR)

Tolerance:	±0.02, ±0.05, ±0.10, ±0.25, ±0.5, ±1.0%
Temp. Coefficient:	±3, ±5, ±10, ±15ppm/°C
Standard Temperature Characteristic:	+25 to 85 °C
On Request:	-10 to +85 °C
Noise:	less than 0.05 μV/V
Voltage Coefficient:	less than 0.02 ppm/V
Non Linearity (3. Harm):	more than (-100)dB
Thermal Voltage to Copper:	1 ~ 3 μV/°C
Isolations Resistance:	10 <sup>10</sup> Ω

## ▶ Tests According MIL-STD-202

### Tests According MIL-STD-202 (UAR)

Temperature Cycling:	0.02%
Low Temp. Operation:	0.013%
Short Time Overload:	0.01%
Dielectric Strength:	0.01%
Load Life:	0.04%
Resistance to Soldering Heat:	0.012%
Moisture Test:	0.050%
Shock and Vibrations Test:	0.015%

## ▶ Order Codes

### Order Codes (UAR)

UAR1/8	210R		B		C6		P	
Part Number	Resistance Value (Ω)		Resistance Tolerance (%)		Temperature coefficient (PPM/°C)		Package	
UAR1/4	210R	210	A2	±0.02	C5	±15	P	Bulk
UAR1/8	2K1	2.1K	A5	±0.05	C6	±10		
UAR1/8	21K	21K	B	±0.10	C7	±5		
UAR1/10			C	±0.25	C9	±3		
			D	±0.5				
			F	±1.0				



## ► General Information

### High Precision Devices Made in Token

Token is equipped to design and produce custom components to meet many design and reliability demands.

Token's line of high-reliability and precision products reflects a long-term commitment to our industrial and military customers. In addition to standard industry-grade resistor products, we also have many resistive products designed to meet various military source-controlled drawings.

We continually strive to meet the changing application requirements of the markets by developing new products and manufacturing technologies on an on-going basis.

### Enhanced Precision and Stability for Low-Cost Uses

Every component Token provides to the commercial, industrial, and military markets for cost-efficiency uses is backed by the comprehensive testing and failure analysis capabilities of our own technical staff, whom are industrial experts in understanding and meeting the requirements of the environment.

### Low TCR - Fast Approach to a Steady State

Token Electronics provides a precision Temperature Coefficient of Resistance TCR as low as 2 ppm/°C, If you must guarantee a smaller resistance change in your application. TCR is the best known parameter used to specify a resistor's stability, and is used to depict the resistive element's sensitivity to temperature change due to ambient temperature variations.

A resistor's TCR tells how much its value changes as its temperature changes. It is usually expressed in ppm/°C (parts per million per degree Centigrade) units.

### Long-Term Proven Service

Our technical expertise, our knowledge of the industry, our broad product offering, and our ability to work long-term are all part of Token's ongoing commitment to meeting the changing requirements of our most reliability-conscious customer, today and in the future.

