



承 认 书

APPROVAL SHEET

客户名称: _____
CUSTOMER

品 名: 功率型厚膜片式电阻器 (无铅表面处理)
PARTNAME THICK FILM CHIP RESISTOR WITH HIGH POWER(Lead Free Surface Treatment)

- RPE03 * * *
- RPF05 * * *
- RPG06 * * *
- RPG1210 * * *
- RPJ10 * * *
- RP 12 * * *

规 格:

SPECIFICATION _____
版本号: RP-1.1
VERSION _____

日 期: _____
DATE _____

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



功率型片式电阻器承认书 Approval Sheet For Chip Resistor With High Power	版本号 Version of: RP-1.1
RP□□□□	DH09-0609

1.0 概述 Summary

功率型片式电阻器主要生产的型号包括 0603、0805、1206、1210、2010、2512。其特点是：

The dimension type for High Power chip resistor including 0603、0805、1206、1210、2010、2512, and the features are as below:

■ 特长 Features

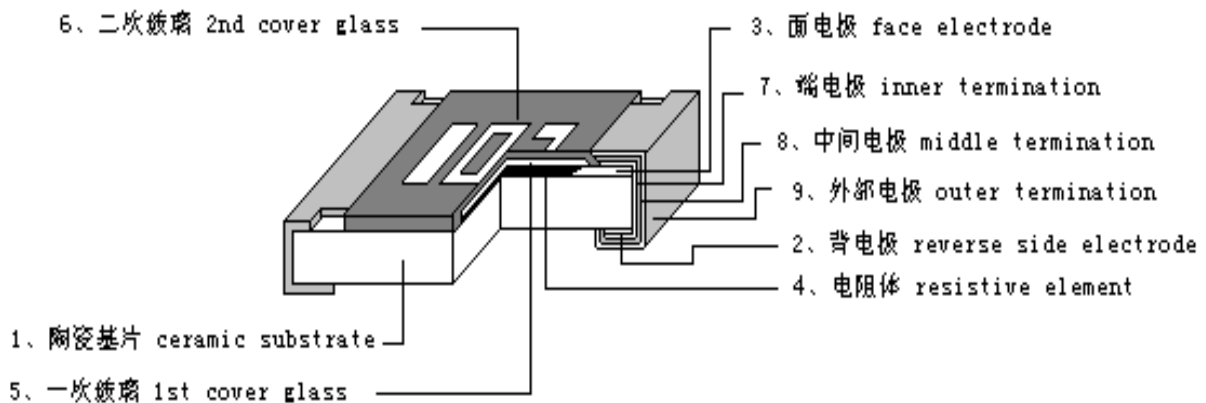
- 最高功率可达 3 W
- 最低 TCR 为 ±50 PPM/°C
- 体积小，重量轻
- 适应再流焊与波峰焊
- 装配成本低，并与自动装贴设备匹配
- 适于作电流探测用电阻器如电源电路、发动机用电路等
- 机械强度高、高频特性优越
- 符合 ROHS 指令要求
- High power up 3W
- Lowest TCR is ±50 PPM/°C
- Miniature and light weight
- Suit for re-flow and wave flow solder.
- Low assembly cost, suit for automatic SMT equipment.
- Current detecting resistors for power supply, motor circuits, etc.
- Superior mechanical and frequency characteristics
- According with RoHS standard

■ 应用领域 Applications

开关电源、音频设备的过电流保护、电压调节器、电源转换器、充电器、汽车引擎控制器、便携式设备等
Switching Power Supply、Over Current Protection in Audio Application、Voltage Regulation Module (VRM)、DC-DC Converter、Charger、Automotive Engine Control、Portable Devices etc.

2.0 结构及尺寸 Structure And Dimensions

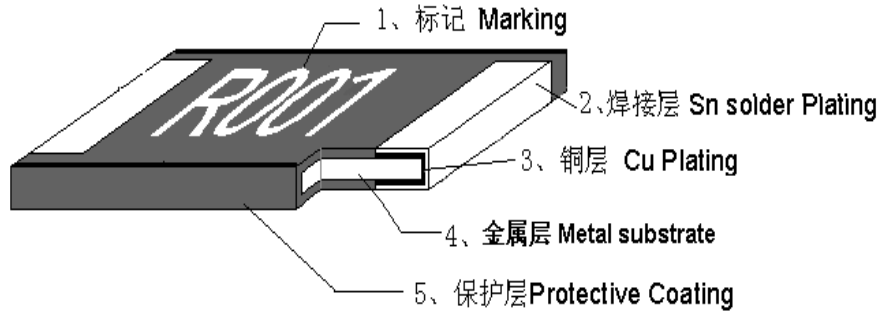
2.1 结构 1 (Structure 1):



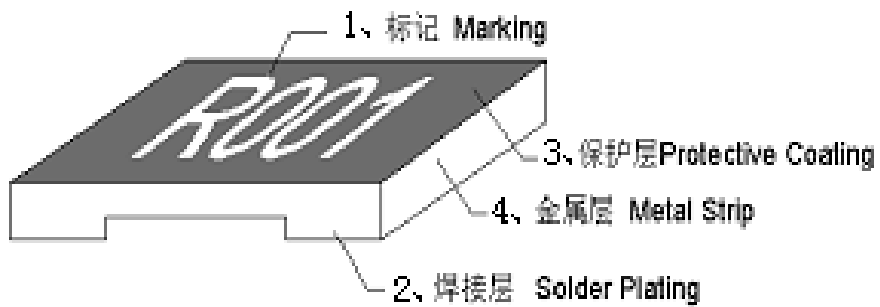


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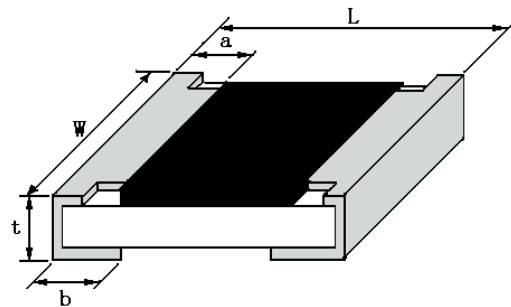
结构 2 (Structure 2):



结构 3 (Structure 3):



2.2 结构 1 尺寸 Structure 1 Dimensions:

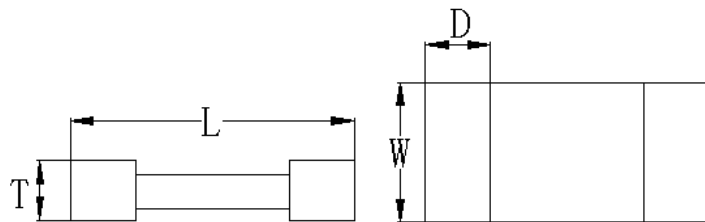




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型号 Type	L (mm)	W (mm)	t (mm)	a (mm)	b (mm)
0603	1.60±0.15	0.80±0.15	0.40±0.10	0.30±0.20	0.30±0.20
0805	2.00±0.20	1.25±0.15	0.50±0.10	0.40±0.20	0.40±0.20
1206	3.20±0.20	1.60±0.15	0.55±0.10	0.50±0.20	0.50±0.20
1210	3.20±0.20	2.50±0.20	0.55±0.10	0.50±0.20	0.50±0.20
2010	5.00±0.20	2.50±0.20	0.55±0.10	0.60±0.20	0.60±0.20
2512	6.40±0.20	3.20±0.20	0.55±0.10	0.60±0.20	0.60±0.20

结构 2 尺寸 Construction 2 Dimensions:



型号 Type	阻值 Resistance(mΩ)	L (mm)	W(mm)	T (mm)	D (mm)
RP□12□M50□	0.50	6.35±0.25	3.18±0.25	1.40±0.20	1.30±0.30
RP□12□M75□	0.75	6.35±0.25	3.18±0.25	1.00±0.20	1.30±0.30
RP□12□R001□	1.00	6.35±0.25	3.18±0.25	0.80±0.20	1.30±0.30
RP□12□1M50□	1.50	6.35±0.25	3.18±0.25	0.65±0.20	1.30±0.30
RP□12□R002□	2.00	6.35±0.25	3.18±0.25	0.50±0.20	1.30±0.30



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结构 3 尺寸 Construction 3 Dimensions:

型号 Type	阻值 Resistance (mΩ)	L (mm)	W(mm)	T (mm)	D (mm)
RP□12□□□□□□	0.50~0.75	6.35±0.25	3.18±0.35	1.00±0.20	1.93±0.75
RP□12□□□□□□	1.0~20	6.35±0.25	3.18±0.35	0.60±0.20	1.93±0.75

2.3 产品外观 Appearance

2.3.1 电阻器表面二次玻璃体保护膜覆盖完好且难以脱落,表面平整;

The surface of resistor is covered with Protecting Coating which hard to fade, and the surface of coating should avoid unevenness.

2.3.2 电阻器端电极覆盖均匀、镀层较难脱落、而且平整、无开裂、针孔、变色;

The terminal part is covered equable, the plating is hard to fade, and should avoid unevenness, flaw, pinhole and discoloration.

2.3.3 电阻器芯片无裂痕、标记可辨。

With a clear mark, the resistor body is crack-free.



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3.0 型号规格表示办法 How To Order

RP

G

03

M

R047

F

T

产品代号 Product Code
功率型厚膜片式固定电阻器 Thick film chip fixed

型号代号 Type Code	
代号 Code	型号 Type
03	0603
05	0805
06	1206
1210	1210
10	2010
12	2512

电阻温度系数代号 Resistance Temperature Coefficient Code	
代号 Code	T.C.R
H	± 50 PPM/°C
X	± 75 PPM/°C
K	± 100 PPM/°C
J	± 150 PPM/°C
L	± 250 PPM/°C
M	± 500 PPM/°C
N	-100~+400 PPM/°C
R	± 700PPM/°C
S	± 1000PPM/°C
T	± 2000PPM/°C

电阻值代号 Resistance Value Code
单位 Ω，小数点用 R 表示；单位 mΩ，小数点用 M 表示；Units: Ω Decimal point should be expressed by "R"; Units:m Ω Decimal point should be expressed by "M"; 例如 Example: R22=0.22 Ω R10=0.10 Ω R047=0.047 Ω M50=0.50m Ω 2M50=2.50m Ω

包装方式代号 Packing Style Code	
代号 Code	包装方法 Packing Style
T	编带包装 Tape & Reel
B	塑料盒包装 Bulk Case
C	塑料袋散装 Case

额定功率代号 Power Rating Code	
代号 Code	额定功率 Power rating
E	1/8W
F	1/4W
G	1/2W
H	3/4W
J	1W
K	1.5W
L	2W
M	2.5W
N	3W

电阻值误差精度代号 Resistance Tolerance Code	
代号 Code	误差精度 Tolerance
F	± 1%
G	± 2%
H	± 3%
J	± 5%
K	± 10%



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<p>3.1 标记表示方法 The Explanation For The Resistance Value Marking</p> <p>IEC E-24、E-96 系列电阻值对照表 IEC E-24、E-96 Series Resistance Cross-reference List</p> <p style="text-align: center;">E-24 系列 (E-24 series) (× 10ⁿ Ω)</p> <p style="text-align: center;">(单位 unit: 1 Ω、10 Ω、100 Ω、1K Ω、10K Ω、100K Ω、1M Ω、10M Ω)</p> <p style="text-align: center;">表一 Table one</p>							
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		
<p style="text-align: center;">E-96 系列 (E-96 series) (× 10ⁿ Ω)</p> <p style="text-align: center;">(单位: 1 Ω、10 Ω、100 Ω、1K Ω、10K Ω、100K Ω、1M Ω、10M Ω)</p> <p style="text-align: center;">表二 Table two</p>							
1.00	1.33	1.78	2.37	3.16	4.22	5.62	7.50
1.02	1.37	1.82	2.43	3.24	4.32	5.76	7.68
1.05	1.40	1.87	2.49	3.32	4.42	5.90	7.87
1.07	1.43	1.91	2.55	3.40	4.53	6.04	8.06
1.10	1.47	1.96	2.61	3.48	4.64	6.19	8.25
1.13	1.50	2.00	2.67	3.57	4.75	6.34	8.45
1.15	1.54	2.05	2.74	3.65	4.87	6.49	8.66
1.18	1.58	2.10	2.80	3.74	4.99	6.65	8.87
1.21	1.62	2.15	2.87	3.83	5.11	6.81	9.09
1.24	1.65	2.21	2.94	3.92	5.23	6.98	9.31
1.27	1.69	2.26	3.01	4.02	5.36	7.15	9.53
1.30	1.74	2.32	3.09	4.12	5.49	7.32	9.76



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<p>■E-24 系列 E-24 Series:</p> <p>▲ 当 $0.1 \Omega \leq R < 1 \Omega$ 时, 采用三位数字表示, 小数点用“R”表示(第一位), 其中后两位为 E-24 系列电阻值有效数。 For resistance in the range of $0.1 \Omega \leq R < 1 \Omega$, expressed with three digits, “R” represents decimal point (the first digit), the last two digits represent significant figures in E-24 Series. 例 For example: 阻值为 0.47Ω → 标记代号为 R47 Resistance as 0.47Ω → Marking would be R47 阻值为 0.1Ω → 标记代号为 R10 Resistance as 0.1Ω → Marking would be R10</p> <p>▲ 当 $0.01 \Omega \leq R < 0.1 \Omega$ 时, 对于 0805、1206、1210、2010、2512 型号, 标记与电阻值代号相同; 用四位数表示, 小数点用“R”表示(第一位), 第二位为“0”, 后两位为 E-24 系列电阻值有效数; 对于 0603 型号, 标记用三位数表示, 第一位为“V”, 后两位为 E-24 系列电阻值有效数。 For resistance in the range of $0.1 \Omega \leq R < 1 \Omega$, and the dimension type of 0805、1206、1210、2010、2512, the marking and resistance code are the same; Expressed the resistance value with four digits, “R” represents decimal point (the first digit), the second digit is “0”, the last two digits represent significant figures in E-24 Series; for the dimension of 0603, expressed the resistance value with three digits, the first digit is “V”, the last two digits represent significant figures in E-24 Series. 例 For example: 0805 以上型号产品阻值为 0.047Ω → 标记代号为 R047 For the dimension type of 0805、1206、1210、2010、2512, resistance as 0.047Ω → Marking would be R047. 0603 型号产品阻值为 0.047Ω → 标记代号为 V47 For the dimension type of 0603, resistance as 0.047Ω → Marking would be V47.</p> <p>■E-96 系列 E-96 Series: 当 $0.1 \Omega \leq R < 1 \Omega$ 时, 采用四位数字表示, 小数点用“R”表示, 其中后三位为 E-96 系列电阻值有效数。 For resistance in the range of $0.1 \Omega \leq R < 1 \Omega$, expressed the resistance value with four digits, “R” represents decimal point (the first digit), the last three digits represent significant figures in E-96 Series. 例 For example: 阻值为 0.499Ω → 标记代号为 R499 Resistance as 0.499Ω → Marking would be R499. 阻值为 0.102Ω → 标记代号为 R102 Resistance as 0.102Ω → Marking would be R102.</p> <p>■非 IEC 标准系列的电阻值标记表示方法: 一般以最接近 IEC E-24 系列标称阻值的标记表示方法。 For the resistance which don't belong to IEC serial, use the resistance of IEC serial which is most close to the required resistance of non-IEC serial for replacement.</p> <p>■客户对标记有特殊要求时, 则按照协商的结果印刷标记 To get agreement by both party if there special requirement for the marking.</p>	



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4.0 额定值及电气性能 Ratings and Performance Specification						
▲额定值 (结构 1 产品) Ratings (Construction 1)						
项 目 Item	0603	0805	1206	1210	2010	2512
额定功率 Rated Power	1/8W	1/4W	1/2W	1/2W	1W	1W
阻值范围 Resistance Range	10 mΩ ≤ R < 1000 mΩ					
电阻公差 Tolerance for Resistor	±1%、±2%、±3%、±5%、±10%					
使用温度范围 Temperature Range of Use	-55℃ ~ +125℃					
额定温度 Rated Temperature	+70℃					
▲额定值 (结构 2、3 产品) Ratings (Construction 2、3)						
项 目 Item	2512					
额定功率 Rated Power	2W		2.5W	3W		
阻值范围 Resistance Range (mΩ)	0.5~2.0	7.0~10.0	4.0~6.0	1.0~2.0	3.0	0.5~0.75
电阻公差 Tolerance for Resistor	±1%、±2%、±3%、±5%、±10%					
使用温度范围 Temperature Range of Use	-55℃ ~ +170℃					
额定温度 Rated Temperature	+70℃					
4.1 电气性能 Performance Specification						
额定电压及使用 最大工作电压 Rated Voltage & Max. Voltage Used	<p>每一阻值额定电压根据下列公式计算出，当计算出的额定电压超过表中最大工作电压时，所使用的额定电压应为表中最大工作电压。</p> <p>The rated voltage at each resistance should be calculated. From the equation below , and when the rated voltage exceeds the maximum voltage used shown in the table, the rated voltage used should be the maximum voltage.</p>					
	$E = \sqrt{P \times R}$ <p>E: 额定电压 Rated Voltage (V) R: 标称阻值 Normal Resistance (Ω) P: 额定功耗 Rated Power (W)</p>			型号 Type	使用最大工作电压 Max Voltage Used	
				0603	50V	
				0805	150V	
			1206 1210 2010 2512	200V		



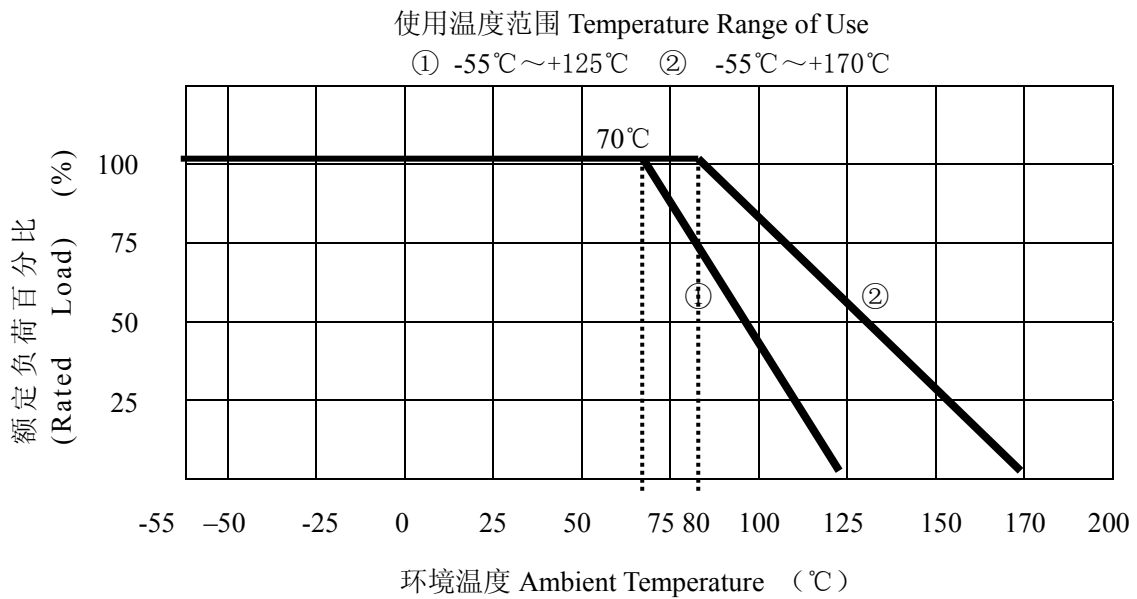
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项 目 Item	标 准 Specification					
最大过负载电压 Max. Overload Voltage	最大过负荷电压为：2.5 倍额定电压(2.5×E) 当计算出的电压值超过下表中最大过负荷电压时,按下表: The Max. Overload Voltage should be 2.5×E, When the Voltage exceeds the maximum overload voltage in the table below. the value shown in the table should be the maximum one.					
	0603	0805	1206	1210	2010	2512
	100V	300V	400V	400V	400V	400V

注：当使用环境温度超过 70℃/80℃时应按“负荷下降曲线”（见下图）降负荷。
Remark: When used at ambient temperature over 70℃/80℃, the load power should be reduced as “Power Derating Curve” shown below.

负荷下降曲线 Power Derating Curve

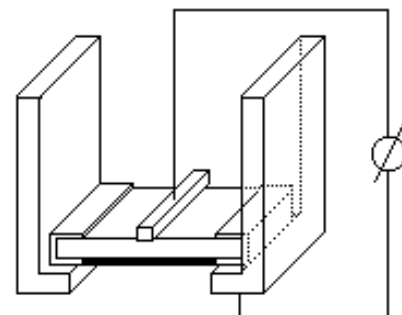


曲线①适用于结构 1 产品 Curve ① is the same with Construction 1

曲线②适用于结构 2、3 产品 Curve ② is the same with Construction 2、3



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5.0 可靠性 Reliability Data					
5.1 可靠性 1 (适用于结构 1 产品) Reliability Data 1 (Apply to Construction 1)					
项目 Item	标准 Specification				试验方法 Test Method
	片状电阻器 Resistor				
电阻温度系数 Resistance Temperature Coefficient	型号 type	电 阻 值 Resistance	电阻温度系数 Resistance Temperature Coefficient	代号 code	测定范围 Measured Between -55°C ~ +125°C
	0603 0805 1206 1210 2010 2512	$0.01 \Omega \leq R < 1 \Omega$	$\pm 500 \text{PPM}/^\circ\text{C}$	M	
短时间过负载 Short Time Overload	无可见损伤 No mechanical damage. $\Delta R \leq \pm(2.0\%R + 0.005 \Omega)$		2.5 倍额定电流或最大过负荷电流 (取最小者) 保持 5 秒 (JIS C 5202) 2.5 × Rated Current or Max Overload Current, whichever is lower, for 5 seconds		
绝缘电阻 Insulation Resistance	1000MΩ Min		在电极与基片间施加 100V 直流电压,保持 1 分钟,然后测绝缘电阻值。 Apply DC 100V between substrate and termination for 1 minute, then check insulation resistance.		





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项目 Item	标准 Specification 片状电阻器 Resistor	试验方法 Test Method (JIS C 5202)
可焊性 Solder-ability	可焊面积 ≥95%. The termination coverage should be 95% cover min	将片状电阻器浸入非活性焊剂中浸渍大约 2S,然后去除多余焊剂,将片状电阻器浸入到焊料槽内深达 10mm,焊料槽温度为 240℃ ±5℃,浸入时间为 2s ± 0.5s,用溶剂清洗掉电阻器上的焊剂残余物,后在 10 倍放大镜下观察。Resistor should be dipped in the melted solder bath at 240℃ ±5℃ for 2s ± 0.5s. Flux should be removed from the surface of the termination with clean organic solvent.
耐焊接热 Resistance to Soldering Heat	无可见损伤 No mechanical damage. $\Delta R \leq \pm(2.0\%R + 0.005 \Omega)$	将片状电阻器浸入焊料槽内深达 10mm,焊料槽内温度为 270℃ ±5℃,浸入时间 10s ± 1s,在室温放置 1~2 小时。用溶剂将多余的焊剂清洗掉,然后测量电阻值。 Resistor should be dipped in the melted solder bath at 270℃ ±5℃ for 10 s ± 1s, Flux should be removed from the surface of the termination with clean organic solvent., resistor should be exposed at room condition for one or two hours, then check the resistance value.
端头强度 Bending Strength	无可见损伤 No mechanical damage. $R \leq \pm(2.0\%R + 0.005 \Omega)$	基板:环氧玻璃层压印制线路板,厚度:1.6mm Substrate :Glass Epoxy (t=1.6mm) 铜箔厚度 Thickness of Copper foil:0.035mm 支持台距离 Span:90mm. 弯曲距离 Bending Distance: 0603、0805、1206、1210、1218: 3mm 1812、2010、2512 : 1 mm 保持时间(duration):10s ± 1s



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项目 Item	标准 Specification	试验方法 Test Method(JIS C 5202)
	片状电阻器 Resistor	
温度快速变化 Rapid Temperature cycle	无可见损伤 No mechanical damage. $\Delta R \leq \pm(2.0\%R+0.005\Omega)$	-55℃±3℃ 30 分钟←常温(2~3) 分钟→125℃±3℃ 30 分钟连续 5 个循环.电阻器在标准大气条件下恢复不少于 1 小时,也不多于 2 小时。 -55℃±3℃ for 30mins←normal temp. for (2~3) mins →125℃±3℃ for 30mins , total 5 个 cycles.
稳态湿热 Steady State Humidity	无可见损伤 No mechanical damage. $\Delta R \leq \pm(3.0\%R+0.005\Omega)$	电阻器在温度为 40℃±2℃,湿度 90%~95%湿热试验箱内维持 1000 小时。 Resistor should be exposed at 40℃±2℃ and 90~95% relative humidity in a humidity test chamber for 1000 hours.
负载寿命 (70℃耐久性) Load Life	无可见损伤 No mechanical damage. $\Delta R \leq \pm(3.0\%R+0.005\Omega)$	在温度在 70℃±2℃环境状态下以 1.5 小时通,0.5 小时断周期地施加电压(额定电压或最大工作电压两者较小者),持续进行 1000 小时。 Resistor should be exposed at 70℃±2℃ for 1000hours ,during this time the rated voltage or the max working voltage (choose the small one)shall be applied intermittently for 1.5 hours ON,0.5 hours OFF.
耐溶剂性 Resistance to Solvent	无可见损伤 No mechanical damage. $\Delta R \leq \pm(2.0\%R+0.005\Omega)$	溶解溶液:三氯乙烯,浸 10 小时±1 小时。 Dipping in solvent solution of Isopropyl alcohol for 10h±1h.

5.2 可靠性 2 (适用于结构 2、3 产品) Reliability Data 2 (Apply to Construction 2&3)

项目 Item	标准 Specification	试验方法 Test Method(JIS C 5202)
	片状电阻器 Resistor	
电阻温度系数 T.C.R	在规定值内 within specified T.C.R	测定范围: -55℃~+125℃ Measure between -55℃~+125℃ (MLT-STD-202F-Method 304)
热冲击 Thermal Shock	无可见损伤 No mechanical damage. $\Delta R \leq \pm(1.0\%R+0.5m\Omega)$	-55℃~150℃ 100 个循环 (MLT-STD-202F-Method 107G) -55℃~150℃ 100cycles
短时间过负载 Short Time Overload	无可见损伤 No mechanical damage. $\Delta R \leq \pm(1.0\%R+0.5m\Omega)$	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. (JIS C 5202)



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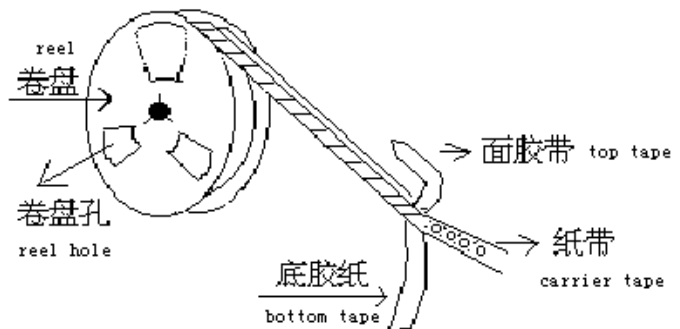
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耐焊接热 Resistance to Soldering Heat	无可见损伤 No mechanical damage. $\Delta R \leq \pm(1.0\%R + 0.5m\Omega)$	260°C ± 5°C 10 ± 1 秒 (MLT-STD-202F-Method 210E) 260°C ± 5°C 10 ± 1s
负载寿命 (70°C 耐久性) Load Life	无可见损伤 No mechanical damage. $\Delta R \leq \pm(1.0\%R + 0.5m\Omega)$	70°C ± 2°C 1000 小时 额定电压, 通 1.5 小时, 断 0.5 小时。(MLT-STD-202F-Method 108A) 70°C ± 2°C 1000h Rated voltage 1.5h/0.5off
可焊性 Solderability	可焊面积 ≥ 95%. The termination coverage should be 95% cover min	235°C ± 5°C 2 ± 0.5 秒 (MLT-STD-202F-Method 208H) 235°C ± 5°C 2s ± 0.5s
高温试验 Resistance to Dry Heat	无可见损伤 No mechanical damage $\Delta R \leq \pm(1.0\%R + 0.005\Omega)$	+155°C, 96 小时 (JIS C 5202) +155°C, 96h

6.0 包装 Package

6.1 编带包装 Taping

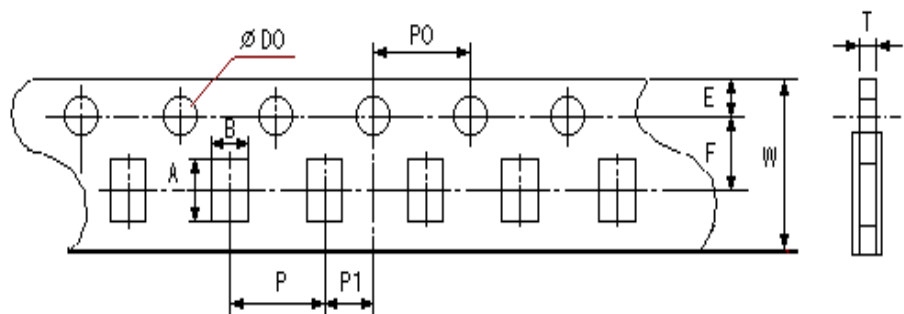
6.1.1 结构尺寸 Dimension And Structure



(A) 载带尺寸 Carrier Tape Dimension

■ 纸带编带 paper carrier tape

For 0603、0805、1206、1210 type





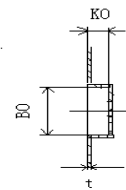
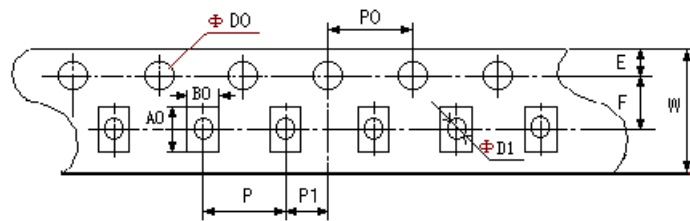
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单位 Unit:mm

型号 type	A	B	W	F	E
0603	1.85±0.10	1.10±0.10	8.00±0.20	3.50±0.05	1.75±0.10
0805	2.35±0.10	1.65±0.10	8.00±0.20	3.50±0.05	1.75±0.10
1206	3.50±0.20	1.90±0.20	8.00±0.20	3.50±0.05	1.75±0.10
1210	3.50±0.20	2.80±0.20	8.00±0.20	3.50±0.05	1.75±0.10

型号 type	P	P0	P1	ΦD0	T
0603	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.60±0.10
0805	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.75±0.10
1206	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.75±0.10
1210	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.75±0.10

■ 塑料带编带 Embossed tapping



unit: mm

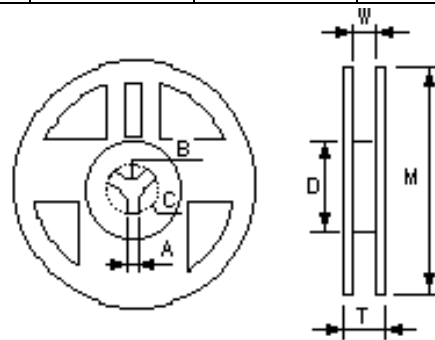
型号 type	A0	B0	W	F	E	t	备注	
2010	5.45±0.10	2.77±0.10	12.00±0.10	5.50±0.10	1.75±0.10	0.24±0.05	结构1 产品 Construction 1	
2512	6.73±0.10	3.40±0.10	12.00±0.10	5.50±0.10	1.75±0.10	0.24±0.05		
2512	0.50mΩ	6.70±0.10	3.40±0.10	12.00±0.10	5.50±0.10	1.75±0.10	/	结构2、3 产品 Construction 2、3
	0.75mΩ	6.80±0.10	3.50±0.10	12.00±0.10	5.50±0.10	1.75±0.10	/	
	1~10.mΩ	6.70±0.10	3.40±0.10	12.00±0.10	5.50±0.10	1.75±0.10	/	

型号 type	P	P0	P1	ΦD0	ΦD1	K0	备注	
2010	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.10/-0	1.50±0.10	0.84±0.10	结构1 产品 Construction 1	
2512	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.10/-0	1.50±0.10	0.81±0.10		
2512	0.50mΩ	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.10	1.4Min	1.40±0.10	结构2、3 产品 Construction 2、3
	0.75mΩ	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.10	1.4Min	1.35±0.10	
	1~10.mΩ	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.10	1.4Min	0.80±0.10	



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(B) 卷盘尺寸 Reel Dimension unit:mm							
型号 type	M	W	T	A	B	C	D
0603 0805 1206 1210	178±2.0	9.5±1.0	12.5±1.5	2.0±0.5	13.0±0.5	21.0±0.5	58.0±2.0
2010 2512	178±2.0	13.0±0.5	15.5±1.5	2.0±0.5	13.0±0.5	21.0±0.5	57.0±2.0



6.1.2 编带包装标准 Taping Specification

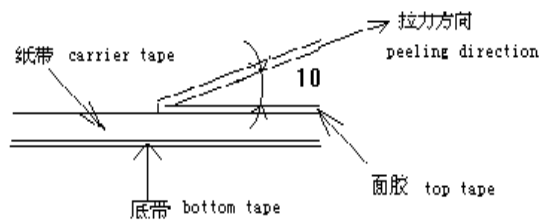
(A) 能力 Ability

■ 面带拉力 top tape peel strength

面带拉力强度为 11~70g(0.1N~0.7N), 速度: 300mm/min, 经下列试验后不允许有破裂断带现象。

Peel strength is 11~70g(0.1N~0.7N) with speed of 300mm/min, and should not have flash and tear after peeling.

测试方法 test method:



■ 最小弯回半径 minimum bending radius:

当载带弯回到胶盘最小盘心半径时 (50mm), 应无漏片和载带破损现象。When carrier tape being bent by minimum bending radius(50mm),no deflection of chip and no break of carrier tape.

■ 面胶温度测试 resistance to climate (for top tape)

在温度为 60℃, 湿度 90%~95%条件下, 维持 120 小时后, 面带不会自动剥离。

The top tape don't peel off after exposing at 60℃, 90%~95% RH for 120 hours.

■ 芯片松动自如,无粘面、底胶现象。

Resistor is free, no sticking to top tape and bottom tape.

■ 芯片易从纸带中取出,且芯片孔无机械损伤。

Resistor is easy to take out from carrier tape and chip hole have no mechanical damage.



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(B) 编带包装数量 Quantity In Taping		unit: PCS / reel
型号规格 type	数量 quantity	
0603 0805 1206 1210	5000	
2010 2512	4000	

(C) 载带说明 Carrier Tape Statement

无组件 有组件 无组件 牵引带（仅面胶）
no components have components no components lead Tape (only top tape)

终端部 前端部 牵引带

纸带输送方向
Direction of Feeding

长度 length unit:mm

终端部 terminal	前端部 front	牵引带 lead tape
110~140	200-250	300-350

6.1.3 外包装 Outer Packaging

第一次包装：数量：1卷~10卷 第二次包装：数量：最多8盒
the first package : 1~10 reels the second package: 8 case Max

标识
Marking

标识
Marking



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■当数量为最小时,使用别的方法包装,确保运输过程中无问题是至关重要的。

When the quantity is a few, alternative packing methods may be used. It is very important to ensure the safety of the products during transportation.

6.1.4 标签 Label

■卷盘标签 label on the reel

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

■内箱标签 label on inner packaging box

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

备注 Remark:

①()部分可按客户要求而定。

The content with bracket could be designed according to customers' requirement.

①一般情况下,环保标志采用“GP”或“RoHS”两种,客户可根据需要选择其中一种 usually, the environmental Logo will use “GP” or “RoHS” which up to customers' Decision.

格式	卷盘标签上的环保标志 environmental logo on reel label	外箱上的环保标志 environmental logo on outer box
格式一		
格式二		

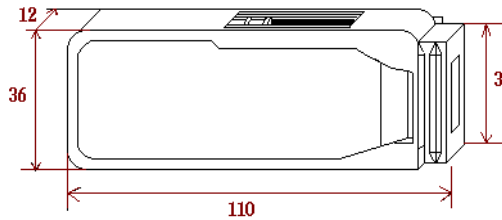


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6.2 塑料盒包装说明 Bulk Case Packaging

6.2.1 结构尺寸 Dimension And Structure



6.2.2 包装数量 Packaging Quantity

unit: PCS

包装方法 Packaging style	塑料盒 Bulk case					塑料袋散装 Bulk	
型号 Type	0603	0805	1206	1210 2010	2512	0603 0805 1206	1210 2010 2512
数量 Quantity	25,000	10,000	5,000	1,500	1,000	≤10,000	≤4,000

7.0 环保情况说明 Environmental Protection Statement

※ 产品符合 RoHS 指令 Compliant with RoHS Directive.

1) 表面处理层（即外部电极）无铅（Pb≤100ppm）

The termination of the chip resistor is lead-free(Pb≤100ppm).

2) 本体中的铅属于RoHS指令豁免的“玻璃中的铅”

the Pb in the resistor body is belong to the RoHS exception of “Pb in glass material ”

※ 根据中国《电子信息产品污染控制管理办法》的规定，片式电阻器的有害物质情况如下：

According to the requirement of Administration on the Control of Pollution caused by Electronic Information Products, below are the hazardous substance information for the chip resistor:

部件名称 part name	有毒有害物质或元素 hazardous substance					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
片式电阻器 chip resistor	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。
○: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the threshold requirement in ST/J11363-2006.

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。
×: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the threshold requirement in ST/J11363-2006.

※ 产品的环保使用期限标志如下：

the Environment Friendly Use Period logo as below:



备注：此环保使用期限只适用于产品是在本产品承认书中所规定的条件下工作。

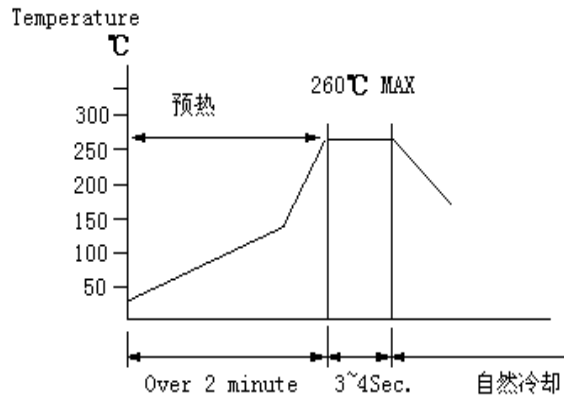
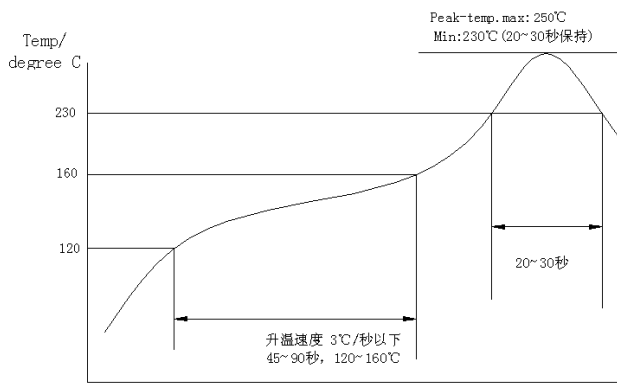
Remarks: above “Environment Friendly Use Period” only applicable under the condition specified in this approval sheet.



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8.0 表面处理无铅片阻推荐使用的焊接曲线 Recommended Soldering Profile

- 推荐的回流焊曲线 Recommended re-flow profile
 - 推荐的波峰焊曲线 Recommended wave solder profile
- 回流3次 Re-flow 3 times



- 推荐的焊膏类型 Recommended solder alloy: 96.5Sn-3.0Ag-0.5Cu

9.0 贮存方法 Storage Methods

- 贮存条件: 温度 5°C~30°C, 相对湿度 30%~70%.
Storage conditions: T: 5°C~30°C, RH: 30%~70%.
- 避免存放于有腐蚀性气体的环境。
Avoiding storage in place full of corrosive gas.

10.0 使用注意事项 Precautions For Use

- 建议在符合以上贮存条件下 6 个月内使用。
The products are suggested to used within six months when received, and the storage condition mentioned above should be followed.
- 无铅表面处理的产品既适用于无铅焊接也适用于锡铅焊接。
The lead-free surface treatment products are applicable for lead-free soldering and Pb/Sn soldering also.
- 请您盖章确认后, 将复印件御返我司, 如三个月后未御返我司, 我们将视做默认接受。
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 shall receive and accept this approval sheet.
- 如承认书有任何变更, 之前的版本自动作废。
If there is any amendment, a former version shall become invalid.