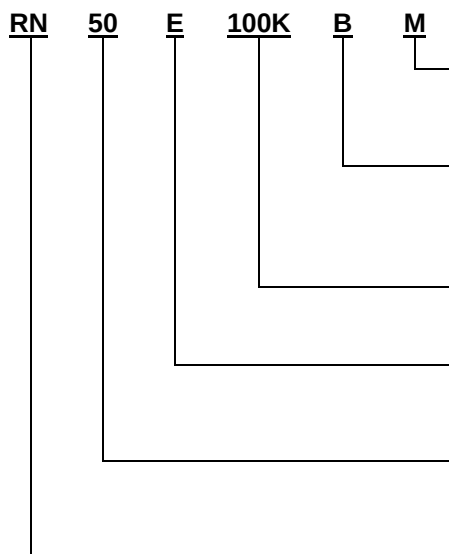


Custom solutions are available.

## HOW TO ORDER:



### Packaging

M = Tape ammo pack (1,000)  
B = Bulk (100)

### Resistance Tolerance

B =  $\pm 0.10\%$  F =  $\pm 1\%$   
C =  $\pm 0.25\%$  G =  $\pm 2\%$   
D =  $\pm 0.50\%$  J =  $\pm 5\%$

### Resistance Value

e.g. 100K, 62R2, 30K1

### Temperature Coefficient (ppm)

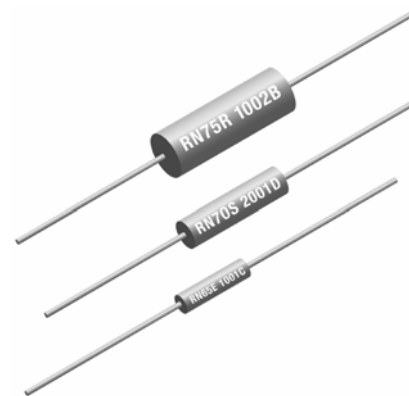
R =  $\pm 5$  E =  $\pm 25$  J =  $\pm 100$   
S =  $\pm 10$  C =  $\pm 50$

### Style/Length (mm)

50 = 3.8 60 = 10.5 70 = 20.0  
55 = 6.6 65 = 16.0 75 = 28.0

### Series

Molded Metal Film Precision



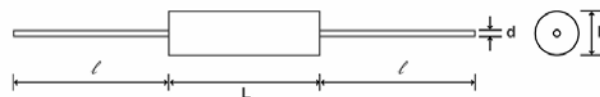
## FEATURES

- High Stability
- Tight TCR to  $\pm 5\text{ppm}/^\circ\text{C}$
- Wide Ohmic Range
- Tight Tolerances up to  $\pm 0.1\%$
- Applicable Specifications: JISC 5722, MIL-R-10509F, F-4, CECC 4001-044

## DIMENSIONS (mm)

| Type | L              | D              | l          | d              |
|------|----------------|----------------|------------|----------------|
| RN50 | $3.8 \pm 0.5$  | $1.8 \pm 0.2$  | $30 \pm 3$ | $0.4 \pm 0.05$ |
| RN55 | $6.6 \pm 0.5$  | $3.4 \pm 0.2$  | $38 \pm 3$ | $0.6 \pm 0.05$ |
| RN60 | $10.5 \pm 0.5$ | $3.9 \pm 0.2$  | $38 \pm 3$ | $0.6 \pm 0.05$ |
| RN65 | $16.0 \pm 0.5$ | $5.3 \pm 0.3$  | $38 \pm 3$ | $0.6 \pm 0.05$ |
| RN70 | $20.0 \pm 0.5$ | $7.0 \pm 0.5$  | $38 \pm 3$ | $0.8 \pm 0.05$ |
| RN75 | $28.0 \pm 0.5$ | $10.0 \pm 0.5$ | $38 \pm 3$ | $0.8 \pm 0.05$ |

## SCHEMATIC



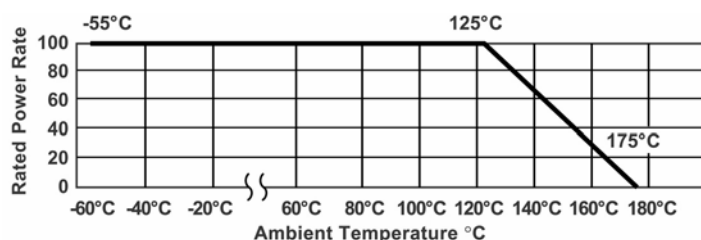
## STANDARD ELECTRICAL SPECIFICATION

| Series | Power Rating (Watts) |                      | Max Working Voltage |                      | Max Overload Voltage | TCR (ppm/ $^\circ\text{C}$ ) | Resistance Value Range ( $\Omega$ ) in Tolerance (%) |              |              |              |              |              |
|--------|----------------------|----------------------|---------------------|----------------------|----------------------|------------------------------|------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|
|        | 70 $^\circ\text{C}$  | 125 $^\circ\text{C}$ | 70 $^\circ\text{C}$ | 125 $^\circ\text{C}$ |                      |                              | $\pm 0.1\%$                                          | $\pm 0.25\%$ | $\pm 0.5\%$  | $\pm 1\%$    | $\pm 2\%$    | $\pm 5\%$    |
| RN50   | 0.10                 | 0.05                 | 200                 | 200                  | 400                  | 5, 10                        | 49.9 ~ 200K                                          | 49.9 ~ 200K  | 49.9 ~ 200K  | 49.9 ~ 200K  | 49.9 ~ 200K  | 49.9 ~ 200K  |
|        |                      |                      |                     |                      |                      | 25, 50, 100                  | 49.9 ~ 200K                                          | 30.1 ~ 200K  | 10.0 ~ 200K  | 10.0 ~ 200K  | 10.0 ~ 200K  | 10.0 ~ 200K  |
| RN55   | 0.125                | 0.10                 | 250                 | 200                  | 400                  | 5                            | 49.9 ~ 301K                                          | 49.9 ~ 301K  | 49.9 ~ 301K  | 49.9 ~ 301K  | 49.9 ~ 301K  | 49.9 ~ 301K  |
|        |                      |                      |                     |                      |                      | 10                           | 49.9 ~ 397K                                          | 30.1 ~ 397K  | 30.1 ~ 397K  | 30.1 ~ 397K  | 30.1 ~ 397K  | 30.1 ~ 397K  |
|        |                      |                      |                     |                      |                      | 25, 50, 100                  | 10.0 ~ 511K                                          | 10.0 ~ 511K  | 10.0 ~ 511K  | 10.0 ~ 511K  | 10.0 ~ 511K  | 10.0 ~ 511K  |
| RN60   | 0.25                 | 0.125                | 300                 | 250                  | 500                  | 5                            | 49.9 ~ 301K                                          | 49.9 ~ 301K  | 49.9 ~ 301K  | 49.9 ~ 301K  | 49.9 ~ 301K  | 49.9 ~ 301K  |
|        |                      |                      |                     |                      |                      | 10                           | 49.9 ~ 511K                                          | 30.1 ~ 511K  | 30.1 ~ 511K  | 30.1 ~ 511K  | 30.1 ~ 511K  | 30.1 ~ 511K  |
|        |                      |                      |                     |                      |                      | 25, 50, 100                  | 10.0 ~ 1.00M                                         | 10.0 ~ 1.00M | 10.0 ~ 1.00M | 10.0 ~ 1.00M | 10.0 ~ 1.00M | 10.0 ~ 1.00M |
| RN65   | 0.50                 | 0.25                 | 350                 | 300                  | 600                  | 5                            | 49.9 ~ 397K                                          | 49.9 ~ 397K  | 49.9 ~ 397K  | 49.9 ~ 397K  | 49.9 ~ 397K  | 49.9 ~ 397K  |
|        |                      |                      |                     |                      |                      | 10                           | 49.9 ~ 1.00M                                         | 30.1 ~ 1.00M | 30.1 ~ 1.00M | 30.1 ~ 1.00M | 30.1 ~ 1.00M | 30.1 ~ 1.00M |
|        |                      |                      |                     |                      |                      | 25, 50, 100                  | 10.0 ~ 1.00M                                         | 10.0 ~ 1.00M | 10.0 ~ 1.00M | 10.0 ~ 1.00M | 10.0 ~ 1.00M | 10.0 ~ 1.00M |
| RN70   | 0.75                 | 0.50                 | 400                 | 350                  | 700                  | 5                            | 49.9 ~ 511K                                          | 49.9 ~ 511K  | 49.9 ~ 511K  | 49.9 ~ 511K  | 49.9 ~ 511K  | 49.9 ~ 511K  |
|        |                      |                      |                     |                      |                      | 10                           | 49.9 ~ 3.52M                                         | 30.1 ~ 3.52M | 30.1 ~ 3.52M | 30.1 ~ 3.52M | 30.1 ~ 3.52M | 30.1 ~ 3.52M |
|        |                      |                      |                     |                      |                      | 25, 50, 100                  | 10.0 ~ 5.11M                                         | 10.0 ~ 5.11M | 10.0 ~ 5.11M | 10.0 ~ 5.11M | 10.0 ~ 5.11M | 10.0 ~ 5.11M |
| RN75   | 1.50                 | 1.00                 | 600                 | 500                  | 1000                 | 5                            | 100 ~ 301K                                           | 100 ~ 301K   | 100 ~ 301K   | 100 ~ 301K   | 100 ~ 301K   | 100 ~ 301K   |
|        |                      |                      |                     |                      |                      | 10                           | 49.9 ~ 1.00M                                         | 49.9 ~ 1.00M | 49.9 ~ 1.00M | 49.9 ~ 1.00M | 49.9 ~ 1.00M | 49.9 ~ 1.00M |
|        |                      |                      |                     |                      |                      | 25, 50, 100                  | 49.9 ~ 5.11M                                         | 49.9 ~ 5.11M | 49.9 ~ 5.11M | 49.9 ~ 5.11M | 49.9 ~ 5.11M | 49.9 ~ 5.11M |

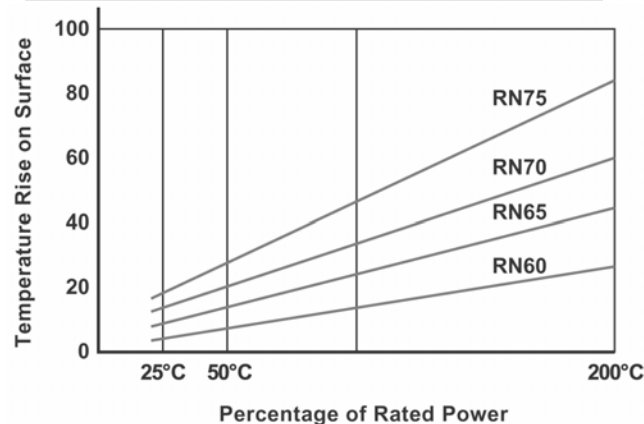
## CHARACTERISTICS

| ITEM                             | TEST METHOD                                                                        | REQUIREMENTS      |
|----------------------------------|------------------------------------------------------------------------------------|-------------------|
| Operating Temperature Range      |                                                                                    | -55°C to +175°C   |
| Short Time Overload              | 2.5 x rated voltage @ 5 seconds                                                    | ± (0.1% + 0.01Ω)  |
| Insulation Resistance            | 100V or 500V for 1 minute                                                          | 100G Ω            |
| Dielectric Withstanding Voltage  | RN50, 55, 60: 450V<br>RN65, 70, 75: 900V } for 1 minute                            | ± (0.1% + 0.01Ω)  |
| Terminal Strength                | Pull 10 seconds, RN50: 5N, RN55, 60, 65: 10N, RN70, 75: 25N<br>Twist 360°, 5 times | ± (0.02% + 0.01Ω) |
| Vibration                        | 10 to 2,000Hz, 1.5 mm or 20G, 2 directions<br>Total 8 hours                        | ± (0.1% + 0.01Ω)  |
| Shock (Specified Pulse)          | Saw tooth, 100 G<br>2 directions, total 10 times                                   | ± (0.1% + 0.01Ω)  |
| Solderability                    | 230°C, 5 seconds                                                                   | 95% or more       |
| Resistance to Solder Heat        | 350 ± 10°C, 3 seconds                                                              | ± (0.05% + 0.01Ω) |
| Low Temperature Operation        | -65 <sup>+0.5</sup> °C, rated voltage 45 minutes                                   | ± (0.1% + 0.01Ω)  |
| Thermal Shock                    | -65 <sup>+0.5</sup> °C, -150°C for 5 cycles                                        | ± (0.1% + 0.01Ω)  |
| Moisture Resistance              | 65°C, 90 ~ 95% R.H. -10°C, 10 cycles                                               | ± (0.3% + 0.01Ω)  |
| Moisture Resistance to Load Life | 40°C, 90 ~ 95% R.H. rated voltage, 1,000 hours                                     | ± (0.2% + 0.01Ω)  |
| Load Life at 70°C                | 70°C, rated voltage, 1.5 hours on, 0.5 hours off, 1,000 hours                      | ± (0.2% + 0.01Ω)  |
| Load Life at 125°C               | 125°C, rated voltage, 1.5 hours on, 0.5 hours off, 1,000 hours                     | ± (0.3% + 0.01Ω)  |

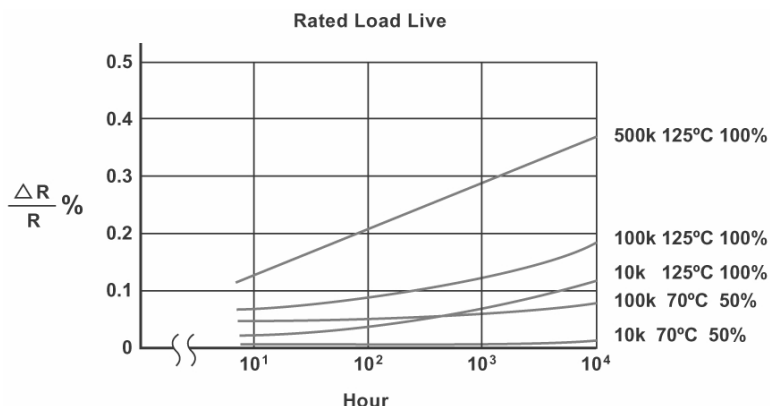
## DERATING CURVE



## TEMPERATURE RISE



## RATED LOAD LIFE



## NOISE LEVEL RESISTANCE

