

规格书

SPECIFICATION FOR APPROVAL

产品名称： 低感值合金贴片电阻 MRL 系列

产品规格： 全系列

制作	核准	审核
马鑫	胡梓秋	方齐炜

供应商：深圳市美隆电子有限公司

地址：深圳市福田区华强北路华强广场 A 座 16 楼

规格如有更改，恕不另行通知

2025/A

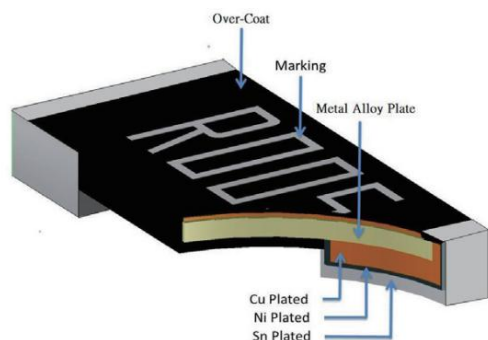
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摘要 Resume >>>

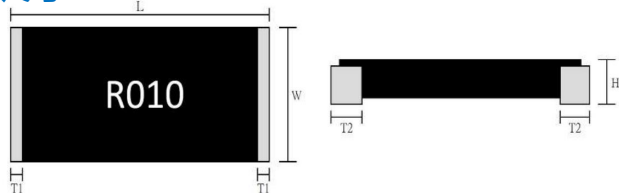
- Low Resistance / Low TCR/Low Inductance($\leq 5\text{nH}$)
- Excellent long term stability
- RoHs compliant and halogen free.

低电阻/低 TCR/低电感率 ($\leq 5\text{nH}$)
良好的长期稳定性
符合 RoHs 标准, 无卤素要求。

结构图 Construction >>>



尺寸 Dimensions >>>



Type	Power Rating	Resistance Range	L (mm)	W (mm)	H (mm)	T1 (mm)	T2 (mm)
1206	1W	1m Ω	3.200 $\pm$ 0.254	1.650 $\pm$ 0.254	0.770 $\pm$ 0.254	0.508 $\pm$ 0.254	0.508 $\pm$ 0.254
		2m Ω	3.200 $\pm$ 0.254	1.650 $\pm$ 0.254	0.650 $\pm$ 0.254	0.508 $\pm$ 0.254	0.508 $\pm$ 0.254
		3 ~ 10m Ω	3.200 $\pm$ 0.254	1.650 $\pm$ 0.254	0.550 $\pm$ 0.254	0.508 $\pm$ 0.254	0.508 $\pm$ 0.254
2512	1W 1.5W	121 ~ 200m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.400 $\pm$ 0.254	0.75 $\pm$ 0.254	1.100 $\pm$ 0.254
		201 ~ 250m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.400 $\pm$ 0.254	0.75 $\pm$ 0.254	0.850 $\pm$ 0.254
	1W 1.5W 2W	0.5m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.820 $\pm$ 0.254	1.980 $\pm$ 0.254	2.000 $\pm$ 0.254
		0.75m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.700 $\pm$ 0.254	1.150 $\pm$ 0.254	1.980 $\pm$ 0.254
		1m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.720 $\pm$ 0.254	1.150 $\pm$ 0.254	2.200 $\pm$ 0.254
		1.5m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.720 $\pm$ 0.254	1.150 $\pm$ 0.254	1.400 $\pm$ 0.254
		2 ~ 5m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.720 $\pm$ 0.254	1.150 $\pm$ 0.254	1.150 $\pm$ 0.254
		6m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.550 $\pm$ 0.254	1.150 $\pm$ 0.254	1.100 $\pm$ 0.254
		7 ~ 15m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.550 $\pm$ 0.254	0.75 $\pm$ 0.254	1.100 $\pm$ 0.254
		16 ~ 100m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.500 $\pm$ 0.254	0.75 $\pm$ 0.254	1.100 $\pm$ 0.254
		101~120 m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.400 $\pm$ 0.254	0.75 $\pm$ 0.254	1.100 $\pm$ 0.254
	3W	0.5m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.820 $\pm$ 0.254	1.980 $\pm$ 0.254	2.000 $\pm$ 0.254
		0.75m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.700 $\pm$ 0.254	1.150 $\pm$ 0.254	1.980 $\pm$ 0.254
		1m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.720 $\pm$ 0.254	1.150 $\pm$ 0.254	2.200 $\pm$ 0.254
		1.5m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.720 $\pm$ 0.254	1.150 $\pm$ 0.254	1.400 $\pm$ 0.254
		2 ~ 5m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.720 $\pm$ 0.254	1.150 $\pm$ 0.254	1.150 $\pm$ 0.254
		6m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.550 $\pm$ 0.254	1.150 $\pm$ 0.254	1.100 $\pm$ 0.254
		7 ~ 15m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.550 $\pm$ 0.254	0.75 $\pm$ 0.254	1.100 $\pm$ 0.254
		16 ~ 20m Ω	6.350 $\pm$ 0.254	3.050 $\pm$ 0.254	0.500 $\pm$ 0.254	0.75 $\pm$ 0.254	1.100 $\pm$ 0.254

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4527	2W 3W	0.5mΩ	11.30±0.50	6.60±0.50	0.770±0.254	0.90±0.254	3.000±0.254
		1mΩ	11.30±0.50	6.60±0.50	0.650±0.254	0.90±0.254	3.000±0.254
		1.5 ~ 20mΩ	11.30±0.50	6.60±0.50	0.650±0.254	0.90±0.254	2.000±0.254
		21 ~ 40mΩ	11.30±0.50	6.60±0.50	0.550±0.254	0.90±0.254	2.000±0.254
	5W	0.5mΩ	11.30±0.50	6.60±0.50	0.800±0.254	0.65±0.254	3.000±0.254
		1mΩ	11.30±0.50	6.60±0.50	0.680±0.254	0.65±0.254	3.000±0.254
		1.5 ~ 20mΩ	11.30±0.50	6.60±0.50	0.680±0.254	0.65±0.254	2.000±0.254
		21 ~ 40mΩ	11.30±0.50	6.60±0.50	0.580±0.254	0.65±0.254	2.000±0.254

型号名称 Part Numbering >>>-----

MRLM	10	6432(2512)	LR001	F	T	S
Product Type 产品型号	Production line code 产线代码	Resistor Size 电阻规格	Resistance 阻值	Resistance Tolerance 阻值公差	Packing Code 包装形式	Power 功率
MRLM : 锰铜合金 MRLMC : 锰铜锡合金 MRLNF : 镍铬铝合金	10	3216 (1206) 6432 (2512) 4527	LR001: 0.001 Ω LR010: 0.01 Ω LR7M5: 0.0075Ω	D=±0.5% F= ±1 % G=±2 % J=±5 %	T:Taping Reel T: 编带 B: Bulk B: 散装	Z: 5 W R :3 W S :2 W A :1.5W N :1 W

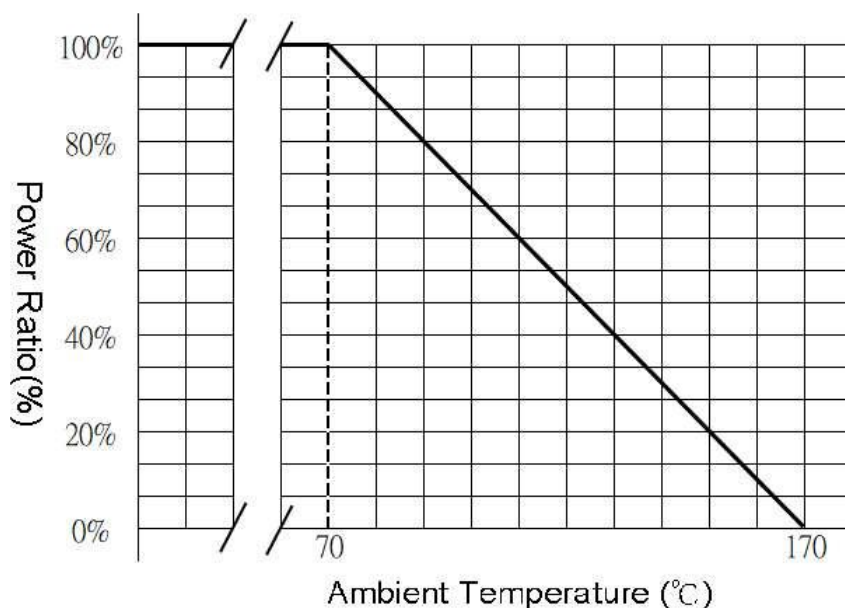
标准规格表 Stand Electrical Specifications>>>-----

Item Type 项目 型号	Power Rating 额定功率	Max Working Current 最大工作电流	Resistance Range 阻值范围		TCR 温度系 数 (PPM/°C)
			±0.5%	±1% , ±2% , ±5%	
1206	1W	√(P/R)	7mΩ~10mΩ	1mΩ~10mΩ	±50
2512	1W	√(P/R)	/	0.5mΩ~0.75mΩ	±75
	1.5W	√(P/R)	7mΩ~250mΩ	1mΩ~250mΩ	±50
	2W	√(P/R)	/	0.5mΩ~0.75mΩ	±75
	2W	√(P/R)	7mΩ~120mΩ	1mΩ~120mΩ	±50
	3W	√(P/R)	/	0.5mΩ~0.75mΩ	±75
	3W	√(P/R)	7mΩ~20mΩ	1mΩ~20mΩ	±50
4527	2W	√(P/R)	/	0.5mΩ	±75
	2W	√(P/R)	7mΩ~40mΩ	1mΩ~40mΩ	±50
	3W	√(P/R)	/	0.5mΩ	±75
	3W	√(P/R)	7mΩ~40mΩ	1mΩ~40mΩ	±50
	5W	√(P/R)	/	0.5mΩ	±75
	5W	√(P/R)	7mΩ~40mΩ	1mΩ~40mΩ	±50

◆Operating Temp.Range 操作温度范围 : 1206 ~ 42527 : -55 ~ 170°C

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功率衰减曲线图 Derating Curve>>>-----



信赖性试验项目 Environmental Characteristics >>>-----

Item 项目	Requirement 条件	Test Method 测试方法
Temperature Coefficient 温度系数	As Spec. 参考规格表	At 25 / -55℃ and 25℃ /+125℃, 25℃ is the reference temperature 25℃为参考温度
Short Time Overload 短时间过负载	4527: $\Delta R/R1 \leq \pm 2.0\%$ The others: $\Delta R/R1 \leq \pm 1\%$	The number of rated power are as follows(额定功率的数量如下): 1206-1W: 4 times of rated power (4 倍的额定功率) 2512-1.5W: 5 times of rated power (5 倍的额定功率) 2512-2W: 5 times of rated power (5 倍的额定功率) 2512-3W: 4 times of rated power (4 倍的额定功率) 4527-2W: 5 times of rated power (5 倍的额定功率) 4527-3W: 5 times of rated power (5 倍的额定功率) 4527-5W: 4 times of rated power (4 倍的额定功率) for 5 seconds. 测试 5 秒钟
High Temperature Exposure 高温储存	4527: $\Delta R/R1 \leq \pm 2.0\%$ The others: $\Delta R/R1 \leq \pm 1\%$	at +170℃ for 1000 hrs 在+170℃下持续 1000 小时
Resistance to soldering heat 耐焊接热	$\Delta R/R1 \leq \pm 0.5\%$	260±5℃ for 10 seconds 260±5℃锡炉中, 持续 10 秒

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Temperature Cycling 温度循环	$\Delta R/R1 \leq \pm 0.5\%$	1000 Cycles (-55°C to +155°C) Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme (-55°C 至+155°C)1000 个循环, 在每个极端温度下的最大停留时间为 30 min。试验结束后 24±4 小时进行测量
Biased Humidity 偏置湿度	$\Delta R/R1 \leq \pm 0.5\%$	1000 hours 85°C/85%RH. Note: Specified conditions:10% of operating power. Measurement at 24±4 hours after test conclusion. 在温度 85 °C, 湿度 85% 的条件下放置 1000 小时。 注意: 指定条件: 工作功率的 10%, 试验结束后 24±4 小时内进行测试
Operational Life 工作寿命	4527&2512 2W 101~120 mΩ: $\Delta R/R1 \leq \pm 2.0\%$ Other: $\Delta R/R1 \pm 1.0\%$	70±2°C, RCWV for 1000hrs with 1.5hrs"ON"and 0.5hrs"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
Solderability 焊锡性	> 95% coverage 上锡面积 > 95%	245±5°C for 3±1 seconds. 245±5°C 锡炉中 3±1 秒
Dielectric Withstanding Voltage 绝缘耐压	No short or burned on the appearance. 表面没有明显燃烧现象	Applied 500VAC for 1 minute. 施加 500VAC 持续 1 分钟
Core Body Strength 本体强度	No broken 无明显损伤	Central part pressurizing force 5N , 10 seconds 本体中间施加压力 5N 10 秒
Terminal Strength 端子强度	No broken 无明显损伤	Pressurizing force 17.7N for 60 seconds 施加压力 17.7N 60 秒
Board Flex 端子弯曲	$\Delta R/R1 \leq \pm 0.5\%$ No broken 无明显损伤	Bending once 2mm for 10 seconds 弯曲一次, 每次 2mm, 持续 10 秒
Moisture Resistance 耐湿性	$\Delta R/R1 \leq \pm 0.5\%$	MIL-STD 202 Method 106 T=24 hours / Cycle ,10Cycles . Steps 7a& 7b not required. Unpowered . T=24 小时/循环, 共 10 个循环。步骤 7a 和 7b 不需要。 测试在无电状态下进行。

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.

environmental conditions for electrical performance measurement, Temperature : 25°C±5°C Humidity: 25%~75%RH

Reference Standards:IEC 60115-1,60068-2-58 ; JIS-C 5201-1

■RCWV(额定持续工作电压)= $\sqrt{P \cdot R}$ 或者较小的最大操作电压.

操作电压= $\sqrt{P \cdot R}$,过负载电压= $2.5 \cdot \sqrt{P \cdot R}$,操作电流= $\sqrt{P/R}$

■电性能测量的环境条件: 温度: 25°C±5°C 相对湿度: 25%~75%RH

■依据标准: IEC 60115-1,60068-2-58 ; JIS-C 5201-1