

# High Precision Resistors

## Precision Metal-Film Resistors for Low-Cost Uses



### ► Preview

The RJ Series Precision Metal Film Resistors are manufactured using vacuum sputtering system to deposit multiple layers of mixed metals and passivative materials onto a carefully treated high grade ceramic substrate, the resistors are coated with layers of blue lacquer.

The metal-film technology is capable of supporting accuracy characteristics over a broad resistance range. Types include axial through-hole and metal film fusible resistor for special purpose.

The RJ Metal Film Resistors is designed as a low-cost alternative to traditional solutions for precision applications.

RJ Series equate Vishay, IRC, EBG, Panasonic Precision Devices with more competitive price and fast delivery. Contact us with your specific needs.

### Features :

- High thermal conductivity and specific gravity rods.
- Power Rating : 0.16W~3W, precision tolerance tight to A5( $\pm 0.05$ ).
- Superior electrical TCR performances narrowed to C7( $\pm 5$ ) ppm/ $^{\circ}$ C.
- Epoxy coating, precision metal film, Lead (Pb)-free and RoHS compliant.

### Applications :

- Telecom, Measuring and Calibration Equipment, Industrial Process Control Systems, Audio, Video

## Quick Reference Data



| Type   | RJ72   | RJ73 | RJ74 | RJ16 | RJ17 | RJ18 |     |
|--|--|------|------|------|------|------|-----|
| MIL-R-10509F type                            | RN50   | RN55 | RN60 | RN65 | RN70 | RN75 |     |
| Resistance range ( $\Omega$ )                | 0.1 ~ 22M  |      |      |      |      |      |     |
| Resistance tolerance (%)                     | A5 ( $\pm 0.05$ ), B ( $\pm 0.10$ ), C ( $\pm 0.25$ ), D ( $\pm 0.5$ ), F ( $\pm 1$ ), J ( $\pm 5.0$ ) |      |      |      |      |      |     |
| Temperature coefficient (ppm/ $^{\circ}$ C)  | C7 ( $\pm 5$ ), C6 ( $\pm 10$ ), C5 ( $\pm 15$ ), C3 ( $\pm 25$ ), C2 ( $\pm 50$ ), C1 ( $\pm 100$ )   |      |      |      |      |      |     |
| Climatic category (LCT/UCT/days)             | 55 / 125 / 56  |      |      |      |      |      |     |
| Rated dissipation (W) <i>P70</i>             | 0.16   | 0.25 | 0.50 | 1.0  | 2.0  | 3.0  |     |
| Operating voltage (V) <i>Umax</i>            | 200  | 250  | 300  | 350  | 450  | 500  |     |
| Short time over load voltage (V) <i>Umax</i> | 400  | 500  | 600  | 700  | 900  | 1000 |     |
| Operating Temperature range                  | -55 $^{\circ}$ C to 125 $^{\circ}$ C   |      |      |      |      |      |     |
| Insulation voltage                           | >500V  |      |      |      |      |      |     |
| Insulation resistance                        | >1G $\Omega$   |      |      |      |      |      |     |
| Dimensions (mm)                              | L (Max.)   | 3.8  | 6    | 10   | 12   | 16   | 26  |
|  | D (Max.)   | 2.0  | 2.5  | 3.5  | 4.5  | 5.5  | 8.6 |
|  | d $\pm 0.1$  | 0.45 | 0.5  | 0.6  | 0.7  | 0.8  | 0.8 |
|  | H $\pm 2$  | 24   | 24   | 26   | 26   | 26   | 26  |

| Type   | RJ73S   | RJ74S | RJ16M | RJ16S | RJ17M | RJ17S | RJ18M | RJ18S |      |
|--|---|-------|-------|-------|-------|-------|-------|-------|------|
| MIL-R-10509F type                            | RN50  | RN55  | RN60  | RN60  | RN65  | RN65  | RN70  | RN70  |      |
| Resistance range ( $\Omega$ )                | 0.1 ~ 22M   |       |       |       |       |       |       |       |      |
| Resistance tolerance (%)                     | A5 ( $\pm 0.05$ ), B ( $\pm 0.10$ ), C ( $\pm 0.25$ ), D ( $\pm 0.50$ ), F ( $\pm 1.0$ ), J ( $\pm 5.0$ ) |       |       |       |       |       |       |       |      |
| Temperature coefficient (ppm/ $^{\circ}$ C)  | C7 ( $\pm 5$ ), C6 ( $\pm 10$ ), C5 ( $\pm 15$ ), C3 ( $\pm 25$ ), C2 ( $\pm 50$ ), C1 ( $\pm 100$ )      |       |       |       |       |       |       |       |      |
| Climatic category (LCT/UCT/days)             | 55 / 125 / 56   |       |       |       |       |       |       |       |      |
| Rated dissipation (W) <i>P70</i>             | 0.25  | 0.50  | 1.00  | 1.00  | 2.00  | 2.00  | 3.00  | 3.00  |      |
| Operating voltage (V) <i>Umax</i>            | 250   | 300   | 350   | 350   | 400   | 400   | 450   | 450   |      |
| Short time over load voltage (V) <i>Umax</i> | 500   | 600   | 700   | 700   | 800   | 800   | 900   | 900   |      |
| Operating Temperature range                  | -55 $^{\circ}$ C to 125 $^{\circ}$ C  |       |       |       |       |       |       |       |      |
| Insulation voltage                           | >500V   |       |       |       |       |       |       |       |      |
| Insulation resistance                        | >1G $\Omega$  |       |       |       |       |       |       |       |      |
| Dimensions (mm)                              | L (Max.)  | 3.8   | 6.0   | 6.3   | 10    | 10    | 12    | 12    | 16   |
|  | D (Max.)  | 2.00  | 2.54  | 2.54  | 3.50  | 3.50  | 4.50  | 4.50  | 5.50 |
|  | d $\pm 0.1$   | 0.5   | 0.6   | 0.6   | 0.6   | 0.7   | 0.8   | 0.8   | 0.8  |
|  | H $\pm 2$   | 24    | 24    | 24    | 26    | 26    | 26    | 26    | 26   |

Notice : Resistance out of range, tolerance and temperature coefficient match are under request.

## How to Order

RJ16

❶

22R

❷

B

❸

C6

❹

P

❺

- ❶ Part Number: RJ72  
 RJ73  
 RJ74  
 RJ73S  
 RJ74S  
 RJ16M

❷ Rated Power (W)

| Code | Resistance Tolerance (%) |
|------|--------------------------|
| 22R  | 22Ω                      |
| 220R | 220Ω                     |
| 2K2  | 2.2KΩ                    |
| 22K  | 22KΩ                     |
| 2M2  | 2.2MΩ                    |
| 22M  | 22MΩ                     |

❸ Resistance Tolerance (%)

| Code | Resistance Tolerance (%) |
|------|--------------------------|
| A5   | ±0.05                    |
| B    | ±0.10                    |
| C    | ±0.25                    |
| D    | ±0.5%                    |
| F    | ±1.00                    |
| J    | ±5.00                    |

❹ Temperature Coefficient (ppm/°C)

| Code | Temperature Coefficient (ppm/°C) |
|------|----------------------------------|
| C7   | ±5                               |
| C6   | ±10                              |
| C5   | ±15                              |
| C3   | ±25                              |
| C2   | ±50                              |
| C1   | ±100                             |

❺ Packaging

| Code | Packaging  |
|------|------------|
| P    | Bulk       |
| TB   | Taping Box |

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