

## 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

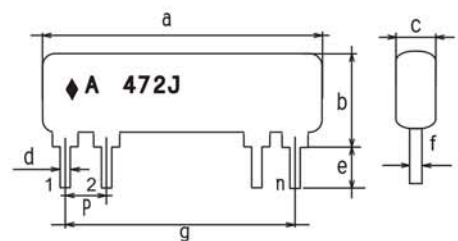
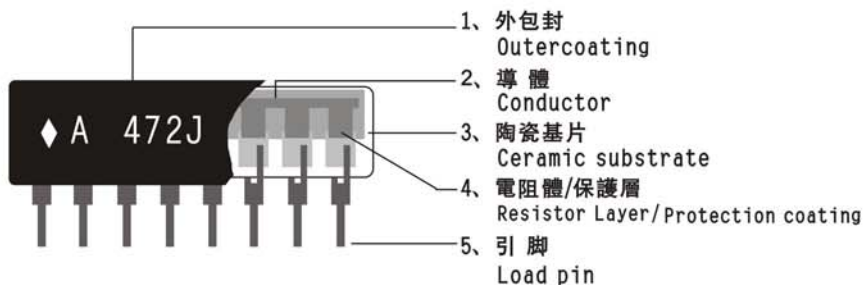
應用于工業設備、家用電器、醫療設備以及測試與測量設備

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

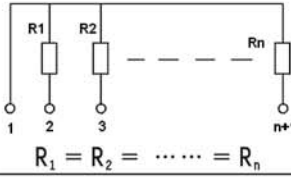
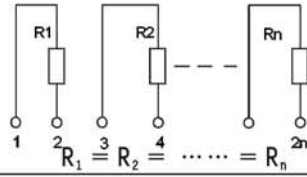
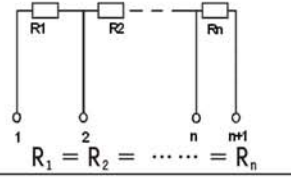
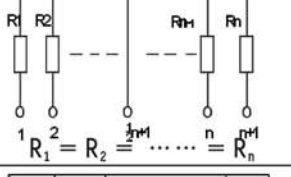
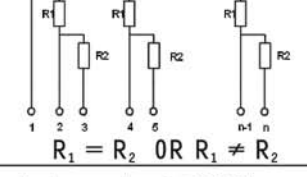
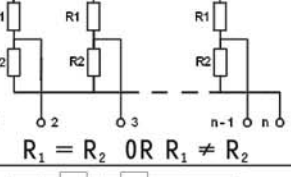
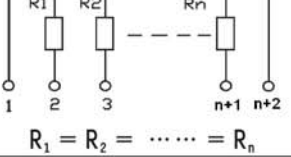
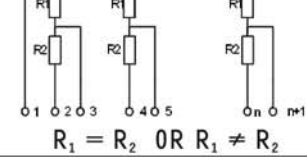
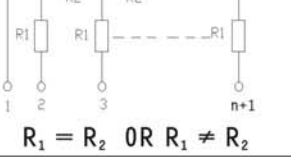
### ■ 品名構成 Type Designation

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				J	±2%	J	<50mΩ (跨接電阻)	

### ■ 結構 Construction



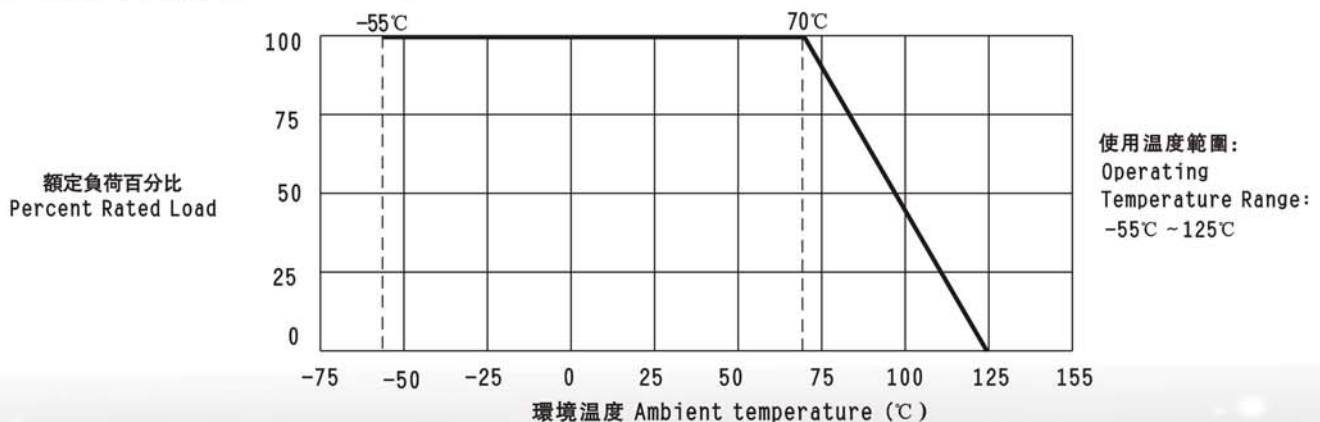
## ■ 等效電路 Equivalent Circuit

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



# 厚膜網絡電阻器

## Thick Film Network Resistor

### ■ 特性 Characteristics

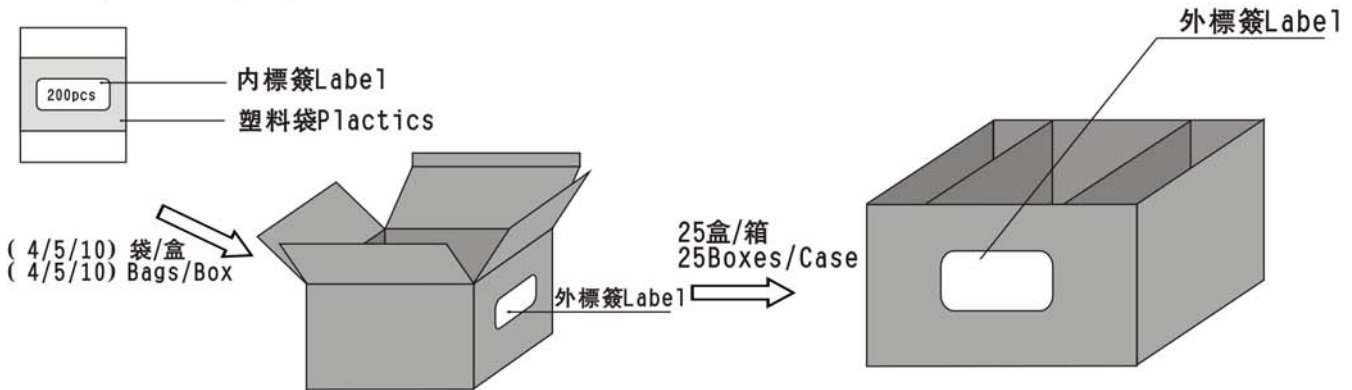
試驗項目 Test Item	規定值 Standard	測試方法 Test Method
引出端強度 Terminal Strength	$ \Delta R  < (1\%R + 0.05\Omega)$ , $0\Omega$ (跨接電阻) $ \Delta R  < (1\%R + 0.05\Omega)$ , $0\Omega$ (Jumper resistance) $< 50m\Omega$	按照GB/T 8976-1996 中4.5.12條的規定執行 According to GB / T 8976-1996 in the implementation of the provisions of Article 4.5.12
可焊性 Solderability	試驗后外觀無異常，且上錫率不小於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)$ , $0\Omega$ (跨接電阻) $ \Delta R  < (1\%R + 0.05\Omega)$ , $0\Omega$ (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)$ , $0\Omega$ (跨接電阻) $ \Delta R  < (2\%R + 0.05\Omega)$ , $0\Omega$ (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)$ , $0\Omega$ (跨接電阻) $ \Delta R  < (1\%R + 0.05\Omega)$ , $0\Omega$ (Jumper resistance) $< 50m\Omega$	IEC 60115-1 4.19 $-55^{\circ}\text{C}$ (30分鐘) ~ 常溫(5分鐘) ~ $125^{\circ}\text{C}$ (30分鐘) 5個循環 $-55^{\circ}\text{C}$ (30min) ~ normal temperature (5min) ~ $125^{\circ}\text{C}$ (30min) 5cycles
70°C持久性 Endurance at 70°C	$ \Delta R  < (3\%R + 0.05\Omega)$ , $0\Omega$ (跨接電阻) $ \Delta R  < (3\%R + 0.05\Omega)$ , $0\Omega$ (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)$ , $0\Omega$ (跨接電阻) $ \Delta R  < (3\%R + 0.05\Omega)$ , $0\Omega$ (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)$ , $0\Omega$ (跨接電阻) $< 50m\Omega$ $ \Delta R  < (3\%R + 0.05\Omega)$ , $0\Omega$ (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.
		4~7脚Pins	8~14脚Pins	/	
1.778mm脚距		10 Bags	5Bags	/	