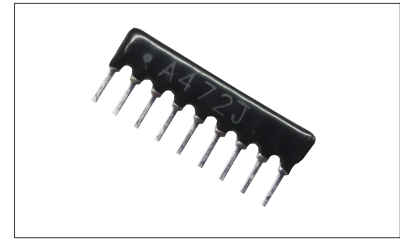


■ 厚膜网络电阻器 Thick Film Network Resistor

◆ 特点 Features

- * 按工业标准尺寸生产, 小型化, 组装密度高
Industry standard size, miniature, high density assembly
- * 可靠性高, 使用寿命长, 防潮性、抗腐蚀性好
High reliability, long life excellent moistureproof and cauterization
- * 设计灵活, 可根据用户要求生产
Free design, producing according to the consumer require



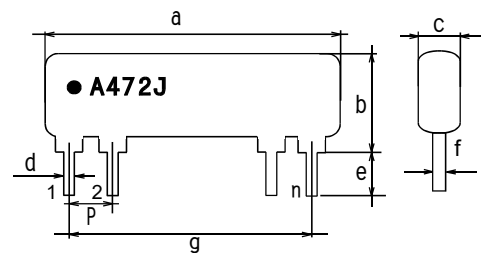
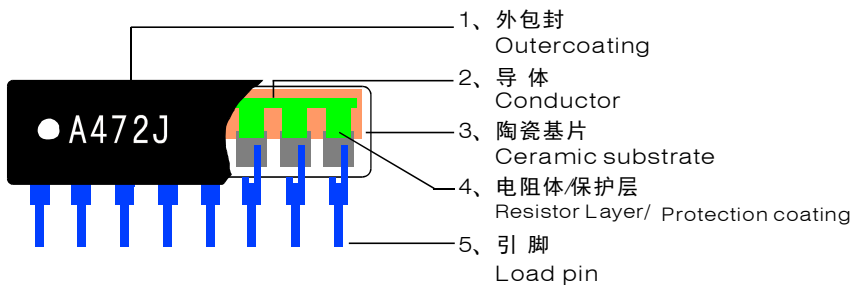
◆ 应用领域 Application

应用于工业设备、家用电器、医疗设备以及测试与测量设备
Application to Industrial equipment, household appliances, medical equipment and test and measurement equipment

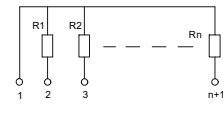
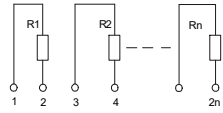
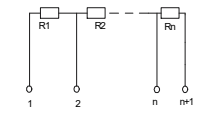
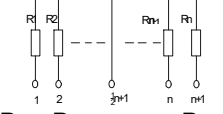
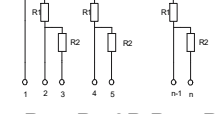
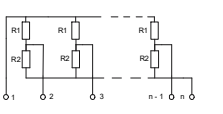
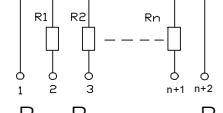
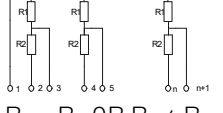
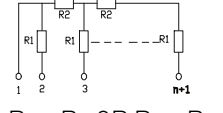
◆ 型号表示方法 Part Number

A	H	08	473	/331	J	无表示 Blank	P				
电路结构 代码 Type Code	额定功率代号 Power Rating Code		引脚数 Pins	电阻值代号 Resistance Value Code	电阻值代号 Resistance Value Code	电阻值误差精度代号 Resistance Tolerance Code		脚距代号 Code of Pin Distance		环保代号 Code of Lead-Free	
A B C D E F G H T	代 号 Code	功 率 Power	04 ~ 14	三位数: 3 digit 例如Example: 473=47KΩ	E、F、H、 T型产品 E、F、H、T- type product 三位数: 3 digit 例如 Example: 331=330Ω	代 号 Code	误差精度 Tolerance	无表示 Blank	2.54 mm	P	环保品 Environ mental
	无表示 Blank	1/8W				F	±1%				
	H	1/4W				G	±2%				
			J	±5%							
					J (跨接电阻)		≤50mΩ				

◆ 结 构 Construction

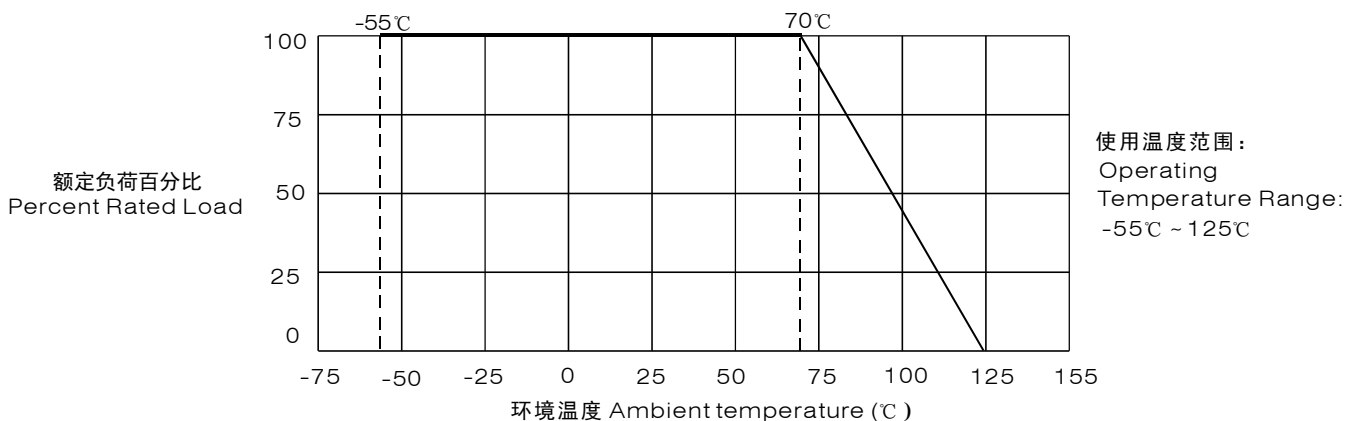


◆ 等效电路 Equivalent Circuit

型号 Type	等效电路 Equivalent Circuit	型号 Type	等效电路 Equivalent Circuit	型号 Type	等效电路 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	 $R_1 = R_2$ OR $R_1 \neq R_2$	F	 $R_1 = R_2$ OR $R_1 \neq R_2$
G	 $R_1 = R_2 = \dots = R_n$	H	 $R_1 = R_2$ OR $R_1 \neq R_2$	T	 $R_1 = R_2$ OR $R_1 \neq R_2$

◆ 规格尺寸 Dimensions

代号 Code	常规尺寸 Normal Dimension	
a	$2.54 \times (n-1) + 2.50\text{max}$	
b	A、B、C、D、E、F、G、H 型 Type	5.80max
	T 型 Type	9.20max
c	3.20max	
d	0.50 ± 0.1	
e	3.50 ± 0.5	
f	0.25 ± 0.1	
g	$2.54 \times (n-1) \pm 0.3$	
p	2.54 ± 0.1	

◆ 负荷下降曲线 Derating Curve


注：当电阻使用的环境温度超过70°C时，其额定负荷(额定功率)按上述曲线下降。

Note: For resistors operated in ambient over 70°C, rated load (rated power) shall be derated in accordance with the above figure.

◆ 特性 Characteristics

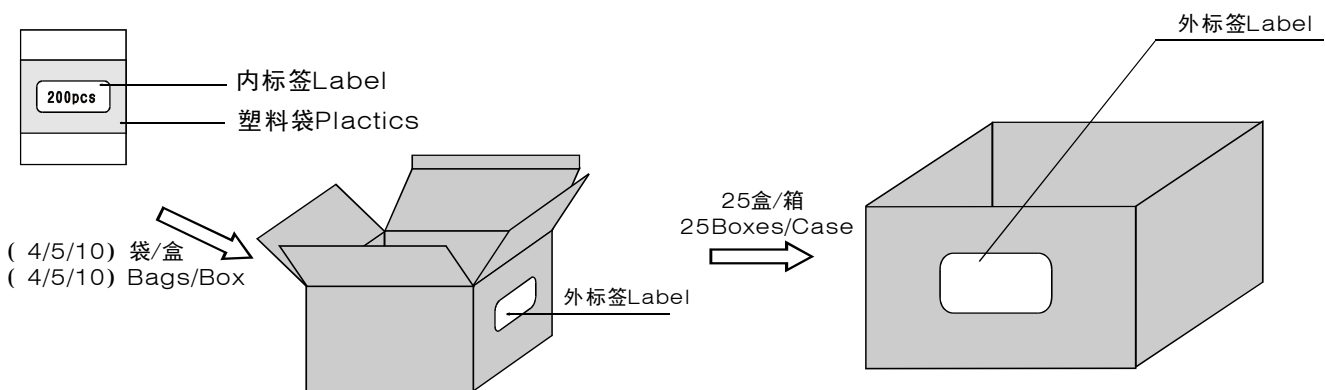
试验项目 Test Item	规定值 Standard	测试方法 Test Method
引出端强度 Terminal Strength	$ \Delta R \leq (1\%R + 0.05\Omega)$, 0Ω(跨接电阻) $ \Delta R \leq (1\%R + 0.05\Omega)$, 0Ω(Jumper resistance) $\leq 50m\Omega$	按照GB/T 8976-1996 中4.5.12条的规定执行 According to GB / T 8976-1996 in the implementation of the provisions of Article 4.5.12
可焊性 Solderability	试验后外观无异常, 且上锡率不小于95% No abnormal appearance after the test, and the rate of not less than 95%	IEC 60115-1 4.17 在 $260 \pm 5^\circ\text{C}$ 的焊料槽内, 浸入时间 2 ± 0.5 秒。Tem: $260 \pm 5^\circ\text{C}$, Time: 2 ± 0.5 s.
耐焊接热 Resistance to Soldering Heat	$ \Delta R \leq (1\%R + 0.05\Omega)$, 0Ω(跨接电阻) $ \Delta R \leq (1\%R + 0.05\Omega)$, 0Ω(Jumper resistance) $\leq 50m\Omega$	IEC 60115-1 4.18 $270^\circ\text{C} \pm 5^\circ\text{C}$, $5s \pm 1s$
电阻温度系数 T.C.R	在规定值内 within specified T.C.R	IEC 60115-1 4.8 $+25^\circ\text{C}/-55^\circ\text{C}/+25^\circ\text{C}/+125^\circ\text{C}/+25^\circ\text{C}$
短时间过负载 Short Time Overload	$ \Delta R \leq (2\%R + 0.05\Omega)$, 0Ω(跨接电阻) $ \Delta R \leq (2\%R + 0.05\Omega)$, 0Ω(Jumper resistance) $\leq 50m\Omega$	IEC 60115-1 4.13 施加2.5倍额定电压或最大过负荷电压(取较小者)持续5秒 Apply 2.5 times rated voltage or Max overload voltage, whichever is lower, for 5 s.
温度快速变化 Rapid Change of Temperature	$ \Delta R \leq (1\%R + 0.05\Omega)$, 0Ω(跨接电阻) $ \Delta R \leq (1\%R + 0.05\Omega)$, 0Ω(Jumper resistance) $\leq 50m\Omega$	IEC 60115-1 4.19 -55°C (30分钟)~常温(5分钟)~ 125°C (30分钟)5个循环 -55°C (30min)~normal temperature(5min)~ 125°C (30min)5cycles
70℃耐久性 Endurance at 70℃	$ \Delta R \leq (3\%R + 0.05\Omega)$, 0Ω(跨接电阻) $ \Delta R \leq (3\%R + 0.05\Omega)$, 0Ω(Jumper resistance) $\leq 50m\Omega$	IEC 60115-1 4.25.1 $70^\circ\text{C} \pm 2^\circ\text{C}$, 1000小时, 额定电压或元件极限电压(取较小值)通1.5小时/断0.5小时。 $70^\circ\text{C} \pm 2^\circ\text{C}$, 1000h, Rated voltage or limiting element voltage whichever is lower 1.5h ON/0.5h OFF.
稳态湿热 Damp Heat Steady State	$ \Delta R \leq (3\%R + 0.05\Omega)$, 0Ω(跨接电阻) $ \Delta R \leq (3\%R + 0.05\Omega)$, 0Ω(Jumper resistance) $\leq 50m\Omega$	IEC 60115-1 4.24 $40^\circ\text{C} \pm 2^\circ\text{C}$, $93\% \pm 3\%RH$, 额定电压或最大工作电压(取较小者)通1.5小时, 断0.5小时, 持续500小时。 Resistor should be exposed at $40^\circ\text{C} \pm 2^\circ\text{C}$, $93\% \pm 3\%RH$, and apply rated voltage or Max working voltage, whichever is lower, for 1.5h on, 0.5h off for 500h.
上限类别温度耐久性 Endurance at Upper Category Temperature	$ \Delta R \leq (3\%R + 0.05\Omega)$, 0Ω(跨接电阻) $\leq 50m\Omega$ $ \Delta R \leq (3\%R + 0.05\Omega)$, 0Ω(Jumper resistance) $\leq 50m\Omega$	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.
耐溶剂性 Component Solvent Resistance	试验后产品外观无异常, 标志应清晰可见 No abnormal appearance of the product after the test, signs should be clearly visible	使用溶剂: 异丙醇; 溶剂温度: $(23 \pm 2)^\circ\text{C}$; 浸泡时间: (10 ± 1) h Solvent: isopropyl alcohol; solvent temperature: $(23 \pm 2)^\circ\text{C}$; soaking time: (10 ± 1) h
封装绝缘耐电压 Coating Dielectric Withstanding Voltage	无弧光, 燃烧或本体被击穿等现象 No arc, burning or other body is the breakdown phenomenon	在引脚和封装层之间施加500VDC, 持续时间: 1min. In the encapsulation layer is applied between the pin and 500 VDC, Duration: 1min.
封装绝缘阻抗 Coating Insulation Resistance	$R \geq 100M\Omega$	在引脚和封装层之间施加500VDC, 持续时间: 1min. In the encapsulation layer is applied between the pin and 500 VDC, Duration: 1min.

◆ 额定值 Ratings

项目 Item	标准 Specification
额定功率 Power Rating	1/8W(1/4W)
最大工作电压 Max.Operating Voltage	200V
最大過負荷電壓 Max.Overload Voltage	280V
跨接电阻额定电流 Jumper Rated Current	2A
电阻温度系数 Resistance Temperature Coefficient (T.C.R)	10Ω ≤ R ≤ 1MΩ: ± 100ppm/°C 1Ω ≤ R < 10Ω, 1MΩ < R ≤ 10MΩ: ± 250ppm/°C
阻值误差精度 Resistance Tolerance	± 1% , ± 2% , ± 5% 跨接电阻Jumper: ≤ 50mΩ
阻值范围 Resistance Range	0Ω(跨接电阻Jumper)、1.0Ω ~ 10MΩ E-24系列
使用温度范围 Operating Temperature Range	-55°C ~ +125°C
额定温度 Rated Temperature	+70°C

◆ 包装 Packaging

* 包装方式 Packaging



* 包装数量 Packaging quantity

塑料袋散包装 Bag	袋 Bag	盒 Box			箱 Case
2.54mm脚距	200pcs	4~5脚Pins	6~11脚Pins	12~14脚Pins	25 Boxes Max.
		10 Bags	5Bags	4Bags	

■ 修订履历 Revision History

版本Version	日期Date	修订内容 Change Description	修改确认 Checked by
V2020.0	2020-06-23	- 原版 The original version.	吴晓玲 Xiaoling Wu
V1.0	2023-10-31	- 型号表示方法：删除1.778mm脚距 Part number:delete pin distance of 1.778mm	何志江 Zhijiang He

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