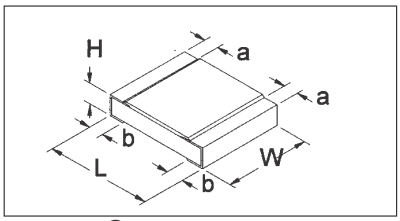
## Thin Film Chip Resistors




### FEATURES

- Surface Mount Devices (SMD)
- Precision Tolerances of ±0.5% to ±0.1%
- Temperature Coefficients of ±50ppm/°C and ±25ppm°C
- Precision Performance
- Space Saving Construction

### PERFORMANCE CHARACTERISTICS (Tested per Mil-STD-202)

Dimensions in mm

Electrical (Operating Temperature Range -55°C to +155°C)

| TYPE | Packaging Size | Power Rating (Watts) | Max. Working Voltage | Max. Overload Voltage | Resistance Temp. Coefficient | Resistance Range | Tolerance[1] |
|---|---|---|---|---|---|---|---|
| RN10 | 0805 | 1/8 @ 70°C | 150V | 300V | ±50ppm/°C<br>±25ppm/°C | 10Ohm - 787K<br>100Ohm - 100K | D = ±0.5%<br>C=±0.25%, B=±0.1% |
| RN12 | 1206 | 1/8@ 70°C | 150V | 300V | ±50ppm/°C<br>±25ppm/°C | 10Ohm - 787K<br>49.9Ohm - 1M | D = ±0.5%<br>C=±0.25%, B=±0.1% |

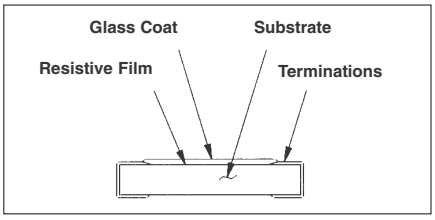
### ENVIRONMENTAL

| | Specification | Typical | Test Method |
|---|---|---|---|
| Moisture Resistance, Thermal Shock | ±(0.25%+0.05Ω) | ≤0.1% | JIS C 5202 7.4 |
| Load Life | ±(0.5%+0.05Ω) | ≤0.2% | JIS C 5202 7.10 |
| Load Life in Moisture | ±(0.5%+0.05Ω) | ≤0.25% | JIS C 5202 7.9 |
| Resistance to Soldering Heat | ±(0.25%+0.05Ω) | ≤0.05% | JIS C 5202 6.4, 260±5°C, 10 sec. |
| Solderability | min. 95% coverage | ≥95% | JIS C 5202 6.5 |
| Terminal Strength | ±(0.2%+0.05Ω) | ≤0.05% | EIAJ RC-2609A 6.6 |
| Dielectric Withstanding Voltage | ±(0.25%+0.05Ω) | ≤0.05% | EIAJ RC-2609A 6.5<br>Test Voltage: 10@ 150VAC, RN12 @ 300VAC |
| Short Time Overload | ±(0.25%+0.05Ω) | ≤0.05% | JIS C 5202 7.4 |
| Insulation Resistance | 1,000 meg minimum | ≥1,000 meg | EIAJ RC-2609A 6.36 |



### MATERIALS

| Feature | Material | Remarks (Reference Only) |
|---|---|---|
| Substrate | Alumina Porcelain | Purity 96% min. |
| Resistive Film | Nickel-Chromium Film | 20 Microns Thick |
| Coating | Boro-Silicated Acid Lead Glass | 20 Microns Thick |
| Terminations | 100% matte Tin (Electrical Plated) over | 3/5 Microns Thick |
| | Nickel (Electrical Plated) over | 3/8 Microns Thick |
| | AG-PD (Silver-Palladium [Glaze Printed]) | 8 Microns Thick |




Dimensions in mm

| Feature | RN10 | RN12 |
|---|---|---|
| L - Body Length | .078±.008 (2.00±0.20) | .122±.004 (3.10±0.10) |
| W - Body Width | .049±.008 (1.25±0.20) | .061±.004 (1.55±0.10) |
| H - Body Height | .018±.004 (0.45±0.10) | .021+.004/-.002 (0.55+0.10/-0.05) |
| a - Top Termination | .016±.008 (0.40±0.20) | .018±.008 (0.45±0.20) |
| b - Bottom Termination | .012±.008/-.004 (0.30+0.20/-0.10) | .012+.008/-.004 (0.30+0.20/-0.10) |

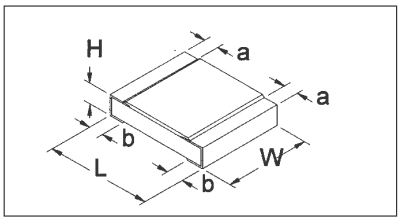
**Notes:** 1. Embossed taping available on RN12 only.

### Ordering Information

**Example:** 0805 1/10 watt .1% 1k

RN — Thin Film
10 — Wattage
B — Tolerance *Note (B = .1%, C = .25%, D = .50%)
1001 — Resistance
CT — Packaging (Tape & Reel)

## Thin Film Chip Resistors




### FEATURES

- Surface Mount Devices (SMD)
- Precision Tolerances of ±0.5% to ±0.1%
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### PERFORMANCE CHARACTERISTICS (Tested per Mil-STD-202)

Electrical (Operating Temperature Range -55°C to +155°C)

Dimensions in mm

| TYPE | Packaging Size | Power Rating (Watts) | Max. Working Voltage | Max. Overload Voltage | Resistance Temp. Coefficient | Resistance Range | Tolerance[1] |
|---|---|---|---|---|---|---|---|
| RN04 | 0402 | 1/16 @ 70°C | 50V | 100V | ±50ppm/°C<br>±25ppm/°C | 10Ω - 97.6K<br>100Ω - 100K | D = ±0.5%<br>C=±0.25%, B=±0.1% |
| RN06 | 0603 | 1/10 @ 70°C | 75V | 150V | ±50ppm/°C<br>±25ppm/°C | 10Ω - 97.6K<br>49.9Ω - 360K | D = ±0.5%<br>C=±0.25%, B=±0.1% |

### ENVIRONMENTAL

| | Specification | Typical | Test Method |
|---|---|---|---|
| Moisture Resistance, Thermal Shock | ±(0.25%+0.05Ω) | ≤0.1% | JIS C 5202 7.4 |
| Load Life | ±(0.5%+0.05Ω) | ≤0.2% | JIS C 5202 7.10 |
| Load Life in Moisture | ±(0.5%+0.05Ω) | ≤0.25% | JIS C 5202 7.9 |
| Resistance to Soldering Heat | ±(0.25%+0.05Ω) | ≤0.05% | JIS C 5202 6.4, 260±5°C, 10 sec. |
| Solderability | min. 95% coverage | ≥95% | JIS C 5202 6.5 |
| Terminal Strength | ±(0.2%+0.05Ω) | ≤0.05% | EIAJ RC-2609A 6.6 |
| Dielectric Withstanding Voltage | ±(0.25%+0.05Ω) | ≤0.05% | EIAJ RC-2609A 6.5<br>Test Voltage: 10@ 150VAC, RN12 @ 300VAC |
| Short Time Overload | ±(0.25%+0.05Ω) | ≤0.05% | JIS C 5202 7.4 |
| Insulation Resistance | 1,000 meg minimum | ≥1,000 meg | EIAJ RC-2609A 6.36 |

### MATERIALS

| Feature | Material | Remarks (Reference Only) |
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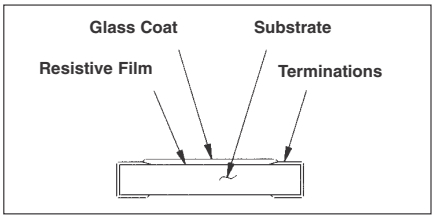


Dimensions in mm

| Feature | RN04 | RN06 |
|---|---|---|
| L - Body Length | 1.00±0.05 | 1.60±0.20 |
| W - Body Width | 0.50±0.05 | 0.80±0.20 |
| H - Body Height | 0.35±0.05 | 0.40+-0.10 |
| a - Top Termination | 0.20±0.10 | 0.30±0.20 |
| b - Bottom Termination | 0.20±0.10 | 0.30+-0.20 |

**Notes:** 1. Embossed taping available on RN12 only.

### Ordering Information

**Example:** 0805 1/10 watt .1% 1k

RN | 10 | B | 1001 | CT

- RN — Thin Film
- 10 — Wattage
- B — Tolerance *Note
  - B = .1%
  - C = .25%
  - D = .50%
- 1001 — Resistance
- CT — Packaging (Tape & Reel)