1 产品适用范围 Scope of product

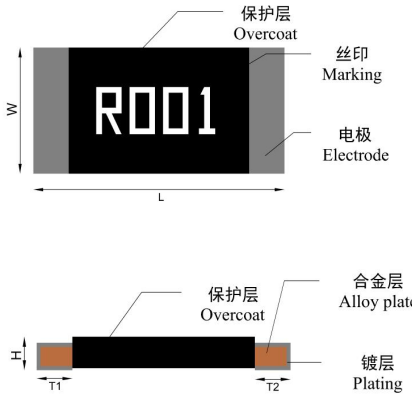
本规格书属于 2512 系列高功率合金采样电阻，使用无铅、无卤素环氧树脂、低阻值、抗硫化，符合 RoHS 标准。

This specification applies to the 2512 series high-power alloy current sensing resistor, which use lead-free, halogen-free epoxy resin, low resistance, and are resistant to sulfidation, and comply with the RoHS standard.

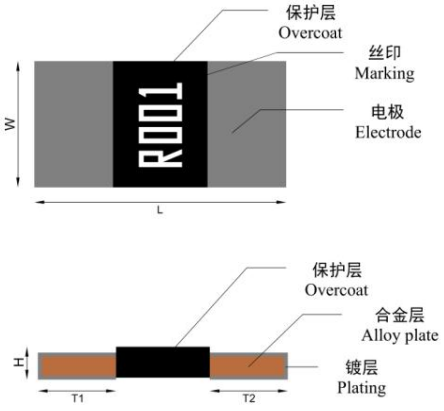
2 型号说明 Type Designation

RD	**X**	**XXXX**	**X**	**X**	**XXXX**	**X**	**07**
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
RD	N	2512	G	F	R010	B	07
类别 Type	电极类型 Electrode	系列 Series	额定功率 Power	公差精度 Tolerance	阻值 Resistance	温度系数 TCR	圆盘尺寸 Packing Type
合金电阻 Alloy Resistor	N：小电极 Nomal Electrode W：大电极 Wide Electrode	2512	G=3W E=2W	D=±0.5% F=±1.0% G=±2.0% J=±5.0%	R010:10mΩ=0.010Ω R100:100mΩ=0.1Ω	A:±25ppm/℃ B:±50ppm/℃ C:±100ppm/℃ D:±200ppm/℃ E:±350ppm/℃	07:7inch

3 尺寸及构造 Construction and Dimension



RDN2512



RDW2512

Type	Alloy Current Sensing Resistor	Series	2512

类别 Type	阻值 Resistance	L(mm)	W(mm)	H(mm)	T1(mm)	T2(mm)
RDN2512	1mΩ≦R≦500mΩ	6.40±0.20	3.20±0.20	0.75±0.20	0.90±0.20	0.90±0.20
RDW2512	0mΩ≦R≦4mΩ	6.40±0.20	3.20±0.20	0.75±0.20	2.0±0.20	2.0±0.20

4 物理特性 Electrical Specifications

类别 Type	功率 power	精度 Tolerance	阻值范围 Resistace Rage	TCR	绝缘阻抗 Insulation Resistance	最大工作电压 Maximum operating voltage (V)
RDN2512	2W	1%/2%/5%	1mΩ≦R＜2mΩ	±350ppm/℃	≥100MΩ	$(P*R)^{1/2}$
			2mΩ≦R≦500mΩ	±50ppm/℃		
RDN2512	3W		1mΩ≦R＜2mΩ	±350ppm/℃		
			2mΩ≦R≦100mΩ	±50ppm/℃		
RDW2512	3W	1%/2%/5%	0.5mΩ≦R＜1mΩ	±350ppm/℃	≥100MΩ	$(P*R)^{1/2}$
			1mΩ≦R＜2mΩ	±100ppm/℃		
			2mΩ≦R≦4mΩ	±50ppm/℃		

5 可靠性试验 Reliability Tests

项目 Project	**测试条件** Test Method	**规格和要求** Specifications and Requirements	**引用标准** Reference
温度系数(TCR) Temperature coefficient of Resistance	$TCR = \frac{(R2-R1)}{(R1(T2-T1))} \bullet 10^6$ R1:室温下测量之阻值（Ω）；Resistance measured at room temperature R2：125℃下测量之阻值（Ω）；Resistance measured at 125℃ T1：25℃；T2：125℃	IEC60115-1 4.8 参考物理特性 TCR 规格 Refer to TCR specifications for physical features	IEC60115-1 4.8
短时间过负荷 Short Time Overload	额定功率 5 倍，持续 5s；5 times rated power, maintain 5s	△R≤±1.0%	IEC60115-1 4.13
耐电压 Withstand voltage	在电极与基片之间以大约 100V/S 的速率施加有效值为最大过负荷电压的交流电，保持 60±5s; An alternating current with an effective value of the maximum overload voltage is applied between the electrode and the substrate at a rate of approximately 100V/S, maintaining 60±5s	无击穿和电弧 No breakdown or arc	IEC60115-1 4.17

耐热性试验 Resistance to Soldering Heat	锡炉中保持温度：260℃±5℃ ，持续时间：10s±1s 260℃±5℃ tin tank, hold for 10s±1s	△R ≤ ±0.5%，没有明显的损坏 No visible damage	IEC60115-1 4.18
高温放置 High Temperature Exposure	放置温度：170℃±2℃；持续时间：1000h；静置 1h，测试阻值 Temperature：170℃±2℃;Time:1000h;stand for1h,test the resistance value	△R ≤ ±1.0%	IEC 60115 1 4.25.3
低温放置 Low Temperature Exposure	放置温度：-55℃±2℃；持续时间：1000h；静置 1h，测试阻值 Temperature：-55℃±2℃；Time：1000h；stand for1h,test the resistance value	△R ≤ ±1.0%	IEC60115 1 4.23.4
温度循环+ Rapid change of Temperature	-55℃ 30 分钟~常温 5 分钟~155℃ 30 分钟 ，1000 个循环，静置 24h，测量阻值 -55℃ 30 minutes ~ normal temperature 5 minutes ~155℃ 30 minutes, 1000 cycles，Measurement at 24h after test conclusion.	△R ≤ ±1.0%	IEC60115-1 4.19
焊锡性 Solderability	锡炉中保持温度：245℃±5℃，持续时间：2s±0.5s 245℃±5℃ tin tank, hold 2s±0.5s	上锡面积不得低于 95% At least 95% of surface area of electrode shall be covered with new solder	IEC60115-1 4.17
弯曲测试 Bending test	弯折宽度：2mm，持续时间：60s±5s Bending distance 2mm, hold time 60s±5s	△R ≤ ±1.0%无机械损伤 No mechanical damage	IEC60115-1 4.33
长期耐久性 Load Life	额定功率下，放置温度 70℃±2℃，放置时间 1000h，其中接通时间为 1.5h，断开时间为 0.5h 70℃±2℃, 1000 hours, rated power， 1.5 hours on / 0.5 hours off	△R ≤ ±1.0%	IEC 60115 1 4.25.1
长期耐湿性 Biased Humidity	放置温度 85℃±2℃,放置湿度 85%±3%RH, 放置时间 1000 h, 其中接通时间为 1.5h，断开时间为 0.5h 85℃±2℃, 85%±3%RH, 1000 hours,rated power, 1.5 hours on / 0.5 hours off	△R ≤ ±1.0%	MIL-STD-202 Method 103

5.1 温度曲线 **Derating Curve**

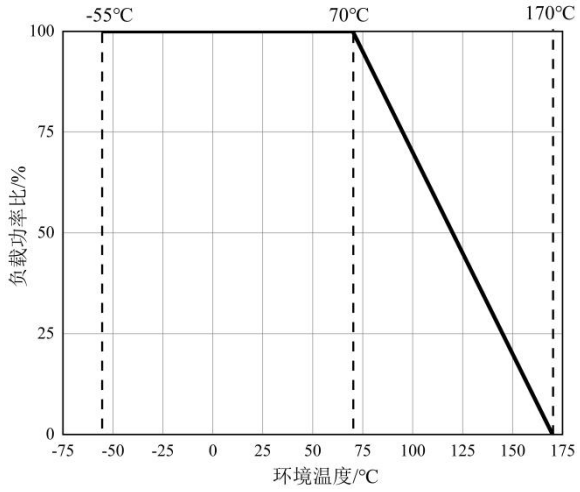
环境温度范围 Ambient Temperature：

– 55℃ to +170℃

额定功率 Rate Power

当电阻工作时的环境温度超过 70℃，额定功率随着温度的升高而减少

When the ambient temperature of the resistance in operation exceeds 70℃, the rated power decreases as the temperature increases



5.2 额定电流 **Rated Current**

额定电流可通过下面公式算出 The rated current is calculated by the following Formula

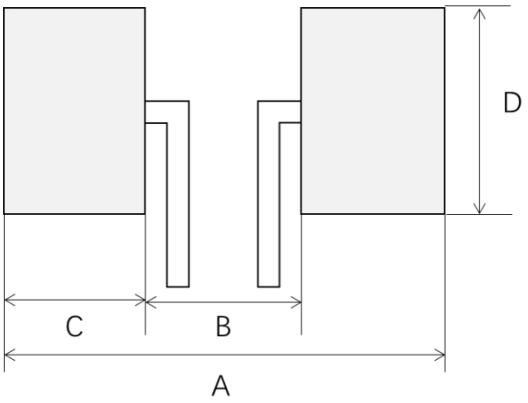
$$I = \sqrt{P/R}$$

I=额定电流 Rated Current（A）

P=额定功率 Rated Power（W）

R=电阻阻值 Resistance Value（Ω）

6 焊盘尺寸 Recommend Solder Pand Dimensions



Unit：mm

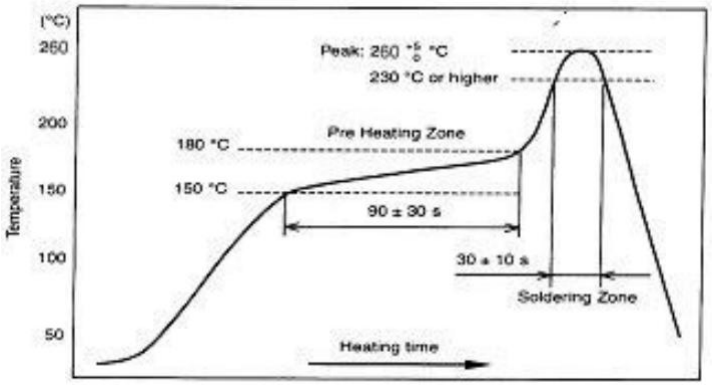
系列 Type	A	B	C	D
RDN2512	8.3	4.1	2.1	4.1
RDW2512	7.5	1.3	3.1	4.0

7 回流焊 IR Reflow-Soldering Profile

峰值 Peak: 260+5/-0 ℃， 5 s；

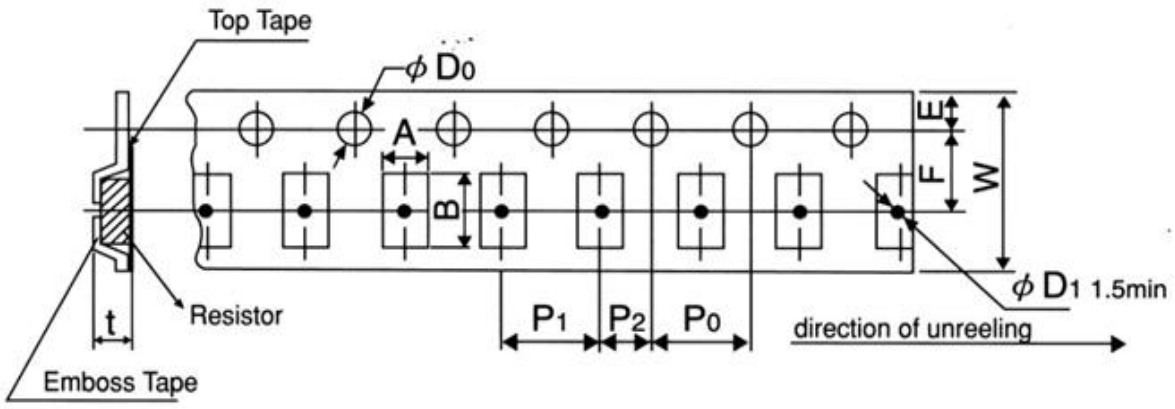
预热区 Pre – heat zone: 150~180℃，90±30 s

焊接区 Soldering zone: ≥230℃，30±10 s。



8 包装规格 Packing Specifications

8.1 载带尺寸 Taping



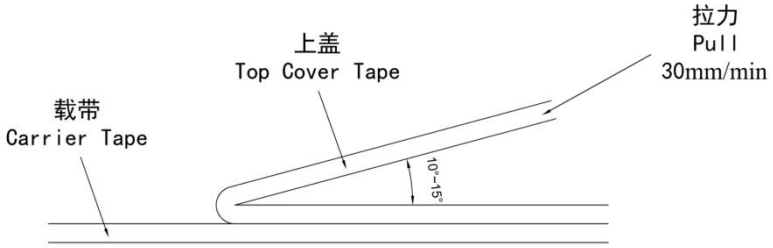
Unit:mm

Type	A	B	W	F	E	P1	P2	P0	D0	t
RDN2512	3.5±0.15	6.8±0.2	12.0±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	1.55±0.05	1.0±0.1
RDW2512	3.5±0.15	6.8±0.2	12.0±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	1.55±0.05	1.0±0.1

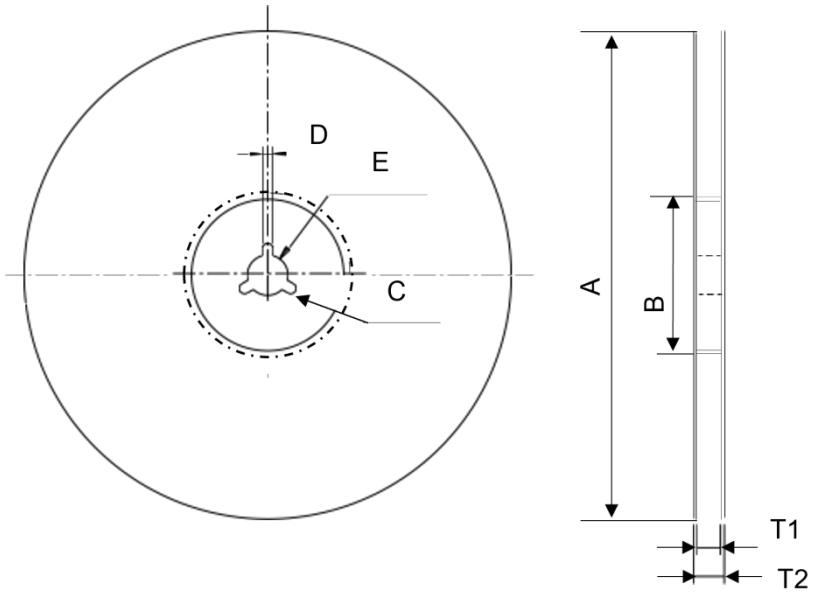
8.2 拉力测试 Peeling Strength of Top Cover Tape

纸带/PE 带、压纹带/吸塑带的剥离力符合《IEC 60286-3》规定：上盖剥离速度为 300±10mm /min，上盖宽度为 8mm，剥离拉力 0.1 N ~1.0 N，上盖宽度>8mm，剥离拉力 0.1 N ~ 1.3 N。剥离角度应在 165°~ 170°之间。

The peel strength of paper/PE tape and embossed tape/blister tape conforms to the specifications of IEC 60286-3: the top cover peel speed is 300±10 mm/min, with a top cover width of 8 mm and a peel force of 0.1 N to 1.0 N. For top cover widths greater than 8 mm, the peel force is 0.1 N to 1.3 N. The peel angle should be between 165° and 170°.



8.3 Reel



Unit:mm

系列 Type	A	B	C	D	E	T1	T2
RDN2512	179±1.0	59.8±0.5	13.2±0.3	2.2±0.3	>22	12.4±0.5	13.3±0.5
RDW2512	179±1.0	59.8±0.5	13.2±0.3	2.2±0.3	>22	12.4±0.5	13.3±0.5

9 产品使用注意事项 Precautions on use of products

1、使用时，避免采用超过正常额定功率的条件，否则可能会对产品的可靠性和稳定性产生影响；

2、产品储存条件：温度（5℃—35℃），湿度（40%—75%），保存期限二年；

3、产品应避免阳光直射，勿露天存放，勿将产品存放在有腐蚀性气体场所；

4、产品在搬运、存储过程中，严禁摔落、挤压箱体，保持箱体的正确朝向；

5、在镊子夹取产品应注意保护产品封装体和电极部分；

1、Avoid operating at power levels exceeding the normal rated power, as this may affect the product's reliability and stability;

2、Storage conditions：T（5℃—35℃）, RH（40%—75%）Shelf life 2 years；

3、Products should avoid direct sunlight, do not store in the open air, do not store products in corrosive gas places；

4、In the process of handling and storage, it is strictly prohibited to fall or squeeze the box to keep the correct orientation of the box

5、Be careful when pick up the products with tweezers.There may be a care that the overcoat or the body can be chipped.