



HIGH VOLTAGE CHIP RESISTOR

HVR Series

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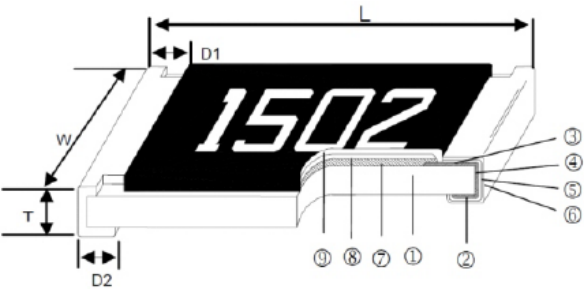
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High Voltage Chip Resistor 高压贴片电阻(HVR)

Feature 特性

Tolerance from ±1%~5% 容差从±1%~±5%
High reliability 高可靠性
Improved working voltage ratings 良好的抗高压性能
Standard package sizes of 0603~2512 (0603~2512)的标准封装方式

Construction 结构图



- ① Alumina Substrate

② Bottom Electrode(Ag)

③ Top Electrode(Ag-Pd)

④ Edge Electrode(NiCr)

⑤ Barrier Layer(Ni)

⑥ External Electrode(Sn)

⑦ Resistor Layer(RuO2/Ag)

⑧ Primary Overcoat(Glass)

⑨ Secondary Overcoat(Epoxy)
- 陶瓷基板(氧化铝基板)

下导电极(银)

上导电极(银-钯)

侧导电极(镍-铬)

电镀介质层(镍)

外部端电极(锡)

电阻层(氧化钌/银)

基层密封层(玻璃)

第二层密封层(树脂)

Dimensions 尺寸

Unit:mm

Size 规格	L	W	T	D1	D2
0402	1.00±0.05	0.50±0.05	0.35±0.05	0.20±0.10	0.20±0.10
0603	1.60±0.10	0.80±0.15	0.45±0.10	0.30±0.20	0.30±0.20
0805	2.00±0.15	1.25±0.15	0.50±0.10	0.40±0.20	0.40±0.20
1206	3.10±0.15	1.55±0.15	0.55±0.10	0.50±0.25	0.50±0.20
1210	3.10±0.10	2.60±0.15	0.55±0.10	0.50±0.25	0.50±0.20
2010	5.00±0.10	2.50±0.15	0.55±0.10	0.60±0.25	0.50±0.20
2512	6.35±0.10	3.10±0.15	0.55±0.10	0.60±0.25	0.50±0.20

Part Numbering 型号名称

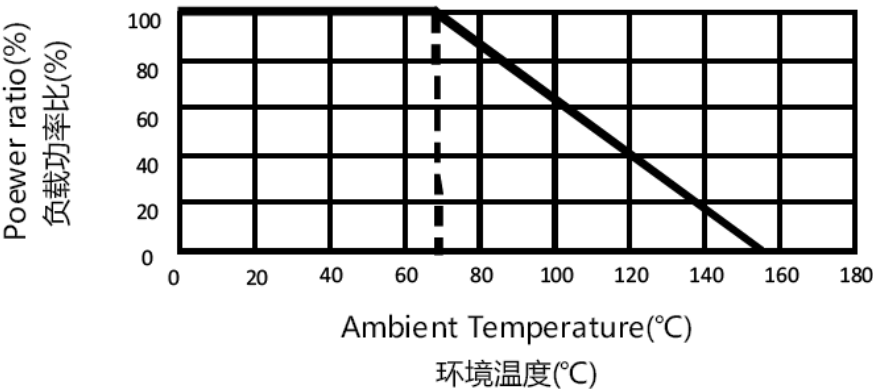
HVR	5025(2010)	L1003	F	T	Q
Product Type 产品型号	Resistor Size 电阻规格	Resistance 阻值	Resistance Tolerance 阻值公差	Packing Code 包装形式	High Power 升功率
	1005(0402) 1608(0603) 2012(0805) 3216(1206) 3225(1210) 5025(2010) 6432(2512)	5% L182:1.8KΩ L180:18 Ω 1% L1003:100KΩ L10R0: 10 Ω	F=1% J=5%	T: Taping Reel 卷装 B: Bulk 散装	Q : 3/4W

Standard Electrical Specifications 标准规格表

Item 项目 Type型号	Power Rating 额定功率	Operating Temp. Range 操作温度范围	Max. Operating Voltage 最大工作电压	Max. Overload Voltage 最大负载电压	Resistance Range 阻值范围		TCR温度系数 (PPM/°C)
					1%	5%	
0402	1/16W	-55~155°C	100V	200V	10Ω~1MΩ		±100
					1.02M~10MΩ	1.1M~20MΩ	±200
					-	22M~100MΩ	±400
0603	1/10W	-55~155°C	200V	400V	10Ω~1MΩ		±100
					1.02M~10MΩ	1.1M~20MΩ	±200
					-	22M~100MΩ	±400
0805	1/8W	-55~155°C	400V	800V	10Ω~1MΩ		±100
					1.02M~10MΩ	1.1M~20MΩ	±200
					-	22M~100MΩ	±400
1206	1/4W	-55~155°C	500V	1000V	10Ω~1MΩ		±100
					1.02M~10MΩ	1.1M~20MΩ	±200
					-	22M~100MΩ	±400
1210	1/2W	-55~155°C	800V	1500V	10Ω~1MΩ		±100
					1.02M~10MΩ	1.1M~20MΩ	±200
					-	22M~100MΩ	±400
2010	1/2W *3/4W	-55~155°C	2000V	3000V	10Ω~1MΩ		±100
					1.02M~10MΩ	1.1M~20MΩ	±200
					-	22M~100MΩ	±400
2512	1W	-55~155°C	3000V	4000V	10Ω~1MΩ		±100
					1.02M~10MΩ	1.1M~20MΩ	±200
					-	22M~100MΩ	±400

*:Ultra High Power 超大功率

Derating Curve 功率衰减曲线图



■ Environmental Characteristics 信赖性试验项目

Item 项目	Requirement 条件		Test Method 测试方法
	±1%	±5%	
Temperature Coefficient of Resistance(T.C.R.) 温度系数(T.C.R.)	As Spec. 参考规格表		-55°C~+125°C, 25°C is the refence temperature 参考温度
Short Time Overload 短时间过负载	±(1.0%+0.05Ω)	±(2.0%+0.05Ω)	RCWV*2.5 or Max.Overload voltage whichever is lower for 5 seconds,2 seconds for high power series 额定电压的2.5倍或最大负载电压5秒, 提升功率系列2秒
Insulation Resistance 绝缘阻抗	≥10G		Max.Overload voltage for 1 minute 施加最大负载电压1分钟
Endurance 负载寿命	±(2.0%+0.10Ω)	±(3.0%+0.10Ω)	70±2°C,RCWV for 1000 hrs with 1.5 hrs"ON" and 0.5 hrs "OFF" 70±2°C温度中施加额定电压,1.5 小时"开", 0.5小时 "关",共1000小时
Damp Heat with Load 耐湿负荷	±(2.0%+0.10Ω)	±(3.0%+0.10Ω)	40±2°C,90~95%R.H.,RCWV for 1000 hrs with 1.5 hrs"ON" and 0.5 hrs "OFF" 在温度40±2°C,相对湿度90~95%环境中施加额定电压, 1.5 小时"开", 0.5小时 "关",共1000小时
Dry Heat 耐热性试验	±(1.0%+0.05Ω)	±(1.5%+0.10Ω)	at +125/+155°C for 1000hrs 置于+125/+155°C 温度中, 共1000小时
Bending Strength 弯折强度测试	±(1.0%+0.05Ω)	±(1.0%+0.05Ω)	Bending once for 5 seconds 2010,2512 sizes:2mm Other sizes:3mm 产品焊在测试板上,中央施力下压5秒 下压深度: 2010,2512 :2毫米;其它尺寸 :3毫米
Solderability 焊锡性	95% min. coverage 导体爬锡面积大于95%		245±5°C for 3 seconds 245±5°C锡炉中,持续3秒
Resistance to Soldering Heat 抗焊锡热	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	260±5°C for 10 seconds 260±5°C锡炉中,持续10 秒
Voltage Proof 耐电压	No breakdown or flashover 无击穿或跳火现象		1.42 times Max.Operating Voltage for 1 minute 最大操作电压*1.42倍, 持续1分钟
Leaching 溶蚀测试	Individual leaching area≤5% Total leaching area≤10% 导体各面溶蚀区域≤5% 导体总面积溶蚀区域≤10%		260±5°C for 30 seconds 260±5°C锡炉中,持续30秒
Rapid Change of Temperature 冷热冲击	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	-55°C to +155°C 5 cycles -55°C to +155°C 5 次
Operating Voltage= $\sqrt{P \cdot R}$ or Max.Operating Voltage listed above,whichever is lower. Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max.Overload Voltage listed above,whichever is lower. RCWV(Rated Continuous Working Voltage)= $\sqrt{P \cdot R}$ or Max. Operating Voltage whichever is lower. ■Reference Standards:IEC 60115-1,60068-2-58;JIS-C 5201-1 操作电压= $\sqrt{P \cdot R}$, 过负载电压= $2.5 \cdot \sqrt{P \cdot R}$,操作电流= $\sqrt{P/R}$ ■依据标准:IEC 60115-1,60068-2-58;JIS-C 5201-1			