Version:
December 1, 2022

Mold Military-Qualified Resistive Precision Resistor (RN)

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Product Introduction

Military-qualified resistive precision resistors meet most demanding specs.

Features :

- Very low noise.
- Precision tight tolerances to B (±0.10%).
- Military/Established Reliability and stability.
- Wide resistance ranges from 10Ω to 5MΩ.
- Controlled temperature coefficient to E (±25 ppm/℃).
- Covers all general type precision resistive products.
- Lead (Pb)-free and RoHS compliant.

Applications :

- Industrial process control systems,
- Measuring and calibration equipment,
- Telecom, Precision Instruments, Avionics,
- Test and measurement, Medical electronics.

Token (RN) series can be specified for all ultra-precision electronics designs, as well as a complete selection of MIL-PRF-55182 and GJB244A-2001 quality standards.

Production is strictly controlled and follows an extensive set of instructions established for reproducibility. A homogeneous film of metal alloy is deposited on a high grade ceramic body and conditioned to achieve the desired temperature stability.

Nickel plated steel terminations are firmly pressed on the metallized rods. A special laser is used to achieve the target value by smoothly cutting in the resistive layer without damaging the ceramics. A further conditioning is applied in order to stabilize the trimming result.

After a helical groove has been cut in the resistive layer, tinned connecting wires of electrolytic copper are welded to the end-caps. The resistors are moulded into cylinder shape which provides electrical, mechanical, and climatic protection.

Products equate Vishay, Ohmite, Caddock, IRC, EBG, and Panasonic Precision Devices with more competitive price and fast delivery. Commercial alternatives to military styles are available with higher power ratings. Detailed high precision (RN) specifications, both mechanical and electrical, contact our sales representative or link to Token official website "Precision Resistors" for more information.

Production Standard:
This is made referencing to Chinese National Quality Standard GJB244A-2001 standards and USA Military/Established Reliability MIL-PRF-55182 in environmental and dimensional requirements.

Power Rating:

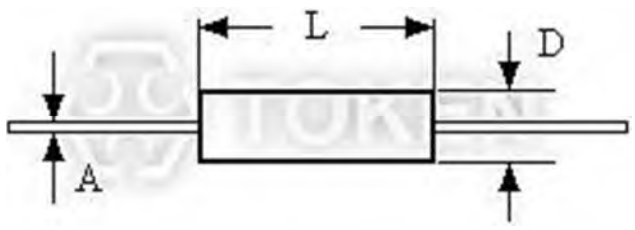
Power ratings are based on the following two conditions,

- ± 2.0 % maximum ΔR in 10 000 h load life.
- + 175℃ maximum operating temperature.

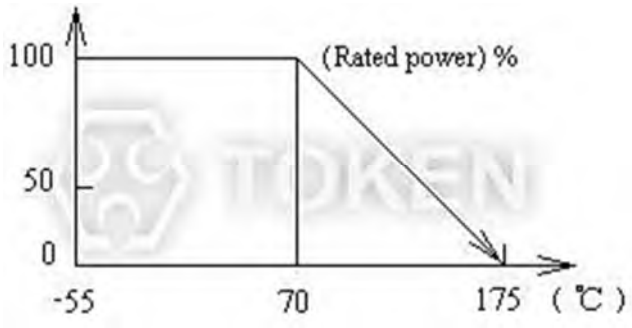
Dimensions & Technical Characteristics

Dimensions & Technical Characteristics (RN)

TYPE		RN55	RN60	RN65	RN70
Rated Wattage (W)	70℃	0.125 (1/8W)	0.25 (1/4W)	0.5 (1/2W)	1W
	125℃	0.1	0.125	0.25	0.5
Max. Working Voltage (V)		200	250	300	350
Dimensions (Unit: mm)	L ± 0.3	6.8	10.0	15.1	18.4
	D ± 0.4	2.5	3.8	5.2	6.5
	A ± 0.05	0.60	0.60	0.60	0.80
MIL-Approved Resistance Range (Ω)		10Ω ~ 3MΩ	10Ω ~ 3MΩ	10Ω ~ 3MΩ	10Ω ~ 5MΩ
AWG Wire No.		22	22	22	20
Working Temperature Range		-55℃ ~ +175℃			
Nominal Resistance Tolerance		B(±0.10%), C(±0.25%), D(±0.50%), F(±1.00%)			
Temperature Coefficient		C3(±25PPM/℃), C2(±50PPM/℃), C1(±100PPM/℃)			



Mold Type (RN) Dimensions



(RN) Power Derating Curve

- Remark: 1. Temperature Coefficient PPM can be low to ±5PPM/℃, if applications only need operation in narrow precise temperature range within -55℃ ~ +175℃. Please contact Token Representatives.
- 2. Please contact Token's Representatives if your requirement is not in above range.

Mechanical and Electrical Test Conditions

Mechanical and Electrical Test Conditions (RN)

Type	Item	Method	Requirement
Long Period	Life Time	GJB244A (MIL-PRF-55182) 4.8.18 Rated Wattage,125℃,2000h,10000h	GJB244A (MIL-PRF-55182) 3.24 ΔR≤±(0.5%R+0.01Ω) ΔR≤±(2%R+0.01Ω)
	Humidity	GJB244A (MIL-PRF-55182) 4.8.18 -10℃ ~ +65℃, RH<90% Rated Wattage, Cycle 240h.	GJB244A (MIL-PRF-55182) 3.21 ΔR≤±(0.4%R+0.01Ω)
	High Temp. Exposed	GJB244A 4.8.19 175℃ 2000h	GJB244A (MIL-PRF-55182) 3.25 ΔR≤±(2.0%R+0.01Ω)
Short Period	Dielectric Voltage	GJB244A (MIL-PRF-55182) 4.8.12/4.8.23/4.8.10	GJB244A (MIL-PRF-55182) 3.18/3.29/3.16 ΔR≤±(0.15%R+0.01Ω) no physical damage, arc, isolation break through
	Lead Strength, Impact, High Frequency Vibration	GJB244A (MIL-PRF-55182) 4.8.11/4.8.16/4.8.17	GJB244A (MIL-PRF-55182) 3.17/3.22/3.23 ΔR≤±(0.20%R+0.01Ω) no physical damage
	Solderability	GJB244A (MIL-PRF-55182) 4.8.14	GJB244A (MIL-PRF-55182) 3.20 ΔR≤±(0.10%R+0.01Ω) no physical damage

Order Codes

Order Codes (RN)

RN65	0.5W	10R	D	C2	P

Part Number
RN55
RN60
RN65
RN70

Rated Power (W)		
RN55	70℃	0.125
RN60		0.25
RN65		0.5
RN70		0.75
RN55	125℃	0.1
RN60		0.125
RN65		0.25
RN70		0.5

Resistance Value (Ω)	
10R	10
100R	100
1K1	1.1K
11K	11K
110K	110K
1M	1M

Resistance Tolerance (%)	
B	±0.10
C	±0.25
D	±0.50
F	±1.00

Temperature coefficient (PPM/℃)	
C1	±100
C2	±50
C3	±25

Package	
P	Bulk

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/℃, 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/℃ (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.