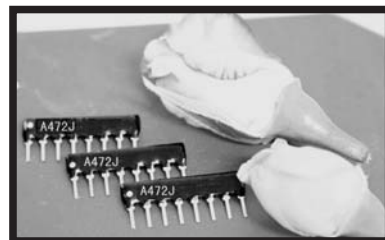


厚膜網絡電阻器

THICK FILM NETWORK RESISTOR

● 產品簡介 BRIEF INTRODUCTION

- * 小型化、高密度組裝
- * 電性能穩定，可靠性高
- * 可得到不同電阻值組合
- * 符合RoHS指令
- Miniature, high density assembly.
- Stable electrical capability, high reliability.
- Combinations of different ohmic value are available
- RoHS compliant



● 定貨方式 ORDER

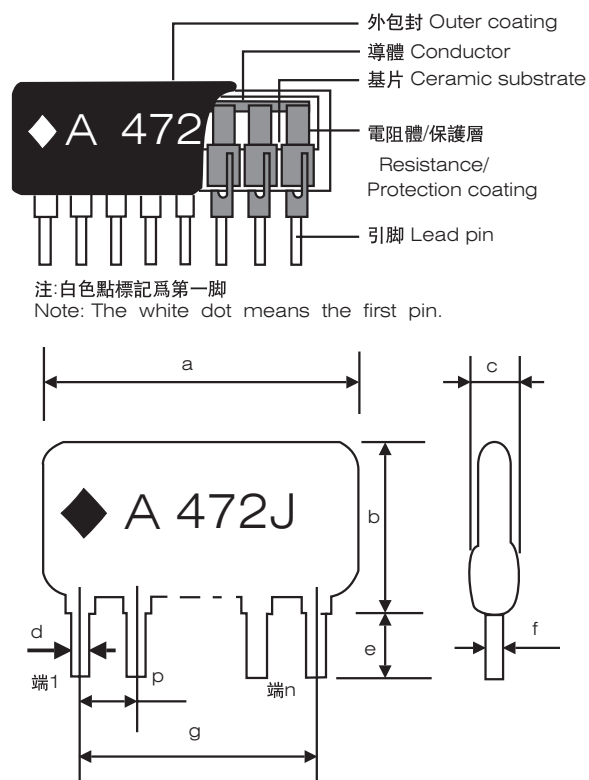
A	H	08	4	7	2	/				J		
電路結構代碼 Circuits Code	額定功率 Power Rating		引腳數 Pins	電阻值代號 I Resistance Value Code I		電阻值代號 II Resistance Value Code II			腳距代號 Code of pin distance			
	代號 Code	功率 Power		無表示 No Mark	2.54mm							
A B C D E F G H T		1/8W	04~14	三位數 (E—24系列): 前兩位表示有效數字, 第三位表示有效數字 后零的個數 Three digits (E-24 series): The first two digits are significant figures and the third one denotes number of zeros.		當表示A、B、C、D、G型產品時，該部分無表示。 當表示E、F、H、T型產品時，該部分表示法與“電阻值代號1”相同。 When it is the type of A, B,C, D or G, there is no mark. When it is the type of E, F,H or T, the expression is same as “Resistance Value Code1” .			Y	1.778mm		
	H	1/4W							電阻值誤差精度代號 Resistance Tolerance Code		無鉛等級 Lead-free Level	
						代 號 Code		誤差精度 Tolerance	無表示 No mark	錫鉛品 Contained Lead		
						F		± 1%	P	環保品 Termination Lead-free		
						G		± 2%				
						J		± 5%				
						J (跨接電阻 Jumper)		≤ 50mΩ				

● 結構圖和外形尺寸

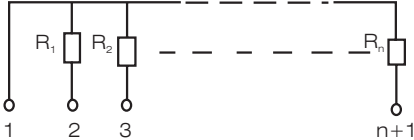
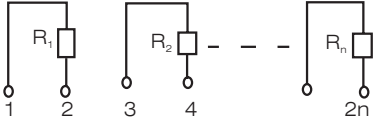
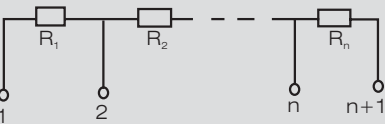
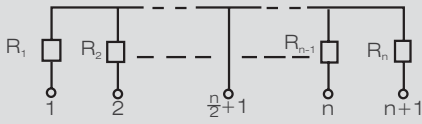
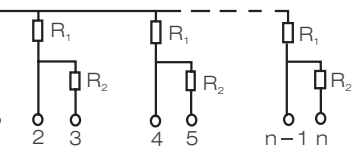
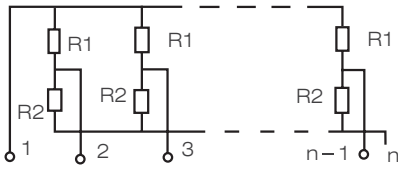
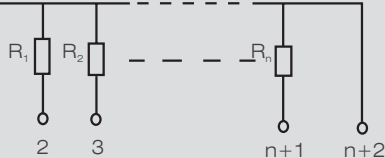
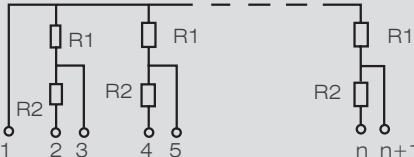
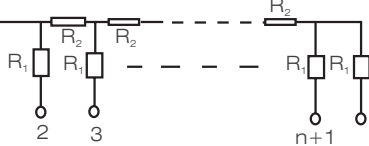
CONSTRUCTION AND DIMENSIONS

單位 unit:mm

代號 Code	常規尺寸 Normal dimension		特殊尺寸 Special dimension	
a	$2.54 \times (n-1) + 2.50\text{max}$		$1.778 \times (n-1) + 3.20\text{max}$	
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	$2.54 \times (n-1) \pm 0.3$		$1.778 \times (n-1) \pm 0.3$	
p	2.54 ± 0.1		1.778 ± 0.1	



• 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	 $R_1 = R_2 = \dots = R_n$	B	 $R_1 = R_2 = \dots = R_n$
C	 $R_1 = R_2 = \dots = R_n$	D	 $R_1 = R_2 = \dots = R_n$
E	 $R_1 = R_2 \text{ 或 } R_1 \neq R_2$	F	 $R_1 = R_2 \text{ 或 } R_1 \neq R_2$
G	 $R_1 = R_2 = \dots = R_n$	H	 $R_1 = R_2 \text{ 或 } R_1 \neq R_2$
T	 $R_1 = R_2 \text{ 或 } R_1 \neq R_2$		

• 參考標準 REFERENCE STANDARD

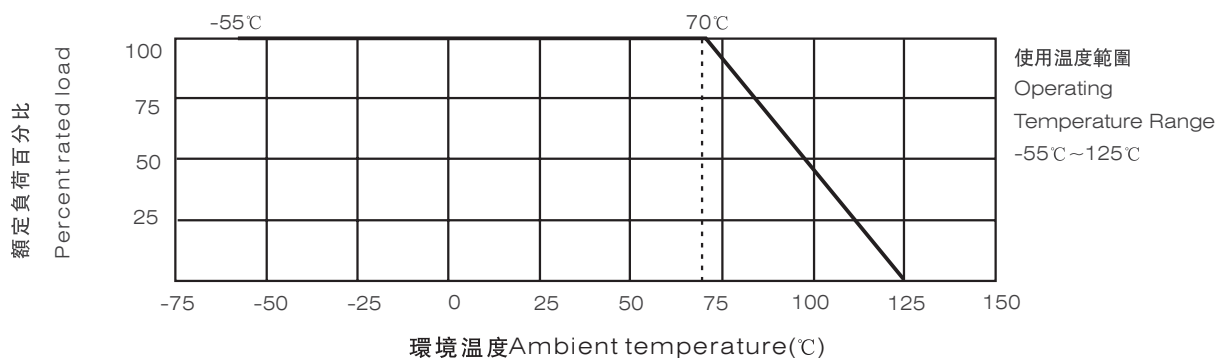
GB/T 15654-1995
GB/T 2828.1-2003
GB/T 2829-2002

• IEC E-24 系列電阻值代碼對照表

IEC E-24 Series Resistance Cross-reference List

E-24 系列 E-24 Series ($\times 10^n \Omega$) (單位unit: 1 Ω 、10 Ω 、100 Ω 、1K Ω 、10K Ω 、100K Ω 、1M Ω)					
1.0	1.5	2.2	3.3	4.7	6.8
1.1	1.6	2.4	3.6	5.1	7.5
1.2	1.8	2.7	3.9	5.6	8.2
1.3	2.0	3.0	4.3	6.2	9.1

• 負荷下降曲線 DERATING CURVE



* 當電阻使用的環境溫度超過70°C時，其額定負荷(額定功率或額定電流)按上述曲線下降。

For resistors operated in ambient over 70°C, rated load (power rating or current rating) shall be derated in accordance with above figure.

• 額定值 RATINGS

項 目 Item	標 准 Specification
額定功率 Power Rating	1/8W (1/4w)
最大工作電壓 Max. Working 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	10 $\Omega \leq R \leq 1M\Omega$: $\pm 100\text{ppm}/^\circ\text{C}$ 1 $\Omega \leq R < 10\Omega$, 1M $\Omega < R \leq 10M$: $\pm 250\text{ppm}/^\circ\text{C}$
阻值誤差精度 Resistance Tolerance	$\pm 1\%$, $\pm 2\%$, $\pm 5\%$, 跨接電阻 Jumper: $\leq 50m\Omega$
阻值範圍 Resistance Range	0 Ω (跨接電阻 Jumper)、1.0 $\Omega \sim 10M\Omega$ 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

* 注：額定電壓 = $\sqrt{\text{額定功率} \times \text{標稱電阻值}}$ 或最大工作電壓中的較小值。

Note: Rated Voltage = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Max. Working Voltage, whichever is lower.

• 特性 CHARACTERISTICS

項目 Item	標 准 Specifications	測試方法 (GB/T 15654-1995) Test Methods (GB/T 15654-1995)
電阻溫度系數 T. C. R	在規定值內 Within the specified T.C.R	測定範圍: $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$ measure between $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$
短時間過負載 Short Time Overload	無可見損傷, No mechanical damage $\Delta R \leq \pm (2.0\%R + 0.05\Omega)$ 跨接電阻 Jumper: $R \leq 50\text{m}\Omega$	2.5倍額定電壓或最大過負荷電壓(取最小者) 保持5秒 $2.5 \times \text{Rated voltage or Max. Overload Voltage, choose the lower, for 5 seconds}$
包封絕緣阻抗 Coating Insulation Resistance	100M Ω Min	施加 500V DC Apply 500V DC
包封絕緣耐電壓 Coating Insulation Withstand Voltage	無弧光, 燃燒及本體被擊穿 No arc, inflammation and damage	施加500V DC 保持1min Apply 500V DC 1min
可焊性 Solderability	可焊面積 $\geq 95\%$ 95%Cover Min	$260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 2 ± 0.5 秒 $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 2 $\pm 0.5\text{S}$
耐溶劑性 Resistance to Solvent	無可見損傷, No mechanical damage $\Delta R \leq \pm (1.0\%R + 0.05\Omega)$ 跨接電阻 Jumper: $R \leq 50\text{m}\Omega$	浸入異丙醇溶液 10 ± 1 小時, 溶液溫度為 $23 \pm 2^{\circ}\text{C}$ Dip in isopropyl alcohol solution of 10h ± 1 h the solution temperature of $23 \pm 2^{\circ}\text{C}$.
引線強度 Pin strength	無可見損傷, No mechanical damage $\Delta R \leq \pm (1.0\%R + 0.05\Omega)$ 跨接電阻 Jumper: $R \leq 50\text{m}\Omega$	將引線焊接在網絡電阻的受試引出端后, 以10mm/s平掛, 拉力到500g止 Speed:10mm/s, pull strength:500g.
抗彎強度 Bending strength	無可見損傷 No mechanical damage	端子綫末端負重0.5kg,使電阻器本體與端子綫彎成 90° , 保持5s, 為一個循環, 做2個循環 Force with 0.5kg on the terminal pin,between the resistor and the terminal pin is 90 degree,duration: 5s for 1 cycle. total 2 cycles
耐焊接熱 Resistance to Soldering Heat	無可見損傷, No mechanical damage $\Delta R \leq \pm (1.0\%R + 0.05\Omega)$ 跨接電阻 Jumper: $R \leq 50\text{m}\Omega$	$270^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 10 ± 1 秒 $270^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 10s ± 1 s
溫度循環 Temperature Cycling	無可見損傷, No mechanical damage $\Delta R \leq \pm (1.0\%R + 0.05\Omega)$ 跨接電阻 Jumper: $R \leq 50\text{m}\Omega$	-55°C (30分鐘) $\sim$ 常溫 (2 ~ 3 分鐘) $\sim 125^{\circ}\text{C}$ (30分鐘) 5個循環 -55°C (30min) $\sim$ normal temperature (2 ~ 3 min) $\sim 125^{\circ}\text{C}$ (30min) 5cycles

厚膜網絡電阻器

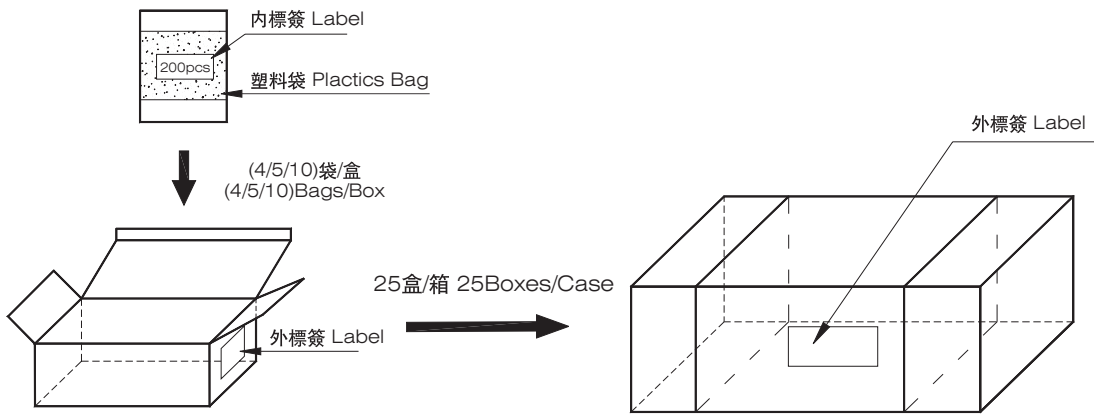
THICK FILM NETWORK RESISTOR

項目 Item	標 准 Specifications	測試方法(GB/T 15654-1995) Test Methods (GB/T 15654-1995)
穩態濕熱 Steady state humidity	無可見損傷, No mechanical damage $\Delta R \leq \pm (3.0\%R + 0.1\Omega)$ 跨接電阻 Jumper: $R \leq 100m\Omega$	$40^{\circ}C \pm 2^{\circ}C$ 90%~95%RH1000小時 $40^{\circ}C \pm 2^{\circ}C$ 90%~95%RH1000h
70℃ 耐久性 Load Life(70℃)	無可見損傷, No mechanical damage $\Delta R \leq \pm (3.0\%R + 0.1\Omega)$ 跨接電阻 Jumper: $R \leq 100m\Omega$	70℃ $\pm 2^{\circ}C$,1000小時,額定電壓或最大工作電壓兩者中的較小值, 1.5小時/斷0.5小時 70℃ $\pm 2^{\circ}C$,1000h,Rated Voltage or Max. Working Voltage , whichever is lower. 1.5h on/0.5h off
上限類別溫度耐久性 Endurance at upper temperature	無可見損傷, No mechanical damage $\Delta R \leq \pm (3.0\%R + 0.1\Omega)$ 跨接電阻 Jumper: $R \leq 100m\Omega$	$125^{\circ}C \pm 2^{\circ}C$ 1000小時 $125^{\circ}C \pm 2^{\circ}C$ 1000h

- 包裝

PACKAGING
- * 包裝形式

Packaging style



- * 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	
		10 Bags	5 Bags	4 Bags	
	200pcs	10 Bags	5 Bags	4 Bags	25 boxes Max.