



# 承 认 书

## APPROVAL SHEET

客户名称: \_\_\_\_\_

CUSTOMER

品 名: 网络电阻器

PARTNAME

A  \* \* \*

B  \* \* \*

C  \* \* \*

D  \* \* \*

E  \* \* \*

F  \* \* \*

规 格:

G  \* \* \*

H  \* \* \*

SPECIFICATION

T  \* \* \*

版 本 号: P-4.10

VERSION

日 期:

DATE

制 造			客 户		
APPROVAL			APPROVAL		
拟制	审核	确认	检验	审核	批准

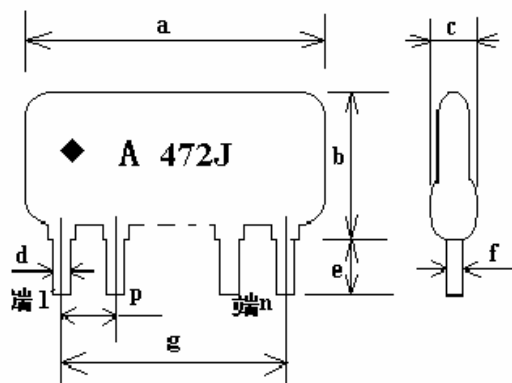
<b>修改记录</b>			
<b>REVISION RECORD</b>			
版本 VER	变更内容 MINUTE OF CHANGES	修改人 CHECKER	修改日期 RELEASE DATE
P-4.3	1) 变更 3.0 型号规格表示办法 Revised 3.0 Explanation to the Part Number 2) 变更 5.0 可耐焊试验方法 Revised 5.0 Reliability Data 3) 增加 6.3 标签 To add 6.3 Label 4) 增加 9.0 环保情况说明 To add 9.0 add Environmental Protection Statement 5) 增加 10.0 附件 (SGS 报告) To add 10.0 attachment (SGS report)	方菲  Yuki Fang	2006-02-23
P-4.4	删除 10.0 附件 (SGS 报告) To delete 10.0 attachment (SGS report)	温宇肇 Yuzhao Wen	2006-08-16
P-4.5	1) 变更 2.1 结构表示方式 Revised 2.1 Structure 2) 变更 3.1 标记表示方式 Revised 3.1 The explanation for the resistance value marking 3) 增加 1/4W 标记标识方式 To add the marking description for 1/4W product.	陈洁峰  Jiefeng Chen	2007-5-10
P-4.6	修改 6.3 标签 (ROHS 代替 GP) Revised 6.3 Label	方菲 Yuki Fang	2008-05-14
P-4.7	修改 7.0 贮存方法 Revised 7.0 Storage Methods	吴晓玲 Xiaoling Wu	2009-06-09
P-4.8	1) 修改 3.0 型号规格表示方法“无铅等级” Revised 3.0 Explanation to the Part Number 2) 修改 5.0 可靠性“试验方法”标准 Revised 5.0 Reliability Data	吴晓玲 Xiaoling Wu	2009-08-12
P-4.9	1) 修改 6.2 包装数量 Revised 6.2 Packaging Quantity 2) 修改 8.0 使用注意事项 Revised 8.0 Precautions for use	吴晓玲 Xiaoling Wu	2009-12-28
P-4.10	1) 修改 5.0 可靠性“试验方法”标准 Revised 5.0 Reliability Data 2) 修改 6.1 包装形式 Revised 6.2Packaging Style 3) 修改 6.3 标签 Revised 6.3 Label	吴晓玲 Xiaoling Wu	2010-09-15





网络电阻器 Network Resistor	版本号 version of:P-4.10
4~14P 引线系列 SIP Series	DH10-0915

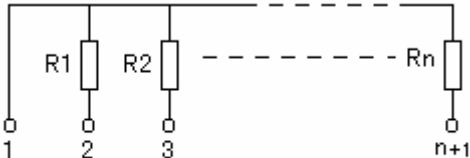
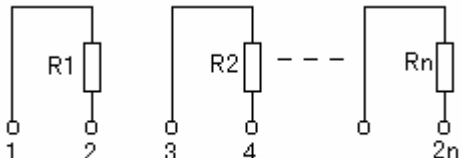
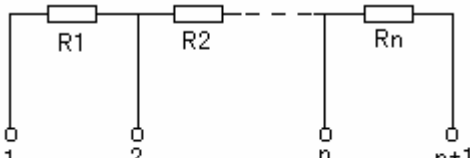
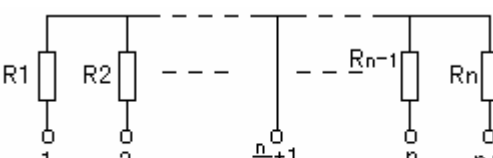
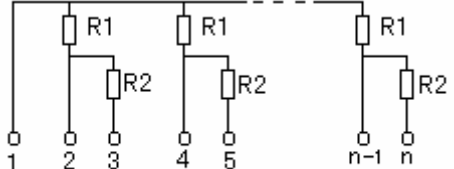
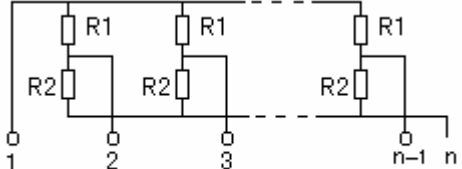
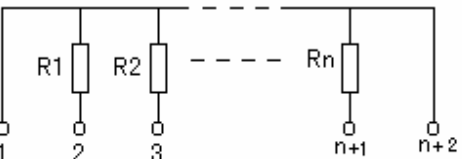
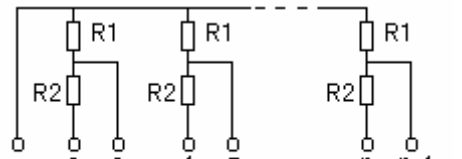
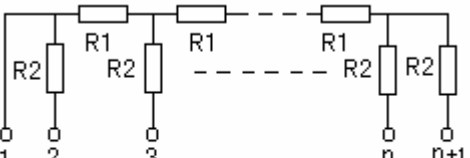
## 2.2 尺寸 Dimensions



代号 Code	常规尺寸 Normal Specification		特殊尺寸 Special Specification	
a	2.54×(n-1)+2.54max		1.778×(n-1)+3.20max	
b	A、B、C、D、E、F、G、H Circuit Symbol	5.08max	A、B、C、D、E、F、G、H Circuit Symbol	5.08max
	T 型电路 Circuit Symbol T	8.50max	T 型电路 Circuit Symbol T	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	
p	2.54±0.1		1.778±0.1	

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### 2.3 等效电路 Equivalent Circuit

代号 Symbol	等效电路 Equivalent Circuit	代号 Symbol	等效电路 Equivalent Circuit
A	 <p style="text-align: center;"><math>R1=R2= \dots =Rn</math></p>	B	 <p style="text-align: center;"><math>R1=R2= \dots =Rn</math></p>
C	 <p style="text-align: center;"><math>R1=R2= \dots =Rn</math></p>	D	 <p style="text-align: center;"><math>R1=R2= \dots =Rn</math></p>
E	 <p style="text-align: center;"><math>R1=R2</math>或<math>R1 \neq R2</math></p>	F	 <p style="text-align: center;"><math>R1=R2</math>或<math>R1 \neq R2</math></p>
G	 <p style="text-align: center;"><math>R1=R2= \dots =Rn</math></p>	H	 <p style="text-align: center;"><math>R1=R2</math>或<math>R1 \neq R2</math></p>
T	 <p style="text-align: center;"><math>R2=2R1</math>或<math>R2 \neq 2R1</math></p>		

### 2.4 产品外观 Appearance

2.4.1 网络电阻器外包封体保护覆盖完好且难以脱落。

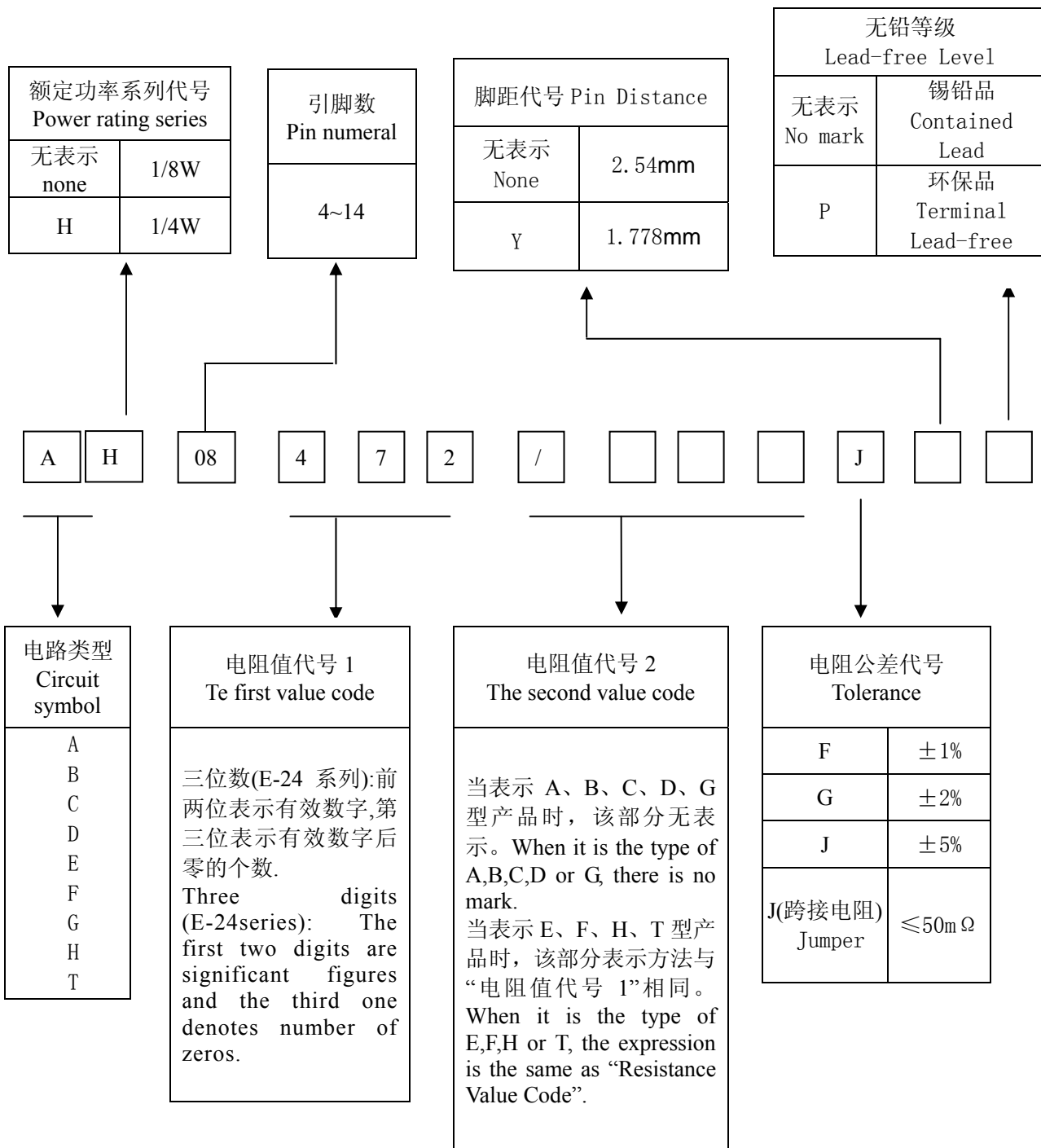
The protective coating should be entirely and don't fade easily.

2.4.2 网络电阻器引脚无变色 The lead pin should avoid discoloration

2.4.3 标记可辨 The mark is readable.

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3.0 型号规格表示办法 Explanation to the Part Number



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3.1 标记表示方法 The Explanation for the Resistance Value Marking

IEC E-24 系列电阻值对照表

IEC E-24 Series Resistance Cross-reference List

E-24 系列(E-24 series)

( $\times 10^n \Omega$ )

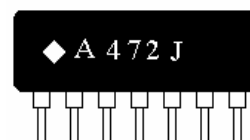
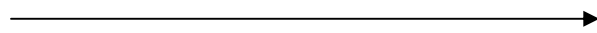
(单位 unit: 1 $\Omega$ 、10 $\Omega$ 、100 $\Omega$ 、1K $\Omega$ 、10K $\Omega$ 、100K $\Omega$ 、1M $\Omega$ )

表 一(table one)

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

例 for example:

A、B、C、D、G 型:



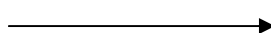
白色“◆”表示第一个脚 the first pin begin from the white dot;

“A”表示电路型号; “A” to express the circuit type,

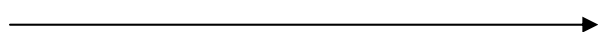
“472”表示电阻值代号; “472” to express the value code

“J”表示电阻公差代号; “J” to express the tolerance。

另: “H”标识电阻功率为 1/4W, 无标识为 1/8W



E、F、H、T 型:



“472”表示 R<sub>1</sub> 的电阻值代号; the “472” to express the first value code

“102”表示 R<sub>2</sub> 的电阻值代号; the “102” to express the second value code

其他与上同 and other expression is the same as above。

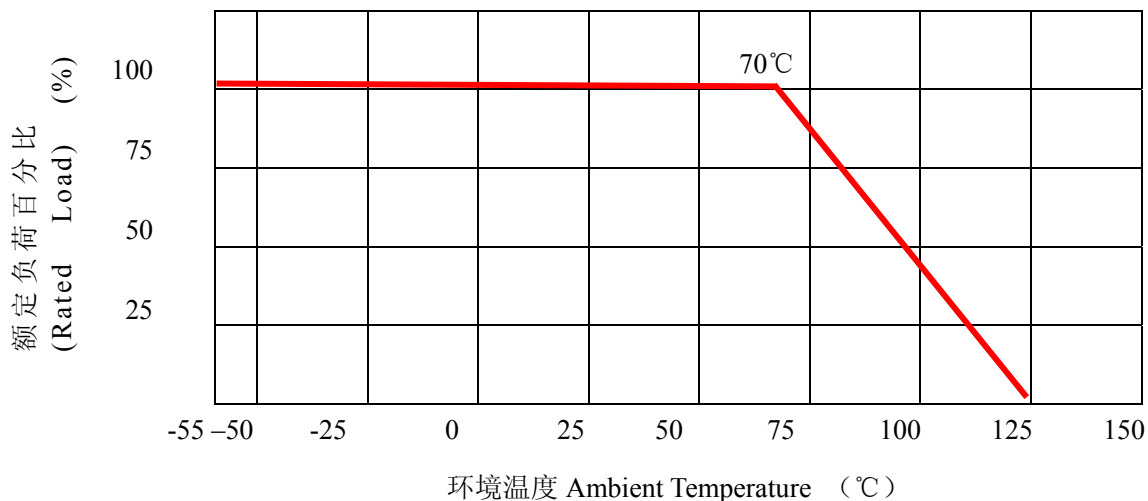


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**4.0 电气性能 Performance Specification**

项 目 Item	规 格 Specification	
额定功率 Rated Power	常规功率 Normal Power	特殊功率 Special Power
	1/8W	1/4W
	注：当使用环境温度超过 70℃时应按“负荷下降曲线”（见下图）降负荷 Remark: When used at ambient temperature over 70℃, the load power should be reduced as “Power Derating Curve” shown below.	
最大工作电压 Max. Voltage	200V	
最大过负载电压 Max. Overload Voltage	280V	
跨接电阻额定电流 Rated Current for Chip Jumper	2A	
电阻公差 Tolerance	±1% ,±2% ,±5%(跨接电阻 Chip Jumper:≤50 mΩ)	
阻值范围 Resistance Range	阻值范围 Resistance Range	系列 Series
	0Ω（跨接电阻 Chip Jumper） 1.0Ω~10MΩ	E-24 系列
使用温度范围 Temperature Range of Use	-55~+125℃	
额定温度 Rated Temperature	+70℃	

**负荷下降曲线 Power Derating Curve**

 使用温度范围  
 Temperature Range of Use  
 -55℃~+125℃


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5.0 可靠性 Reliability Data			
项目 Item	标准 Specification		试验方法 Test Method (GB/T 15654-1995)
	网络电阻器 Network Resistor	跨接电阻 Jumper	
电阻温度系数 Resistance Temperature Coefficient	电阻值 Resistance	电阻温度系数代号 T. C. R Code	测定范围  Measured Between  -55℃~+125℃
	1Ω≤R<10Ω 1MΩ<R≤10MΩ	±250PPM/℃	
	10Ω≤R≤1MΩ	±100PPM/℃	
短时间 过负载 Short Time Overload	无可见损伤 No visual damage		对电阻器施加 2.5 倍额定电压,或 最大过负载电压(取最小值),持续 5 秒, Apply 2.5 times rated voltage or the max. overload voltage(choose the small one) for 5 seconds.
	△R≤±(2.0%R+0.05Ω)	R≤50 mΩ	
包封绝缘阻抗 Insulation Resistance to Protective coating	100MΩ Min		施加 500V DC  Apply 500V DC
包封绝缘耐电压 Protective Coating Insulation with Standing Voltage	无弧光、燃烧以及本体被击穿现象 No arc, inflammation and damage		施加 500V DC 保持 1 min Apply 500V DC for 1min
可焊性 Solderability	可焊面积≥80%. The termination coverage should be 80% cover min		260℃±5℃ 2±0.5 s
耐焊接热 Resistance to Soldering Heat	无可见损伤 No Mechanical Damage		270±5℃, 5±1s
	△ R≤±(1.0%R+0.05Ω)	R≤50mΩ	
耐溶剂性 Resistance to Solvent	无可见损伤 No Mechanical Damage		浸入三氯乙烯 10±1 小时  Dip in solvent for 10±1 hours.
	△ R≤±(1.0%R+0.05Ω)	R≤50mΩ	

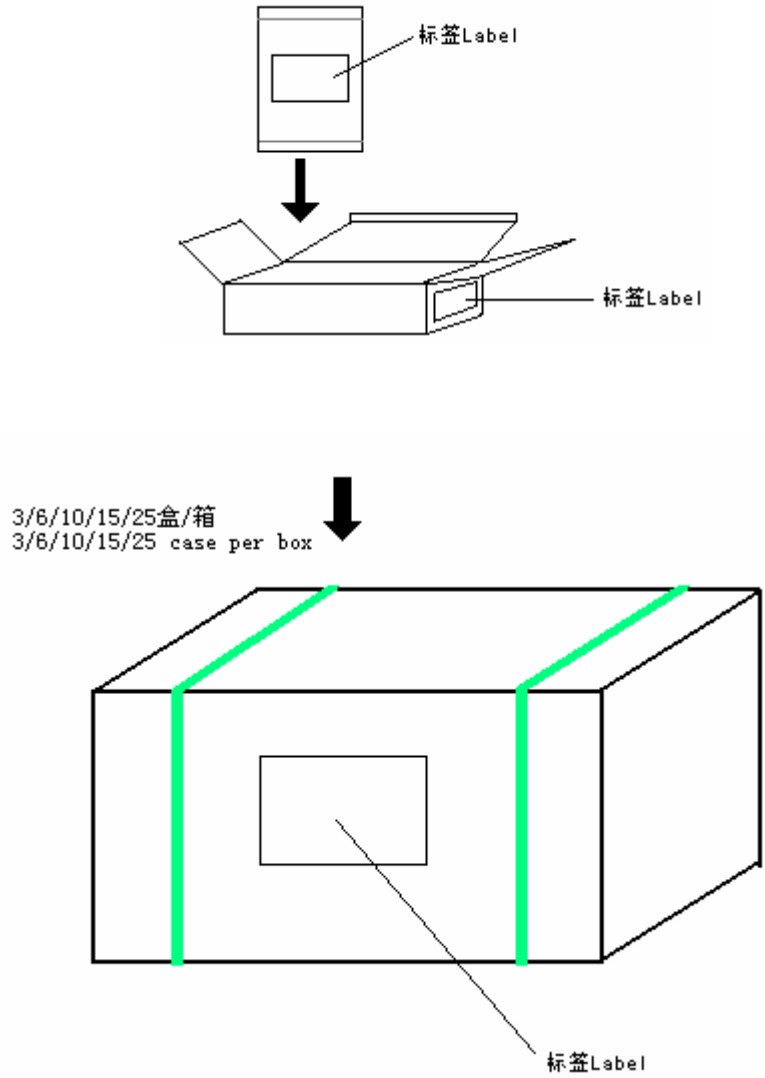
网络电阻器 Network Resistor		版本号 version of:P-4.10	
4~14P 引线系列 SIP Series		DH10-0915	
项目 Item	标准 Specification		试验方法 Test Method (GB/T 15654-1995)
	网络电阻器 Network Resistor	跨接电阻 Jumper	
引线强度 Pin Strength	无可见损伤 No Mechanical Damage		将引线焊接在网络电阻的受试引出端后施加拉力，拉力至 5N 止。Pulling with 5N force.
	$\Delta R \leq \pm(1.0\%R+0.05\Omega)$	$R \leq 50m\Omega$	
抗弯强度 Bending Strength	无可见损伤 No Mechanical Damage		对受试引出端施加 5N 的力，使引出端在同一方向上弯曲两次。 Force with 5N on the lead pin in the same direction for twice.
	$\Delta R \leq \pm(1.0\%R+0.05\Omega)$	$R \leq 50m\Omega$	
温度快速循环 Rapid Temperature Cycling	无可见损伤 No Mechanical Damage		-55℃±3℃ (30min) ~ 25±3 (2~3min) ~ 125℃±2℃ (30min) 为 1 个循环,共五个循环。 -55℃±3℃(30min)→25±3℃(2~3min)→125℃±2℃(30min)as one cycle, tota5 cycles
	$\Delta R \leq \pm(1.0\%R+0.05\Omega)$	$R \leq 50m\Omega$	
稳态湿热 Humidity (steady state)	无可见损伤 No Mechanical Damage		电阻器在温度为 40℃±2℃,湿度 90~95%湿热试验箱内维持 1000 小时。 exposed at 40℃±2℃ and 90~95%RH for 1000 hours
	$\Delta R \leq \pm(3.0\%R+0.1\Omega)$	$R \leq 100m\Omega$	
70℃ 耐久性 Load life at 70℃	无可见损伤 No Mechanical Damage		70℃±2℃, 1000 h , 期间以 1.5 小时通, 0.5 小时断施加额定电压, exposed at 70℃±2℃, apply rated voltage with 1.5h "ON", 0.5h "OFF";, duration: 1000hours
	$\Delta R \leq \pm(3.0\%R+0.1\Omega)$	$R \leq 100m\Omega$	
上限类别温度 耐久性 Endurance at Upper Temperature	无可见损伤 No Mechanical Damage		电阻器在温度为 125℃±2℃ 试验箱内维持 1000 小时.Exposed at 125℃±2℃ for 1000h
	$\Delta R \leq \pm(3.0\%R+0.1\Omega)$	$R \leq 100m\Omega$	



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6.0 包装 Package

6.1 包装形式 Packaging Style



6.2 包装数量 Packaging Quantity

产品脚数 Pin Number	袋装数量 Qty in Plastic Bag	盒装数量 Qty in Inner Box	箱内数量 Qty in Case
4~5pins	200pcs	10 袋/盒	3 盒/箱
6~11pins	200pcs	5 袋/盒	6 盒/箱
12~14pins	200pcs	4 袋/盒	10 盒/箱
			15 盒/箱
			25 盒/箱

注：因数量不足时，以空盒填充。If the quantity is not enough, fill up with empty box.

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### 6.3 标签 Label

#### ●袋装标签 Label on the Plastic Bag

- |                           |                             |                        |
|---------------------------|-----------------------------|------------------------|
| 1. 风华型号规格 fenghua Part No | (2. 客户物料号 customer part No. | 3. 客户订单号 customer P/O) |
| 4. 数量 quantity            | 5. 公称阻值 resistance          | 6. 额定功率 rated power    |
| 7. 出厂日期 delivery date     | 8. 生产批号 Lot No.             | 9. 电阻值误差 tolerance     |
| 10. QC 印章 QC marking      | 11. ROHS 印章 ROHS marking    |                        |

#### ●内箱标签 Label on Inner Box

- |                           |                             |                        |
|---------------------------|-----------------------------|------------------------|
| 1. 风华型号规格 fenghua Part No | (2. 客户物料号 customer part No. | 3. 客户订单号 customer P/O) |
| 4. 数量 quantity            | 5. 公称阻值 resistance          | 6. 额定功率 rated power    |
| 7. 出厂日期 delivery date     | 8. 生产批号 Lot No.             | 9. 电阻值误差 tolerance     |
| 10. QC 印章 QC marking      | 11. ROHS 印章 ROHS marking    |                        |

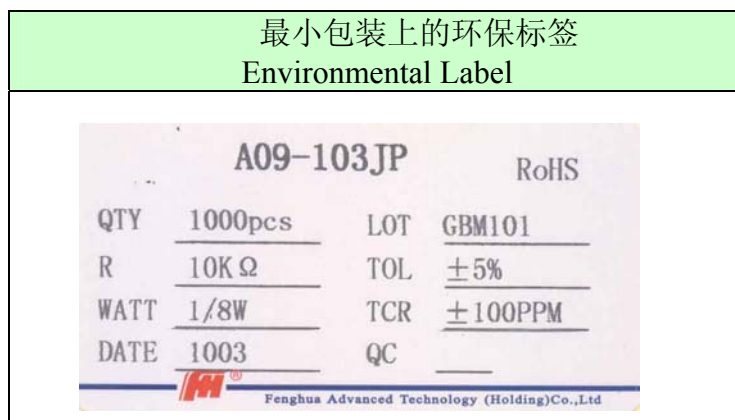
#### ●外箱标签 Label on Outer Packaging Box

- |                            |                      |                         |
|----------------------------|----------------------|-------------------------|
| 1. 客户名称 customer name      | 2. 合同编号 contract No. | 3. 产品名称 product name    |
| 4. 风华型号规格 fenghua part NO. | 5. 数量 quantity       | 6. 箱号 case No.          |
| 7. 制造者名称 maker name        | 8. QC 印章 QC marking  | 9. ROHS 印章 ROHS marking |

注:①( )部分可按客户要求而定 Remark: The content with bracket could be designed according to customers' requirement.

①无铅引脚排阻的标签识别方法: 在对于无铅引脚的产品, 会在袋装标签、内外箱标签分别上增加“ROHS”印章作为识别, 见如下图样:

Identification method for labels: there would be ROHS markings on both of the inner and outer packaging labels as identification for the lead-free the pin product.





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<p>7.0 贮存方法 Storage Methods:</p> <ul style="list-style-type: none"> <li>● 贮存条件:温度 5~30℃,相对湿度 30%~70%.</li> </ul> <p>Storage Conditions: T: 5~30℃,RH: 30%~70%.</p> <ul style="list-style-type: none"> <li>● 避免存放于有腐蚀性气体的环境。</li> </ul> <p>Avoiding storage in place full of corrosive gas.</p> <p>8.0 使用注意事项 Precautions for Use</p> <ul style="list-style-type: none"> <li>● 建议在符合以上贮存条件下 24 个月内使用，</li> </ul> <p>The products are suggested to be used within 24 months when received, and the storage condition mentioned above should be followed.</p> <ul style="list-style-type: none"> <li>● 请您盖章确认后将复印件返我司，如三个月后未返我司将视做默认接受。</li> </ul> <p>Be sure to return a copy to our company after stamping your company acceptance, if no copy returned after three months, we would judge that you should receive and accept this approval sheet.</p> <ul style="list-style-type: none"> <li>● 如承认书有任何变更，之前的版本自动作废。</li> </ul> <p>If there is any amendment, the former version shall become invalid.</p> <p>9.0 环保情况说明 Environmental Protection Statement</p> <ul style="list-style-type: none"> <li>■ 产品符合 RoHS 指令 Compliant with RoHS Directive</li> <li>■ 不含有 RoHS 禁止的 Cd-Hg-PBB-PBDE-Cr6 五种有害物质</li> </ul> <p>Free from Cd-Hg-PBB-PBDE-Cr6 that banned in the RoHS Directive.</p> <ul style="list-style-type: none"> <li>■ 引脚无铅 (Pb≤100ppm) The pin finish of the network resistor has been lead-free(Pb≤100ppm)</li> </ul> <p>[说明：网络电阻器引脚为无铅，但本体中所使用的玻璃材料中含有的铅由于业界技术水平的限制，所以本体中(包括电极、电阻体、一次玻璃)仍然含有一定的铅。但这部分铅属于 RoHS 豁免范畴“<u>在阴极射线管、电子元件和荧光显像管中的玻璃中的铅</u>”，所以，我们的产品是符合 RoHS 指令的。</p> <p>At present, the pin finish of the network resistor has been lead-free, but the leads that contain in the resistor body (including electrode, resistive element, first glass coating) still exist for the alternative technology is not established. And the lead in the glass material of electronic components are exempt from abolish that stated in the RoHS directive, so the product is compliant with RoHS directive.</p>	