

Metal Film High Precision Resistor

Military/Established Resistors Meet Most Demanding Specs

► Preview

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 metallised 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 stabilise 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, Panasonic Precision Devices with more competitive price and fast delivery. Commercial alternatives to military styles are available with higher power ratings.

Detailed precision RN specifications, both mechanical and electrical, please contact our sales representative for more information.

Production Standard :

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

Features :

- Very low noise.
- Lead (Pb)-free and RoHS compliant.
- Precision tight tolerances to B ($\pm 0.10\%$).
- Covers all general type precision resistors.
- Military/Established Reliability and stability.
- Wide resistance ranges from 10.0Ω to $1.0M\Omega$.
- Controlled temperature coefficient to E (± 25 ppm/ $^{\circ}C$).

Applications :

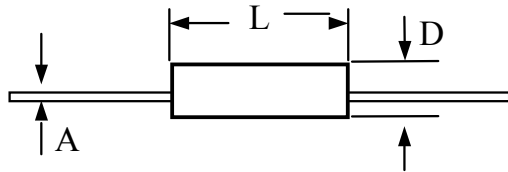
- Industrial process control systems,
- Measuring and calibration equipment,
- Telecom, Precision Instruments, Avionics,
- Test and measurement, Medical electronics.



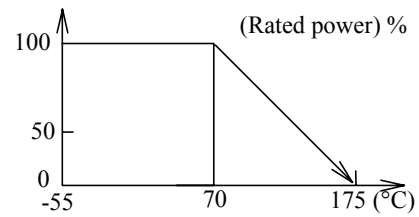
Power Rating :

- Power ratings are based on the following two conditions,
- $\pm 2.0\%$ maximum ΔR in 10 000 h load life.
 - $+ 175^{\circ}C$ maximum operating temperature.

► Dimensions & Technical Characteristics



High Precision Resistors (RN) Dimensions



Metal Film (RN) Power Derating Curve

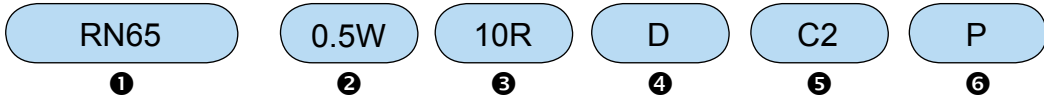
TYPE		RN50	RN55	RN60	RN65	RN70
Rated Wattage (W)	70°C	0.067	0.125	0.250	0.500	0.750
	125°C	0.050	0.100	0.125	0.250	0.500
Max. Working Voltage (V)		200	200	250	300	350
Dimensions (mm)	L ± 0.3	3.9	6.8	10.0	14.8	18.3
	D ± 0.4	1.8	2.5	3.7	5.2	6.5
	A ± 0.05	0.45	0.60	0.60	0.60	0.81
MIL-Approved Resistance Range (Ω)		10.0 ~ 100K	49.9 ~ 100K	49.9 ~ 499K	49.9 ~ 1.0M	24.9 ~ 1.0M
AWG Wire No.		26	22	22	22	20
Working Temperature Range		-55°C ~ +175°C				
Nominal Resistance Tolerance		B(±0.10%), C(±0.25%), D(±0.50%), F(±1.00%)				
Temperature Coefficient		C3(±25PPM/°C), C2(±50PPM/°C), C1(±100PPM/°C)				

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

► Periodical Inspection Items and Methods

Type	Item	Method	Requirement
Long Period	Life time	GJB244A (MIL-PRF-55182) 4.8.18 Rated Wattage, 125°C, 2000h 10000h	GJB244A (MIL-PRF-55182) 3.24 $\Delta R \leq \pm(0.5\%R + 0.01\Omega)$ $\Delta R \leq \pm(2\%R + 0.01\Omega)$
	Humidity	GJB244A (MIL-PRF-55182) 4.8.18 -10°C ~ +65°C, RH < 90% Rated Wattage, Cycle 240h.	GJB244A (MIL-PRF-55182) 3.21 $\Delta R \leq \pm(0.4\%R + 0.01\Omega)$
	High temp exposed	GJB244A 4.8.19 175°C 2000h	GJB244A (MIL-PRF-55182) 3.25 $\Delta R \leq \pm(2.0\%R + 0.01\Omega)$
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 $\Delta R \leq \pm(0.15\%R + 0.01\Omega)$ 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 $\Delta R \leq \pm(0.20\%R + 0.01\Omega)$ no physical damage
	Solderability	GJB244A (MIL-PRF-55182) 4.8.14	GJB244A (MIL-PRF-55182) 3.20 $\Delta R \leq \pm(0.10\%R + 0.01\Omega)$ no physical damage

How to Order



① Part Number: RN50, RN55,
RN60, RN65,
RN70.

② Rated Power (W)

Code	Temperature	Rated Power (W)
RN50	70 °C	0.067
RN55		0.125
RN60		0.250
RN65		0.500
RN70		0.750
RN50	125 °C	0.050
RN55		0.100
RN60		0.125
RN65		0.250
RN70		0.500

③ Resistance Value (Ω):

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

④ Resistance Tolerance (%)

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

⑤ Temperature Coefficient (ppm/°C)

Code	Temperature Coefficient (ppm/°C)
C1	±100ppm/°C
C2	±50ppm/°C
C3	±25ppm/°C

⑥ Packaging: P (Bulk)

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