

厚膜網絡電阻器

Thick Film Network Resistor

特點 Features

- 按工業標準尺寸生產，小型化，組裝密度高
Industry standard size, miniature, high density assembly
- 可靠性高，使用壽命長，防潮性、抗腐蝕性好
High reliability, long life excellent moistureproof and cauterization
- 設計靈活，可根據用戶要求生產
Free design, producing according to the consumer require



應用領域 Application

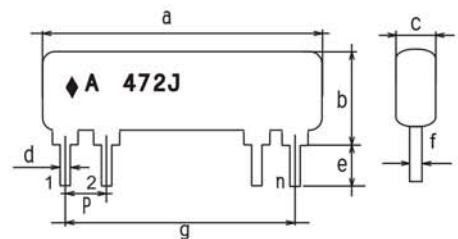
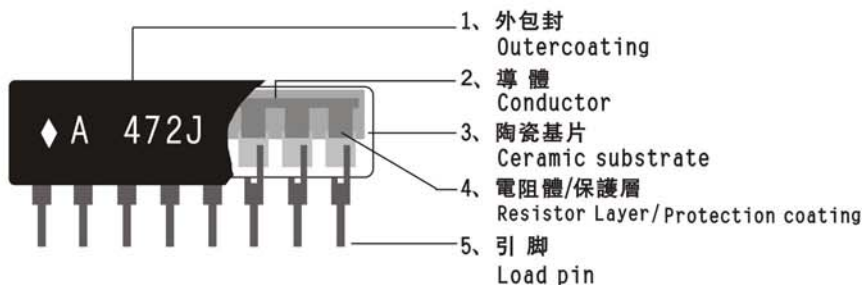
應用于工業設備、家用電器、醫療設備以及測試與測量設備

Application to Industrial equipment, household appliances, medical equipment and test and measurement equipment

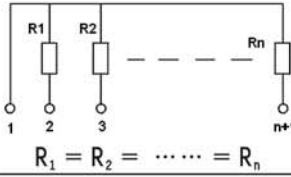
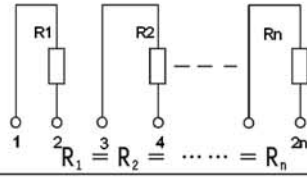
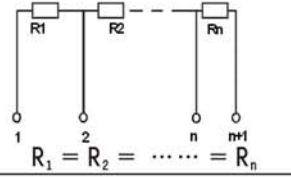
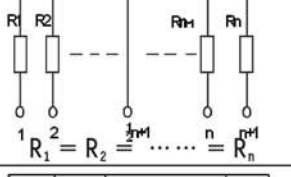
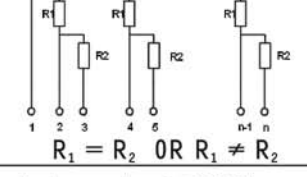
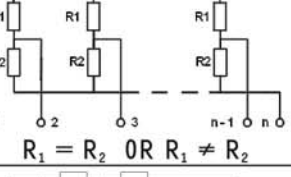
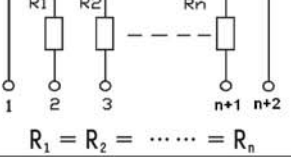
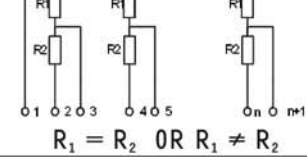
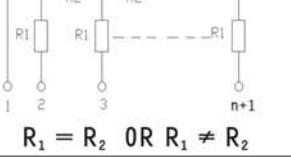
品名構成 Type Designation

| A | H | 08 | 473 | /331 | J | Y | P | | | | |
|-------------------------------------------|-----------------------------|-------------|-------------|-------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------|-------------------|------------------------------|---------------------------|---|----------------------|
| 電路結構代碼 Type Code | 額定功率代號 Power Rating Code | | 引腳數 Pins | 電阻值代號I Resistance Value Code I | 電阻值代號II Resistance Value Code II | 電阻值誤差精度代號 Resistance Tolerance Code | | 腳距代號 Code of Pin Distance | 環保代號 Code of Lead-Free | | |
| A B C D E F G H T | 代號 Code | 功率 Power | 04~14 | 三位數: 3 digit 例如Example: 473=47KΩ | E、F、H、T型產品 E, F, H, T-type product 三位數: 3 digit 例如 Example: 331=330Ω | 代號 Code | 誤差精度 Tolerance | 無表示 Blank | 2.54 mm | P | 環保品 Environmental |
| | 無表示 Blank | 1/8W | | | | F | ±1% | | | | |
| | H | 1/4W | | | | G | ±2% | J | ±5% | | |

結構 Construction



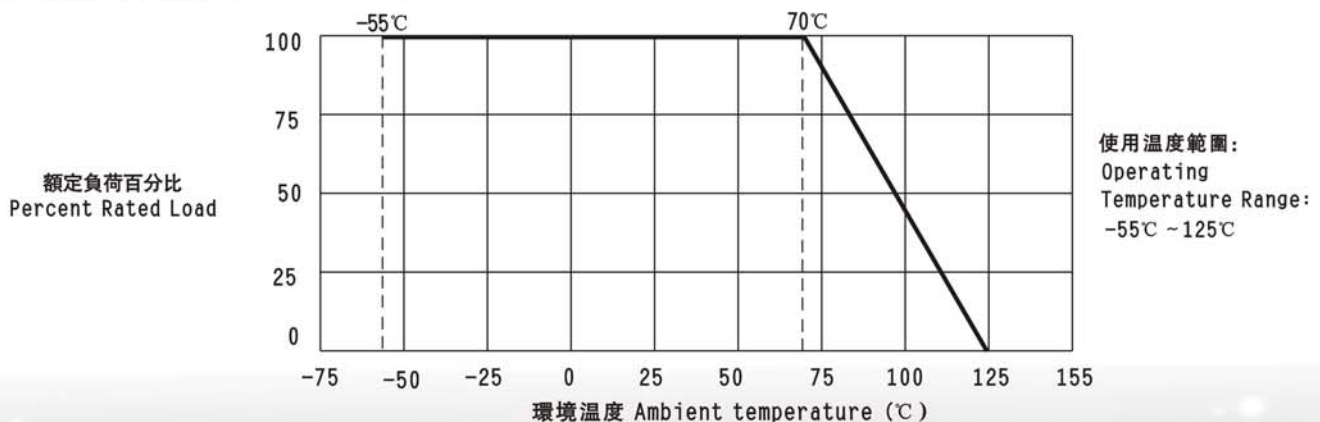
■ 等效電路 Equivalent Circuit

| 型號 Type | 等效電路 Equivalent Circuit | 型號 Type | 等效電路 Equivalent Circuit | 型號 Type | 等效電路 Equivalent Circuit |
|------------|-----------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------|
| A |  | B |  | C |  |
| D |  | E |  | F |  |
| G |  | H |  | T |  |

■ 規格尺寸 Dimensions

| 代號 Code | 常規尺寸 Normal Dimension | | 特殊尺寸 Special Dimension | |
|------------|-------------------------------|------------------------|-------------------------------|-------------------------|
| | a | 2.54 × (n-1) + 2.50max | | 1.778 × (n-1) + 3.20max |
| b | A, B, C, D, E, F, G, H 型 Type | 5.08max | A, B, C, D, E, F, G, H 型 Type | 5.08max |
| | T 型 Type | 8.50max | T 型 Type | 8.50max |
| c | 3.00max | | 3.00max | |
| d | 0.50 ± 0.1 | | 0.50 ± 0.1 | |
| e | 3.50 ± 0.5 | | 3.50 ± 0.5 | |
| f | 0.25 ± 0.1 | | 0.30 ± 0.1 | |
| g | 2.54 × (n-1) ± 0.3 | | 1.778 × (n-1) ± 0.3 | |
| ∅ | 2.54 ± 0.1 | | 1.778 ± 0.1 | |

■ 負荷下降曲線 Derating Curve



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Thick Film Network Resistor

■ 特性 Characteristics

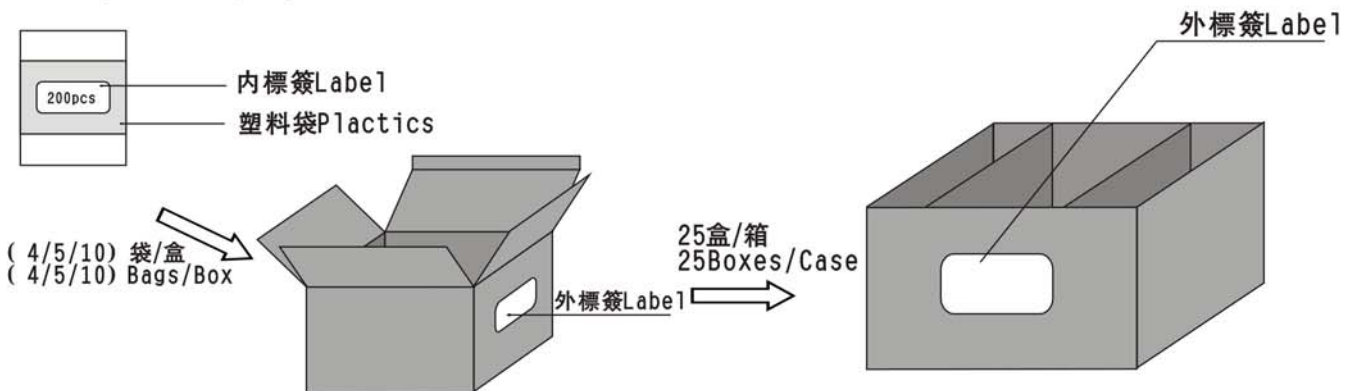
| 試驗項目 Test Item | 規定值 Standard | 測試方法 Test Method |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 引出端強度 Terminal Strength | $ \Delta R < (1\%R + 0.05\Omega)$, 0Ω (跨接電阻) $ \Delta R < (1\%R + 0.05\Omega)$, 0Ω (Jumper resistance) $< 50m\Omega$ | 按照GB/T 8976-1996 中4.5.12條的規定執行 According to GB / T 8976-1996 in the implementation of the provisions of Article 4.5.12 |
| 可焊性 Solderability | 試驗后外觀無異常，且上錫率不小于95% No abnormal appearance after the test, and the rate of not less than 95% | IEC 60115-1 4.17 $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$, $2s \pm 0.5s$, 浸入深度: 浸到距本體(1.5~2)mm或引出端長度的一半處(取最小者) $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$, $2s \pm 0.5s$, Immersion depth: dipped away from the body (1.5 to 2)mm, or half of the terminal length (whichever is least) |
| 耐焊接熱 Resistance to Soldering Heat | $ \Delta R < (1\%R + 0.05\Omega)$, 0Ω (跨接電阻) $ \Delta R < (1\%R + 0.05\Omega)$, 0Ω (Jumper resistance) $< 50m\Omega$ | IEC 60115-1 4.18 $270^{\circ}\text{C} \pm 5^{\circ}\text{C}$, $5s \pm 1s$ |
| 電阻溫度系數 T.C.R | 在規定值內 within specified T.C.R | IEC 60115-1 4.8 $+25^{\circ}\text{C} / -55^{\circ}\text{C} / +25^{\circ}\text{C} / +125^{\circ}\text{C} / +25^{\circ}\text{C}$ |
| 短時間過負載 Short Time Overload | $ \Delta R < (2\%R + 0.05\Omega)$, 0Ω (跨接電阻) $ \Delta R < (2\%R + 0.05\Omega)$, 0Ω (Jumper resistance) $< 50m\Omega$ | IEC 60115-1 4.13 施加2.5倍額定電壓或最大過負荷電壓(取較小者)持續5秒 Apply 2.5 times rated voltage or Max overload voltage, whichever is lower, for 5 s. |
| 溫度快速變化 Rapid Change of Temperature | $ \Delta R < (1\%R + 0.05\Omega)$, 0Ω (跨接電阻) $ \Delta R < (1\%R + 0.05\Omega)$, 0Ω (Jumper resistance) $< 50m\Omega$ | IEC 60115-1 4.19 -55°C (30分鐘) ~ 常溫(5分鐘) ~ 125°C (30分鐘) 5個循環 -55°C (30min) ~ normal temperature (5min) ~ 125°C (30min) 5cycles |
| 70°C持久性 Endurance at 70°C | $ \Delta R < (3\%R + 0.05\Omega)$, 0Ω (跨接電阻) $ \Delta R < (3\%R + 0.05\Omega)$, 0Ω (Jumper resistance) $< 50m\Omega$ | IEC 60115-1 4.25.1 $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 1000小時, 額定電壓或元件極限電壓(取較小值)通1.5小時/斷0.5小時。 $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 1000h, Rated voltage or limiting element voltage whichever is lower 1.5h ON/0.5h OFF. |
| 穩態濕熱 Damp Heat Steady State | $ \Delta R < (3\%R + 0.05\Omega)$, 0Ω (跨接電阻) $ \Delta R < (3\%R + 0.05\Omega)$, 0Ω (Jumper resistance) $< 50m\Omega$ | IEC 60115-1 4.24 $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, $93\% \pm 3\%RH$, 額定電壓或最大工作電壓(取較小者)通1.5小時, 斷0.5小時, 持續500小時。 Resistor should be exposed at $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, $93\% \pm 3\%RH$, 1000h and apply rated voltage or Max working voltage, whichever is lower, for 1.5h on, 0.5h off for 1000h. |
| 上限類別溫度持久性 Endurance at Upper Category Temperature | $ \Delta R < (3\%R + 0.05\Omega)$, 0Ω (跨接電阻) $< 50m\Omega$ $ \Delta R < (3\%R + 0.05\Omega)$, 0Ω (Jumper resistance) $< 50m\Omega$ | IEC 60115-1 4.25.3 $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 1000h Resistor should be exposed at $125^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 1000 h. |
| 耐溶劑性 Component Solvent Resistance | 試驗后產品外觀無異常，標志應清晰可見 No abnormal appearance of the product after the test, signs should be clearly visible | 使用溶劑: 異丙醇; 溶劑溫度: $(23 \pm 2)^{\circ}\text{C}$; 浸泡時間: $(10 \pm 1)\text{h}$ Solvent: isopropyl alcohol; solvent temperature: $(23 \pm 2)^{\circ}\text{C}$; soaking time: $(10 \pm 1)\text{h}$ |
| 包封絕緣耐電壓 Coating Dielectric Withstanding Voltage | 無弧光，燃燒或本體被擊穿等現象 No arc, burning or other body is the breakdown phenomenon | 在引腳和包封層之間施加500VDC, 持續時間: 1min. In the encapsulation layer is applied between the pin and 500 VDC, Duration: 1min. |
| 包封絕緣阻抗 Coating Insulation Resistance | $R > 100M\Omega$ | 在引腳和包封層之間施加500VDC, 持續時間: 1min. In the encapsulation layer is applied between the pin and 500 VDC, Duration: 1min. |

■ 額定值 Ratings

| 項目 Item | 標準 Specification |
|---------------------------------------------------|-----------------------------------------------------------------------|
| 額定功率 Power Rating | 1/8W(1/4W) |
| 最大工作電壓 Max.Operating Voltage | 200V |
| 最大過負荷電壓 Max.Overload Voltage | 280V |
| 跨接電阻額定電流 Jumper Rated Current | 2A |
| 電阻溫度係數 Resistance Temperature Coefficient (T.C.R) | 10Ω < R < 1MΩ: ±100ppm/°C 1Ω < R < 10Ω, 1MΩ < R < 10MΩ: ±250ppm/°C |
| 阻值誤差精度 Resistance Tolerance | ±1%, ±2%, ±5% 跨接電阻Jumper: < 50mΩ |
| 阻值範圍 Resistance Range | 0Ω (跨接電阻Jumper)、1.0Ω ~ 10MΩ E-24系列 |
| 使用溫度範圍 Operating Temperature Range | -55°C ~ +125°C |
| 額定溫度 Rated Temperature | +70°C |

■ 包裝 Packaging

● 包裝 Packaging



● 包裝數量 Packaging quantity

| 塑料袋散包裝 Bag | 袋 Bag | 盒 Box | | | 箱 Case |
|------------|--------|----------|-----------|------------|---------------|
| | | 4~5脚Pins | 6~11脚Pins | 12~14脚Pins | |
| 2.54mm脚距 | 200pcs | 10 Bags | 5Bags | 4Bags | 25 Boxes Max. |
| 1.778mm脚距 | | 4~7脚Pins | 8~14脚Pins | / | |
| | | 10 Bags | 5Bags | / | |

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