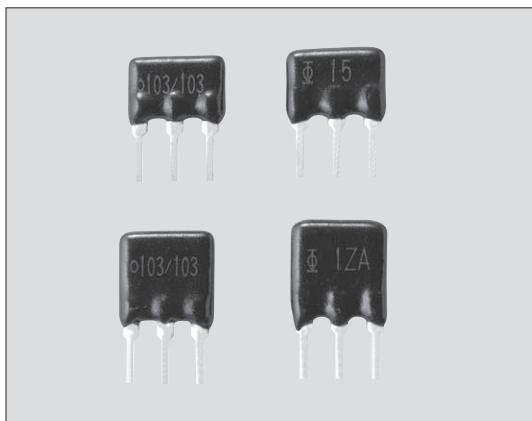


MRP 高精度金属膜网络电阻器 (平衡电阻器)

Precision Metal Film Resistor Networks (Balance Resistors)



外观颜色: 黑色 Coating color: Black

特点 Features

- 可以制作阻值允许偏差的相对值0.025%。
- 可以制作电阻温度特性的相对值 $2 \times 10^{-6}/K$ 。
- 稳定性和电气特性优异。
- 符合欧盟RoHS。
- Relative resistance tolerance 0.025% is available.
- Relative T.C.R. tracking $2 \times 10^{-6}/K$ is available.
- Excellent in stability and electrical characteristics.
- Products meet EU-RoHS requirements.

用途 Applications

- 热控制器、示波器、录音录像机、医疗设备。
- Thermo Controllers, Oscilloscopes, Recorders, Medical Equipment

品名构成 Type Designation

实例 Example

MRP	L03	E	A	D	103/103	B	A
品种 Product Code	形状 Style	绝对电阻温度系数 Absolute T.C.R. ($\times 10^{-6}/K$)	相对电阻温度系数 T.C.R. Tracking ($\times 10^{-6}/K$)	端子表面材质 Terminal Surface Material	公称电阻值 Nominal Resistance R1/R2	绝对阻值允许偏差 Absolute Resistance Tolerance	相对阻值允许偏差 Resistance Ratio Tolerance
	L03 A03	E: ± 25 C: ± 50	A: 2 Y: 5 T: 10	D: SnAgCu	3 digits/3 digits	B: $\pm 0.1\%$ C: $\pm 0.25\%$ D: $\pm 0.5\%$ F: $\pm 1\%$	E: 0.025% A: 0.05% B: 0.1% C: 0.25% D: 0.5%

※ R1、R2的电阻值组合，以200/20k•1k/1k•1k/2k•1k/4k•1k/9k•1k/10k•1k/20k•10k/10k•10k/100k•50k/50k•100k/100k作为标准。

还有，对于上述以外的不同电阻的组合，亦可商谈。

※ Resistance combination of R1,R2 is standardized to 200/20k•1k/1k•1k/2k•1k/4k•1k/9k•1k/10k•1k/20k•10k/10k•10k/100k•50k/50k•100k/100k

Refer to us for combination of different kinds of resistance except those mentioned above.

欲知关于此产品含有的环境有害物质详情(除EU-RoHS以外)，请与我们联系。

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

额定值 Ratings

型号 Type	额定功率 Power Rating		绝对电阻温度系数 Absolute T.C.R. ($\times 10^{-6}/K$)	相对电阻温度系数 T.C.R. Tracking ($\times 10^{-6}/K$)	电阻值范围 (Ω) Resistance Range	阻值允许偏差 Resistance Tolerance	最高使用电压 Max. Working Voltage	最高过载电压 Max. Overload Voltage	电阻比率 Resistance Ratio
	元件 Element	组件 Package							
MRPL03	100mW	200mW	E: ± 25 C: ± 50	A: $2(R1/R2 \leq 10)$ Y: 5 T: 10	50~100k	B: $\pm 0.1\%$ C: $\pm 0.25\%$ D: $\pm 0.5\%$ F: $\pm 1\%$	100V	200V	See below table
MRPA03									

	相对阻值允许偏差 Resistance Ratio Tolerance					
		E: 0.025%	A: 0.05%	B: 0.1%	C: 0.25%	D: 0.5%
绝对阻值允许偏差 Absolute Resistance Tolerance	B: $\pm 0.1\%$	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	—	—
	C: $\pm 0.25\%$	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	—
	D: $\pm 0.5\%$	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω
	F: $\pm 1\%$	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω	50 Ω ~ 100k Ω
R1/R2相对电阻值比 Relative Resistance Ratio		100max.	100max.	150max.	150max.	150max.

额定环境温度 Rated Ambient Temperature: $+70^{\circ}C$

使用温度范围 Operating Temperature Range: $-55^{\circ}C \sim +125^{\circ}C$

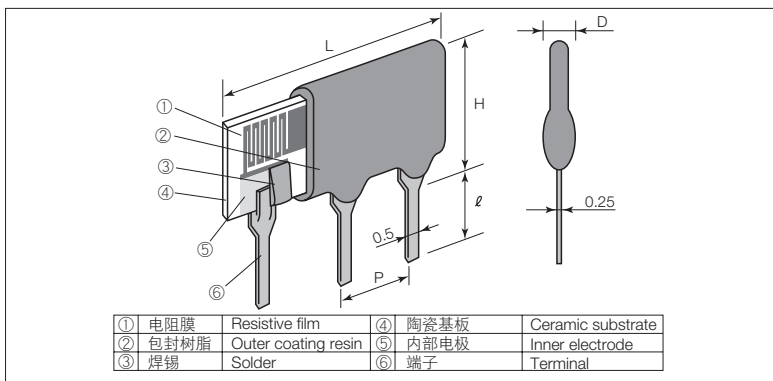
额定电压是 $\sqrt{\text{额定功率} \times \text{公称电阻值}}$ 所算出的值或表中最高使用电压两者中小值为额定电压。

Rated voltage = $\sqrt{\text{Power Rating} \times \text{Resistance value}}$ or Max. working voltage, whichever is lower.

※ 绝对电阻温度系数的更小的值的制作，也请商谈。

※ Refer to us for manufacturing smaller values of absolute T.C.R..

结构图 Construction



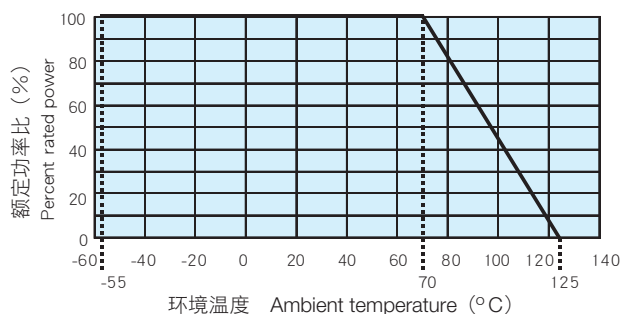
外形尺寸 Dimensions

型号 Type (Inch Size Code)	尺寸 Dimensions (mm)					Weight (g) (1000pcs)
	L max.	H max.	D max.	P	l	
MRPL03	8.5	6.5	2.5	2.54 \pm 0.2	3 \pm 0.5	183
MRPA03		8.5				256

※ 导线架长度 (l)，也制作 4.5 ± 0.5 mm品。

※ Length of lead frame (l): 4.5 ± 0.5 mm is also available.

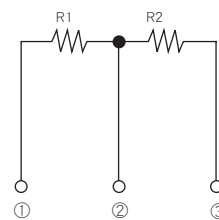
■ 负荷减轻特性曲线 Derating Curve



在环境温度70℃以上使用时，应按照上图负荷减轻特性曲线，减小额定功率。

For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

■ 等效电路 Equivalent Circuit Diagram



把盖章面左端端子作为第一端子。

The left side terminal on the marked surface is Pin No.1.

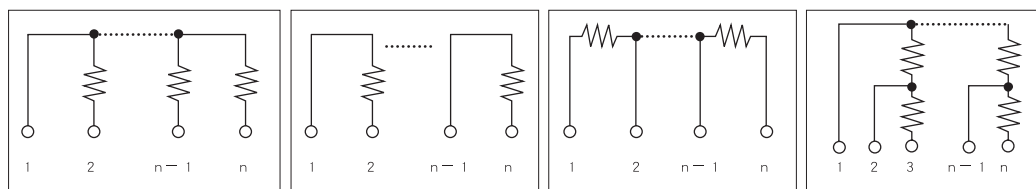
■ 性能 Performance

试验项目 Test Items	标准值 Performance Requirements $\Delta R \pm (\% + 0.05 \Omega)$	试验方法 Test Methods
电阻值 Resistance	在规定的允许偏差内 Within specified tolerance	25°C
电阻温度系数 T.C.R.	在规定值以内 Within specified T.C.R.	+25°C/+65°C
过载(短时间) Overload (Short time)	0.05	额定电压×2.5倍或最高过载电压中低的一方施加5秒钟。 Rated Voltage × 2.5 or max. overload vol. whichever is lower, for 5s
耐焊接热 Resistance to soldering heat	0.1	350°C ± 10°C, 3.5 ± 0.5s
温度突变 Rapid change of temperature	0.1	-55 ^{±3} °C(30min)/+125 ^{±3} °C(30min) 5 cycles
耐湿负荷 Moisture resistance	0.1	40°C ± 2°C, 90%~95%RH, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
在70°C时的耐久性 Endurance at 70°C	0.1	70°C ± 2°C, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
耐溶剂性 Resistance to solvents	在包装和显示上应无异常 No abnormality in outer coating and markings	在20~25°C的2-丙醇中浸渍180 ± 10秒 Soaking in 2-propanol of 20°C~25°C for 180s ± 10s.
绝缘电阻 Insulation resistance	10000MΩ以上 10,000MΩ or above	施加500V (d.c) 在端子和包装涂层间1分钟 500V (d.c.) for 1min. between Terminals and Coating
耐电压 Withstand voltage	0.5	施加500V (a.c) 在端子和包装涂层间1分钟 500V (a.c.) for 1min. between Terminals and Coating

■ 定制电路实例 Custom Circuit Examples

由于下述电路结构(下述电路结构以外也可对应)•电阻值和SOP型都可以对应, 请商谈。

Refer to us for the following circuit constructions, resistances, SOP type, etc.



■ 使用注意事项 Precautions for Use

- 助焊剂等在本产品和安装的印刷电路板上附着离子性杂质时, 其耐湿性•耐腐蚀性将受到影响。助焊剂内有时含有氯•酸等离子性物质, 为除去这些离子性物质应进行清洗。特别是使用无铅助焊剂时, 由于湿润性提高了, 有时会含有大量离子性物质, 所以在使用RMA系的焊锡或助焊剂时, 应充分进行清洗。并且, 保管环境和安装条件、环境等, 附着了汗•盐等离子性物质时, 其耐湿性•耐腐蚀性也将受到影响。对于这种污染, 为了除去这些离子性物质, 应当进行清洗。
- 产品受到人的汗和唾液等中所含钠、氯等离子性物质污染时, 由于可以确认会引发电蚀, 因此, 在使用时应注意。
- Ionic impurities such as flux etc. that are attached to these products or those mounted onto a PCB, negatively affect their moisture resistance, corrosion resistance, etc. The flux may contain ionic substances like chlorine, acid, etc. Please wash them to get rid of these ionic substances especially when using lead-free solder that may contain much of the said substances for improving a wetting characteristic. Using RMA solder or RMA flux, or well-washing is needed. Also, attaching ionic substances such as perspiration, salt etc. by storage environments or mounting conditions/environments negatively affects their moisture resistance, corrosion resistance etc. Please wash them to remove the ionic substances when they are polluted.
- Pay attention to use when the components are polluted by ionic impurities like sodium (Na^+), chlorine (Cl^-) etc. included in perspiration and saliva, because it leads to electric erosion.