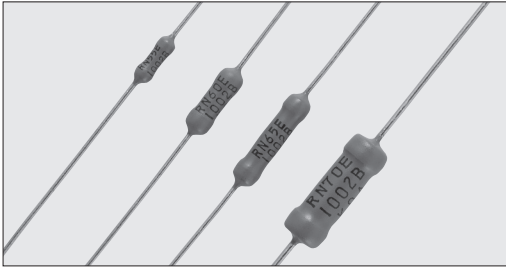
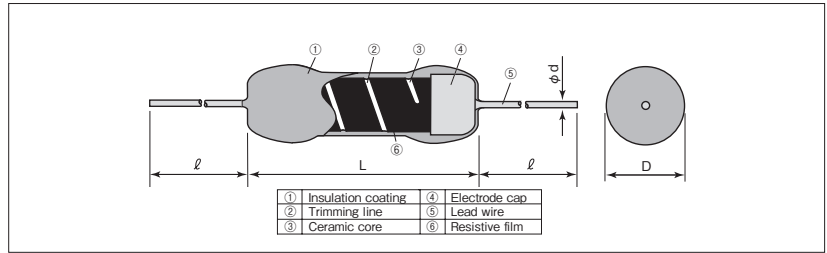


## RNS Coat-Insulated Precision Fixed Metal Film Resistors



Coating color : Light gray  
Marking : Alphanumeric

### Construction



### Features

- High precision resistors with resistance tolerance  $\pm 0.1\%$  and T.C.R.  $\pm 5 \times 10^{-6}/K$ .
- Excellent long term stability in resistance value.
- Automatic insertion is applicable.
- Products meet EU-RoHS requirements.
- AEC-Q200 Qualified (RNS1).

### Standard Approved

MIL-R-10509G standard (USA)

### Dimensions

Type	Dimensions (mm)				Weight (g/1000pcs)
	L $\pm 1$	D $\pm 0.5$	d (Nominal)	$l \pm 3^*$	
RNS1/8	6.4	2.3	0.6	38	260
RNS1/4	9.5	3.5			440
RNS1/2	13.5	3.5			530
RNS1	15.5	5.5	0.8		1400

\* Lead length changes depending on taping and forming type.

### Type Designation

Example

RNS	1/8	E	C	T52	A	1003	B
Product Code	Power Rating	T.C.R. ( $\times 10^{-6}/K$ )	Termination Surface Material	Taping & Forming	Packaging	Nominal Resistance	Resistance Tolerance
	1/8 : 0.125W 1/4 : 0.25W 1/2 : 0.5W 1 : 1W	Y : $\pm 5$ T : $\pm 10$ E : $\pm 25$ C : $\pm 50$	C : SnCu	See table below	A : AMMO R : REEL Nil : BOX	4 digits	B : $\pm 0.1\%$ C : $\pm 0.25\%$ D : $\pm 0.5\%$ F : $\pm 1\%$

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

For further information on taping and forming, please refer to APPENDIX C on the back pages.

### Taping & Forming Matrix

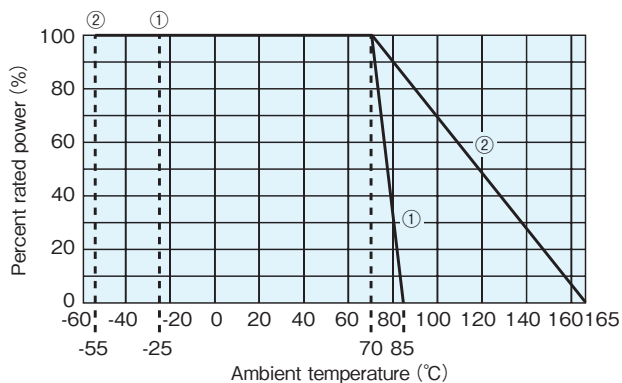
Type	Axial Taping			Radial Taping		
	T26	T52	T521	VT	VTP	VTE
RNS1/8	○	○	—	○	○	○
RNS1/4	—	○	—	—	—	—
RNS1/2	—	○	—	—	—	—
RNS1	—	—	○	—	—	—

### Ratings

Type	Power Rating	T.C.R. ( $\times 10^{-6}/K$ )	Resistance Range ( $\Omega$ )				Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Rated Ambient Temperature	Operating Temperature Range
			B : $\pm 0.1\%$ E24 · E192	C : $\pm 0.25\%$ E24 · E192	D : $\pm 0.5\%$ E24 · E192	F : $\pm 1\%$ E24 · E96					
RNS1/8 (RN55)	0.125W	Y : $\pm 5$	100~100k	100~100k	100~100k	100~100k	200V	400V	500V	70°C	-25°C ~ +85°C
		T : $\pm 10$	100~200k	100~200k	100~200k	100~200k					
		E : $\pm 25$ C : $\pm 50$	5.1~750k	5.1~1.62M	0.2~2M	0.2~2M					
RNS1/4 (RN60)	0.25W	E : $\pm 25$	5.1~1M	5.1~2M	0.2~2M	0.2~2M	250V	500V	700V	70°C	-55°C ~ +165°C
		C : $\pm 50$	5.1~1.5M		0.2~5.1M	0.2~5.1M					
RNS1/2 (RN65)	0.5W	E : $\pm 25$	5.1~1.5M	5.1~2M	0.2~2.4M	0.2~4.7M	300V	600V	700V	70°C	-55°C ~ +165°C
		C : $\pm 50$	5.1~2M	5.1~2.4M	0.2~5.1M	0.2~5.1M					
RNS 1 (RN70)	1W	E : $\pm 25$	5.1~2M	5.1~2.4M	0.2~5.1M	0.2~5.1M	350V	700V	1000V	70°C	-55°C ~ +165°C
		C : $\pm 50$	5.1~2.4M		0.2~5.1M	0.2~6.8M					

Rated voltage =  $\sqrt{\text{Power Rating} \times \text{Resistance value}}$  or Max. working voltage, whichever is lower.

## Derating Curve



① T.C.R. : Y ( $\pm 5 \times 10^{-6}/K$ ), T ( $\pm 10 \times 10^{-6}/K$ )

② T.C.R. : E ( $\pm 25 \times 10^{-6}/K$ ), C ( $\pm 50 \times 10^{-6}/K$ )

For resistors operated at an ambient temperature of 70°C or higher, the power shall be derated in accordance with the above derating curve.

## Performance

Test Items	Performance Requirements $\Delta R \pm (\% + 0.05\Omega)$		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	Y, T : +25°C/+65°C E, C : +25°C/+125°C
Overload (Short time)	0.25	0.15	Rated voltage $\times 2.5$ or Max. overload vol., whichever is lower, for 5s.
Resistance to soldering heat	0.2	0.075	350°C $\pm 10^\circ\text{C}$ , 3.5s $\pm 0.5\text{s}$
Rapid change of temperature	0.2	0.075	-55°C (30min.) / +85°C (30min.) 5 cycles
Moisture resistance	0.75	0.5	40°C $\pm 2^\circ\text{C}$ , 90%~95%RH, 1000h 1.5h ON/0.5h OFF cycle
Endurance at 70°C	0.5	0.35	70°C $\pm 2^\circ\text{C}$ , 1000h 1.5h ON/0.5h OFF cycle

## Precautions for Use

- Ionic impurities such as flux etc. that are attached to these products or those mounted onto a PCB, negatively affect their moisture resistance, corrosion resistance, etc. The flux may contain ionic substances like chlorine, acid, etc. Please wash them to get rid of these ionic substances especially when using lead-free solder that may contain much of the said substances for improving a wetting characteristic. Using RMA solder or RMA flux, or well-washing is needed. Also, attaching ionic substances such as perspiration, salt etc. by storage environments or mounting conditions/environments negatively affects their moisture resistance, corrosion resistance etc. Please wash them to remove the ionic substances when they are polluted.