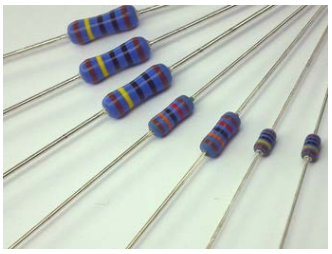
Features:

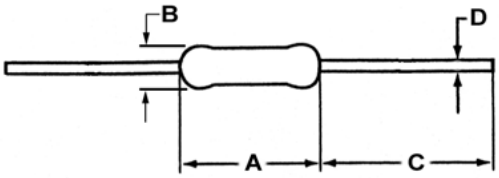
- Miniature metal film for tight size constraints
- Superior electrical, TCR performances
- Flameproof silicone coating is standard
- 1-watt part in 1/4-watt package,
  2-watt part in 1/2-watt package,
  ½-watt part in 1/8-watt package
- RoHS compliant



Electrical Specifications

Type / Code	Power Rating (Watts) @ 70ºC	Maximum Working Voltage (1)	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance		
					0.5%	1%	5%
RNS12	0.5W	400V	600V	±50 ppm/ºC ±100 ppm/ºC ±200 ppm/ºC	100 - 511K	10 - 1M	10 - 1M
RNS1	1W	500V	700V	±50 ppm/ºC ±100 ppm/ºC ±200 ppm/ºC	100 - 511K	10 - 1M	10 - 1M
RNS2	2W	600V	800V	±50 ppm/ºC ±100 ppm/ºC ±200 ppm/ºC	100 - 511K	10 - 1M	10 - 1M

(1) Rated voltage = √Power Rating x Nominal Resistance or Maximum Working Voltage, whichever is lower



Mechanical Specifications

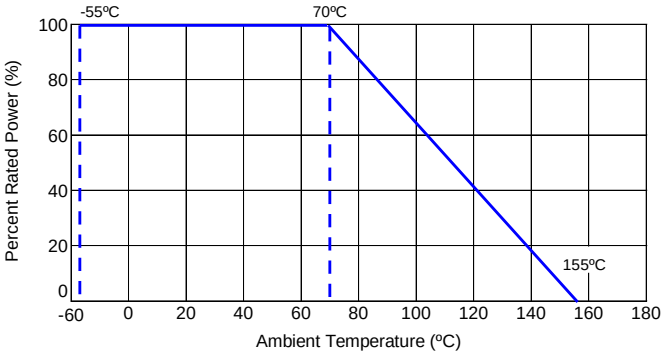
Type / Code	A Body Length	B Body Diameter	C Lead Length (Bulk)	D Lead Diameter	Unit
RNS12	0.126 ± 0.008 3.20 + 0.20 /-0	0.073 ± 0.008 1.85 ± 0.20	1.102 ± 0.118 28.00 ± 3.00	0.018 ± 0.002 0.45 ± 0.05	inches mm
RNS1	0.236 ± 0.012 6.00 ± 0.30	0.094 ± 0.008 2.40 ± 0.20	1.102 ± 0.118 28.00 ± 3.00	0.022 ± 0.002 0.55 ± 0.05	inches mm
RNS2	0.335 ± 0.020 8.50 ± 0.50	0.110 ± 0.012 2.80 ± 0.30	1.102 ± 0.118 28.00 ± 3.00	0.028 ± 0.002 0.70 ± 0.05	inches mm

Performance Characteristics

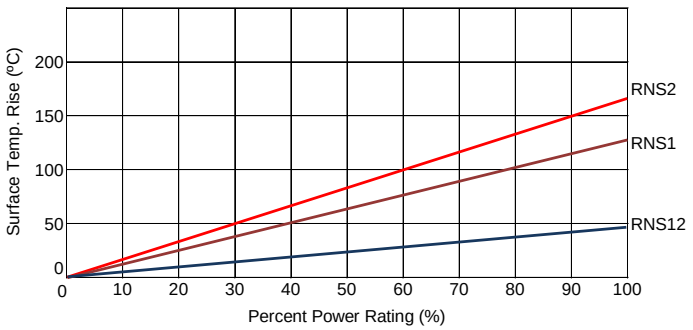
Item	Performance	Test Method
Temperature Coefficient of Resistance	± 50ppm/ºC ± 100ppm/ºC ± 200ppm/ºC	Measure resistance (R_0) at room temperature (t), after that, measure again the resistance (R) at 100ºC higher than room temperature $TCR = \frac{R - R_0}{R_0} X \frac{10^6}{(t + 100) - t} (ppm/ºC)$
Voltage Proof	1. Change of Resistance ≤±(0.5% + 0.05Ω)	Lay the resistor on the 90º angle metal V block and apply rated AC voltage for one minute.
Insulation Resistance	≥1,000 Mohm	Lay the resistor on the 90º angle metal V block and apply 500Vdc between V block and lead wire for a minute. The insulation resistance shall be measured while applying the voltage.

Performance Characteristics		
Item	Performance	Test Method
Solvent Resistance	There shall be no damage on the insulating surface.	Soak in a Isopropyl alcohol for 5 minutes. After drying up for 5 minutes, stress of 5N is added with absorbent cotton and it does by five round trips at the rate of one round trip a second.
Overload (Short Time)	Change of Resistance ≤±(1% + 0.05Ω)	Apply 2.5 times rated voltage or max. overload voltage whichever is lower for 5 seconds and leave in room temperature for one hour after test.
Robustness of Termination	Change of Resistance ≤±(0.2% + 0.05Ω)	Tensile: The body of the resistor is fixed, a static load is added in the direction of drawing out of the terminal, and it maintains it for 10 ± 1 seconds. Tensile strength: 10N Bend: Component body shall be fixed so that terminals are perpendicular to the floor. A static load specified below shall be applied to the terminal acting in a direction away from the body. The body of piezoelectric oscillator shall then be inclined through an angle of 90º in the vertical plane and then returned to its initial position in 2 or 3 seconds then the body shall be inclined to the reversed direction through an angle 90º and then returned to its initial position in 2 or 3 seconds. Bending strength: 5N
Resistance to Soldering Heat	Change of Resistance ≤±(0.3% + 0.05Ω)	Dip the lead into a solder bath having a temperature of 260ºC ± 5ºC up to 1.5±0.5 mm from the body of the resistors and hold it for 10± 0.5 seconds and leave in room temperature for one hour after test.
Solderability	More than 95% of the surface of the lead shall be covered by new solder.	Dip the lead into a solder bath having a temperature of 245±5ºC up to 1.5±0.5 mm from the body of the resistors and hold it form 5±0.5 seconds.
Rapid Change of Temperature	Change of Resistance ≤±(1% + 0.05Ω)	The resistor shall be subjected to 5 continuous cycles, each as show in the table below: 1 – Minimum Operating Temperature – 30 min. 2 – Standard Athmospheric Condition – ≤30 sec. 3 – Max Operating Temperature – 30 min. 4 – Standard Atmospheric Condition – ≤30 sec.
Vibration	Change of Resistance ≤±(0.5% + 0.05Ω)	Apply 1.5mm amplitude vibration to three directions perpendicular to each other 2 hours each, total 6 hours. Vibrating frequency is 10Hz-55Hz-10Hz cycle in 1 minute sweeping and repeat cycle.
Damp Heat, Steady State	Change of Resistance ≤±(3% + 0.05Ω)	In the chamber having temp. 40±2ºC and relative humidity 93±3%, apply one percent of the rated power, 1.5 hour ON, 0.5 hour OFF for 1000 hours and leave in room temperature for one hour after test.
Endurance at 70 ºC	Change of Resistance ≤±(3% + 0.05Ω)	At 70 ± 2ºC, apply rated DC voltage 1.5 hour ON, 0.5 hour OFF for 1000 hours and leave in room temperature for one hour after test.

Power Derating Curve:



Heat Rise:



How to Order

1	2	3	4	5	6	7	8	9	10	11
R	**N**	**S**	**1**	**F**	**T**	**D**	**4**	**K**	**7**	**5**

Product Series	
RNS	Ultra Mini

Size	Power
12	0.5W
1	1W
2	2W

Tolerance		
Code	Tol	Value
D	0.5%	E96
F	1%	E96, E24
J	5%	E24

Packaging			
Code	Description	Size	Quantity
T	Tape and Reel	RNS12, RNS1	5,000
		RNS2	2,500
A	Ammo	RNS12	5,000
		RNS1, RNS2	2,000
B	Bulk	RNS12, RNS1, RNS2	1,000

TCR	
Code	ppm
C	50
D	100
L	200

Resistance Value
Four characters with the multiplier used as the decimal holder.
100 ohms = 100R 10.2 Kohm = 10K2 1 Mohm = 1M00