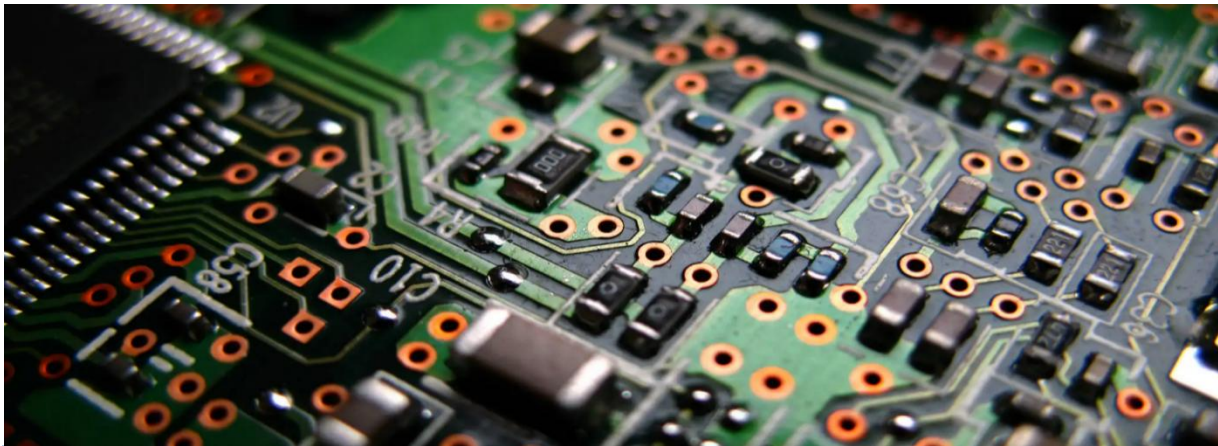


合金电阻规格书-2512

Alloy resistance specification

适用范围Scope

- 合金电阻2512系列 Metal Alloy Resistance 2512 Series.
- 符合RoHS 要求 Complies With RoHS Requirements
- 符合车规AEC-Q200 测试 Conforms To Vehicle-specific AEC-Q200 Tests
- 寄生电感小于等于5nH The parasitic inductance is less than or equal to 5 nH



型号规格Type Designation :

电阻尺寸 Product Type	产品类型 Resistor Size	功率 Power	阻值精度 Resistance tolerance	阻值范围 Resistance
2512	LE(大电极)	3W/4W	F: 1% G: 2% J: 5%	R000
				$R0005 \leq R \leq R004$
	SE(小电极)	3W/4W		$R001 \leq R \leq R020$
		2W/3W		$R001 \leq R \leq R220$
		2W		$R220 < R \leq R500$

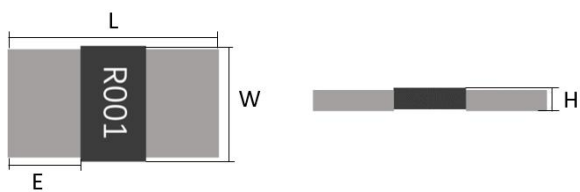
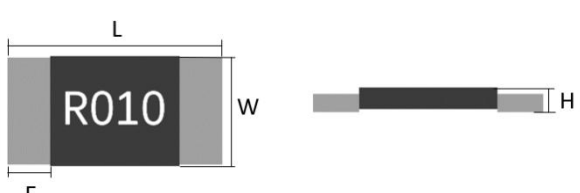
编码原则Coding principle:

制造商/产品 manufacturer	尺寸 size	类型 type	功率 power	阻值 resistance	精度 accuracy	包装数量 quantity
YHR	2512	大电极 LE 小电极 SE	2W/3W/4W	R001 R002	1%=F 2%=G 5%=J	2512 (4)

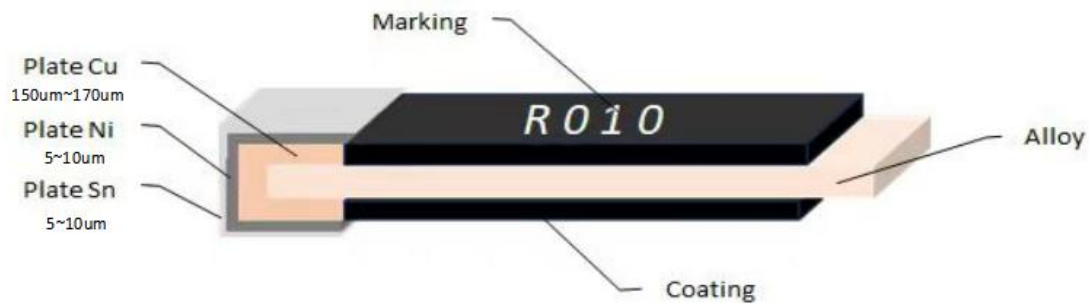
示例/ Example: YHR2512LE3WR001F4

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结构尺寸Construction and Dimension：

产品尺寸 Product	类型 type	图示 Illustration	尺寸 Size	图例 legend
2512	LE	L	6.4 ± 0.2	
		W	3.2 ± 0.2	
		E	2.2 ± 0.2	
		H	0.8 ± 0.08	
2512	SE	L	6.4 ± 0.2	
		W	3.2 ± 0.2	
		E	1.0 ± 0.2	
		H	0.8 ± 0.08	

内部结构Internal structure：

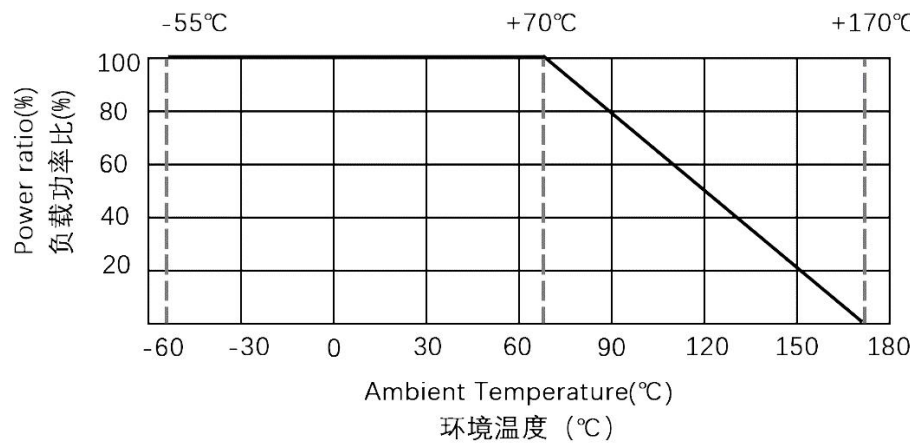


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电气规格Electrical Specifications :

类型 type	功率 power	阻值范围 Resistance range	材料 Material	温度系数 TCR	工作温度范围 Operating temperature range	阻值精度 Resistance tolerance	绝缘阻抗 Insulation resistance	最大工作 电压 Maximum operating voltage (V)
LE	2W/3W	$R < 0.2\text{m}\Omega$	紫铜	/	$-55^{\circ}\text{C} \sim +170^{\circ}\text{C}$	F: 1% G: 2% J: 5%	Over 100M Ω	$(P \cdot R)^{1/2}$
		$0.5\text{m}\Omega \leq R < 1\text{m}\Omega$	MnCu	$\pm 350\text{ppm}/^{\circ}\text{C}$				
		$1\text{m}\Omega \leq R \leq 4\text{m}\Omega$	MnCu	$\pm 50\text{ppm}/^{\circ}\text{C}$				
SE	2W/3W /4W	$1\text{m}\Omega \leq R \leq 1.5\text{m}\Omega$	MnCu	$\pm 350\text{ppm}/^{\circ}\text{C}$				
		$2\text{m}\Omega \leq R \leq 20\text{m}\Omega$	MnCu	$\pm 50\text{ppm}/^{\circ}\text{C}$				
	2W/3W	$20\text{m}\Omega < R \leq 150\text{m}\Omega$	MnCu	$\pm 50\text{ppm}/^{\circ}\text{C}$				
		$150\text{m}\Omega < R \leq 220\text{m}\Omega$	CuNi	$\pm 50\text{ppm}/^{\circ}\text{C}$				
	2W	$220\text{m}\Omega < R \leq 400\text{m}\Omega$	CuNi	$\pm 50\text{ppm}/^{\circ}\text{C}$				
	2W	$400\text{m}\Omega < R \leq 500\text{m}\Omega$	Kama	$\pm 50\text{ppm}/^{\circ}\text{C}$				

功率衰减曲线图 / Derating Curve



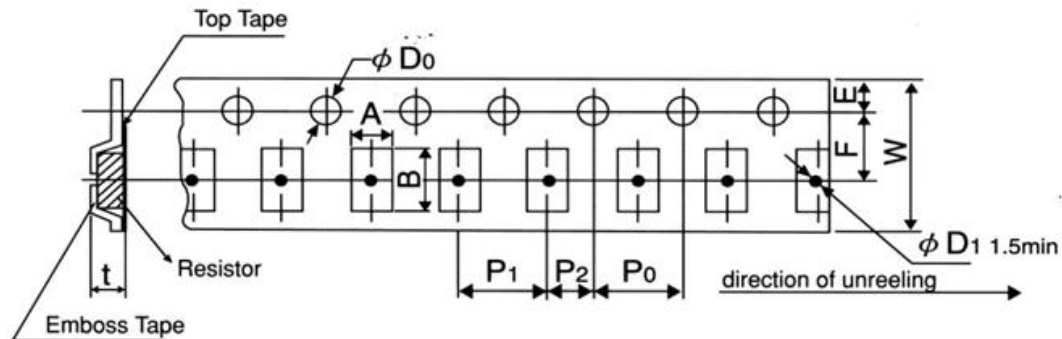
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可靠性验证 Reliability Tests

项目 Project	检测方法 Test Method (依据标准 Refer to IEC 60115, 60068; JIS-C 5201-1)	规格和要求 Specifications and Requirements
温度系数 Temperature coefficient (TCR)	25°C (T1、R1)、125°C(T2、R2)条件下分别测量阻值, 计算 TCR=(R2-R1)/(R1 (T2-T1)) *10 ⁶ Resistance values were measured at 25°C(T1, R1) and 125°C(T2, R2), and TCR was calculated as (R2-R1)/(R1 (T2-T1)) *10 ⁶	参考物理特性TCR规格 Refer to TCR specifications for physical features
短时间过载 Short Time Overload	5倍额定功率, 保持5s (R000, 最大电流200A) 5 times rated power, maintain 5s	$\Delta R \leq \pm (1\% + 0.05\text{m}\Omega)$
绝缘电阻 Insulation resistance	在电极与基片间施加100V±15V直流电压, 保持60s, 然后测绝缘电阻 Apply 100V±15V DC voltage between electrode and substrate, hold for 60 seconds, then measure insulation resistance	> 100 MΩ
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	无击穿或飞弧 No breakdown or arc
焊锡性 solderability	245°C±5°C 锡槽, 保持2s±0.5s 245°C±5°C tin tank, hold 2s±0.5s	电极上锡面积>95% At least 95% of surface area of electrode shall be covered with new solder
耐热性 Resistance to Soldering Heat	270°C±5°C 锡槽, 保持10s±1s 270°C±5°C tin tank, hold for 10s±1s	$\Delta R \leq \pm (0.5\% + 0.05\text{m}\Omega)$, 无可见损伤 no visible damage
弯曲测试 Bending test	弯曲距离2mm, 保持时间60s±5s Bending distance 2mm, hold time 60s±5s	$\Delta R \leq \pm (0.5\% + 0.05\text{m}\Omega)$ 无机械损伤 no mechanical damage
耐溶测试 Solvent resistance	异丙醇(IPA), 23°C±5°C, 浸10小时 Isopropanol (IPA) at 23°C±5°C for 10 hours	外观无明显损伤 No obvious damage to appearance
长期高温 High Temperature Exposure	高温170°C放置1000H 170°C±2°C, 1000H, stand for 1H, test the resistance value	$\Delta R \leq \pm (1.0\% + 0.05\text{m}\Omega)$
长期低温 Low Temperature Exposure	低温-55°C放置1000H -55°C±2°C, 1000H, stand for 1H, test the resistance value	$\Delta R \leq \pm (0.5\% + 0.05\text{m}\Omega)$
温度循环 Rapid change of Temperature	-55°C 30分钟~常温 5分钟~155°C 30分钟, 1000个循环 -55°C 30 minutes ~ normal temperature 5 minutes ~155°C 30 minutes, 1000 cycles	$\Delta R \leq \pm (0.5\% + 0.05\text{m}\Omega)$
长期耐久 Load Life	70°C±2°C, 1000小时, 额定功率, 通1.5小时/断0.5小时 70°C±2°C, 1000 hours, rated power, 1.5 hours on / 0.5 hours off	$\Delta R \leq \pm (1.0\% + 0.05\text{m}\Omega)$
长期耐湿 Moisture with Load	85°C±2°C, 85%±3%RH, 持续 1000 小时, 额定功率, 通1.5小时/断0.5小时 85°C±2°C, 85%±3%RH, 1000 hours, rated power, 1.5 hours on / 0.5 hours off	$\Delta R \leq \pm (1.0\% + 0.05\text{m}\Omega)$

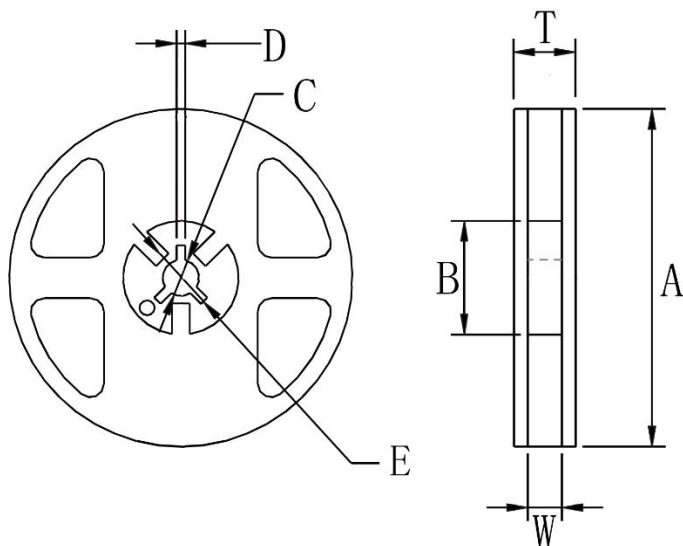
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载带尺寸Tape Packing Dimensions:



A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	t
3.5±0.15	6.8±0.1	12.0±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	1.5~1.6	1.0±0.1

卷盘尺寸Reel Dimensions:

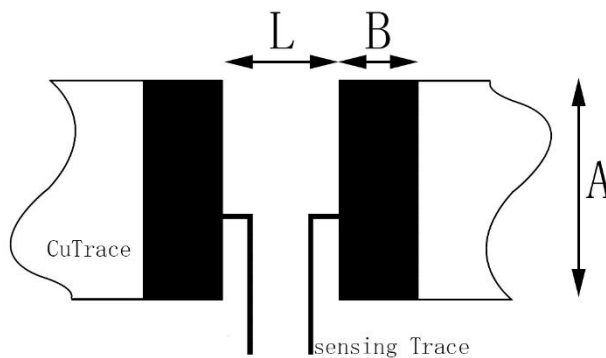


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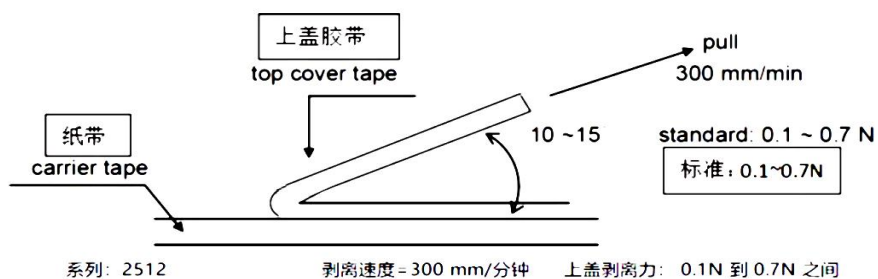
型号 Type	A	B	C	D	E	T	W
Reel	178±2.0	60±1.0	13±1.0	2.0±0.5	>22	15.4±0.5	13.3±0.5

焊盘尺寸 : Pad Size

焊盘 Pattern	尺寸Size	
	SE(短电极)	LE(长电极)
A	4.0	
B	2.1	3.1
L	4.1	1.3



载带拉力 : Belt Tension



系列: 2512

剥离速度 = 300 mm/分钟

上盖剥离力: 0.1N 到 0.7N 之间

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注意事项 : Matters Needing Attention

- 1, 储存时应注意温度和湿度 (温度 5 ~ 35℃, 相对湿度 45 ~ 75% RH). 湿度尽可能保持在范围内;
Chip resistor shall be stored in a room where temperature and humidity must be controlled.
(temperature 5 to 35℃, humidity 45 to 75% RH) However, a humidity keep it low, as it is possible.
- 2, 不能阳光长时间直接照射产品; Chip resistor shall be stored as direct sunshine doesn't hit on it.
- 3, 不能存储在潮湿, 灰尘及导致焊接性能变差的有害气体环境中(氯化氢气体、亚硫酸气体、硫化氢气体); Chip resistor shall be stored with no moisture, dust, a material that will make solder ability inferior, and a harmful gas (Hydrogen chloride, sulfurous acid gas, and Hydrogen sulfide)
- 4, 保存期限: 1 年; Storage life: 1 year;

版本信息 : Version History

版本 Version	日期 Date	修订描述 Description of amendment
A1	2022/12/5	首版发行
A2	2023/01/05	更新阻值段 R100-R220
A3	2023/02/03	修改包装数量
A4	2023/05/06	更新阻值段范围 R220-R500
A5	2024/01/23	更新阻值功率
A6	2024/12/02	更新寄生电感范围
A7	2025/02/26	更新内部结构图
A8	2025/04/15	更新阻值段落区间对应主材料名称说明

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