

PRECISION METAL FILM RESISTORS

精密型金屬皮膜電阻器



Features

1. Low T.C. : 25ppm、50ppm、100ppm.
2. High precision : $\pm 0.25\%$ 、 $\pm 0.5\%$ 、 $\pm 1\%$ 、 $\pm 5\%$.
3. Temperature stable, low noise, good reliability.
4. 0.1% / 25ppm : case by case.

特色

1. 低溫度係數 : 25ppm、50ppm、100ppm。
2. 高精密度 : $\pm 0.25\%$ 、 $\pm 0.5\%$ 、 $\pm 1\%$ 、 $\pm 5\%$ 。
3. 溫度穩定，低雜音，可靠性良好。
4. 可客製化 0.1% / 25ppm。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

| 特性 Characteristics | 規格值 Standards | 試驗方法 Test Methods |
|-------------------------------------|--|--|
| 阻值容許誤差 Resistance Tolerance | $\pm 1\%$ (F) or $\pm 0.5\%$ (D) | - |
| 溫度係數 Resistance Temp. Coeff. | ± 25 ppm / $^{\circ}\text{C}$ 、 ± 50 ppm / $^{\circ}\text{C}$ 、 ± 100 ppm / $^{\circ}\text{C}$ 、 | -65 $^{\circ}\text{C}$ ~ 175 $^{\circ}\text{C}$ |
| 額定負載 Power Rating Load | Surface temp. 175 $^{\circ}\text{C}$ Max. 最高表面溫度 175 $^{\circ}\text{C}$, $\Delta R/R \leq \pm 1\%$ | Rated voltage for 30 minutes 額定電壓 / 30分鐘 |
| 短時間過負載 Short Time Overload | $\pm 0.5\%$ | 2.5 times of rated voltage for 5 seconds. 2.5 倍額定電壓 / 5秒 |
| 耐電壓 Dielectric Withstanding Voltage | No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象 | Max. Overload Voltage for 1 min. 施加最高過負載電壓 1 分鐘 (RN 1 W & 1 WL : AC 350V ; RN 1/4 WS : AC 300V) |
| 絕緣電阻 Insulation Resistance | 10,000M Ω | DC 100V or 500V megger |
| 端子強度 Terminal Strength | No evidence of mechanical damage. 無機械性能損壞現象 | 1 kg |
| 焊錫性 Solder-ability | Minimum 95% coverage 焊錫面積 $\geq 95\%$ | 235 \pm 5 $^{\circ}\text{C}$ for 2 seconds |
| 浸錫耐熱性 Resistance to Soldering Heat | No evidence of mechanical damage. 無機械性能損壞現象, $\Delta R/R \leq \pm 1\%$ | 270 \pm 5 $^{\circ}\text{C}$ for 10 \pm 1 seconds 350 \pm 10 $^{\circ}\text{C}$ for 3.5 \pm 0.5 seconds |

ENVIRONMENTAL CHARACTERISTICS

耐環境特性

| 特性 Characteristics | 規格值 Standards | 試驗方法 Test Methods |
|-------------------------------|------------------------------|--|
| 溫度週率 Temp. Cycle | $\Delta R/R \leq \pm 0.25\%$ | -65 $^{\circ}\text{C}$ (30 min.) \rightarrow Room Temp.(3 min.) \rightarrow +175 $^{\circ}\text{C}$ (30 min.) \rightarrow Room Temp.(3 min.) / (5 cycles) |
| 負載壽命 Load Life | $\Delta R/R \leq \pm 2\%$ | Rated power load 90 minutes ON 30 minutes OFF 70 $^{\circ}\text{C}$ 1000 hours |
| 耐濕壽命 Moisture-proof Load Life | $\Delta R/R \leq \pm 1.5\%$ | Rated power load 90 minutes ON 30 minutes OFF 40 $^{\circ}\text{C}$ 95% RH 1000 hours |
| 不燃性 Nonflammability | not flamed | 16 times of rated wattage for 5 min. (RN 1W & RN 1WL). |

※ 參考規格 Reference Standards
IEC 60115-1
JIS C 5201-1

Unit : mm

Dimensions

尺寸



| Rated Wattage | D±1 | L±1 | H±3 | d±0.1 | Resistance Range(Ω) | Max. Working Voltage |
|---------------|---------|---------|-----|-------|---------------------|----------------------|
| 1/8W | 1.7±0.2 | 3.7max. | 28 | 0.45 | 10~1M | 150V |
| 1/4WS | 1.7±0.2 | 3.7max. | 28 | 0.45 | 10~1M | 200V |
| 1/4W | 2.4±0.5 | 6.4 | 28 | 0.6 | 10~2M | 250V |
| 1/2WS | 2.4±0.5 | 6.4 | 28 | 0.6 | 10~2M | 300V |
| 0.6W | 2.4±0.5 | 6.4 | 28 | 0.6 | 10~2M | 350V |
| 1/2W | 3.5 | 9 | 28 | 0.65 | 10~2M | 350V |
| 1W | 4.5 | 11 | 28 | 0.8 | 10~2M | 500V |
| 1WL | 5.0 | 15 | 28 | 0.8 | 10~2M | 500V |

- Note:**
- To prevent electric corrosion, the resistance over 100KΩ should be limited at 50V.
 - Too low or too high ohmic values can be supplied only case by case.
 - Max. Overload Voltage is 2 times of Max. Working Voltage.
 - RN 1W & RN 1WL is coated by flameproof paint.

Derating Curve

電力輕減曲線

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance, Temperature Coefficient and Package. e.g.

RN 1/4W 10Ω F 50ppm T/B
 a. b. c. d. e. f.

- a. : Type(種類): Precision Metal Film Resistors are Called "RN".
 b. : Rated Wattage(額定電力) : Shown by "W", such as 1/8W, 1/4WS, 1/4W, 1/2WS, 0.6W, 1/2W, 1W, 1WL.
 c. : Nominal Resistance(公稱電阻值) : 10Ω.
 d. : Tolerance(容許誤差): ±0.5%(D), ±1%(F).
 e. : Temperature Coefficient (溫度係數): ±25ppm/°C, ±50ppm/°C, Nil : ±100ppm/°C
 f. : Package (包裝方式):
 T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil= Bulk(散裝).

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