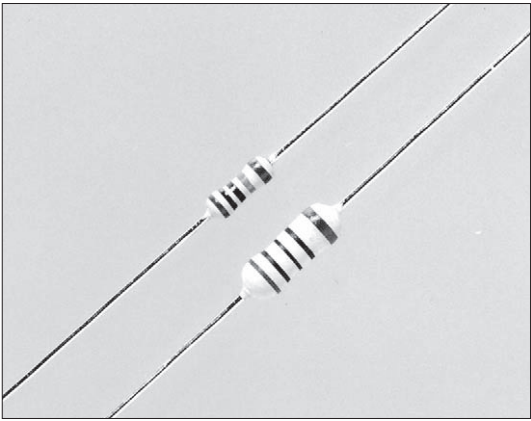


# METAL FILM (FLAME RETARDANT)



## MFP

涂层绝缘型金属膜固定电阻器  
Coat-Insulated Metal Film Fixed Resistors



外观颜色：亮蓝色  
Coating color: Light blue  
表示：颜色码：5色线  
Marking: Color code: 5 color bands

### 特点 Features

- 阻燃性涂层。
- 可以用于自动插装机。
- 可以进行各种成形加工。
- 符合欧盟RoHS。
- Flame retardant coating.
- Automatic insertion is applicable.
- Various types of formings are available.
- Products meet EU-RoHS requirements.

### 品名构成 Type Designation

实例 Example	MFP	1/4	D	C	T52	A	1002	F
品种 Product Code	MFP	1/4	D	C	T52	A	1002	F
额定功率 Power Rating		1/4:0.25W 1/2:0.5W						
电阻温度系数 T.C.R. ( $\times 10^{-6}/K$ )			D: $\pm 100$					
端子表面材质 Terminal Surface Material				C: SnCu				
二次加工 Taping & Forming					参照下述 See table below			
包装 Packaging					A: AMMO包装 A: AMMO R: 卷 R: REEL 空栏: 箱子 Nil: BOX			
公称电阻值 Nominal Resistance							4 digits	
阻值允许偏差 Resistance Tolerance								F: $\pm 1\%$

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

编带细节请参考卷末附录C。

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

For further information on taping, please refer to APPENDIX C on the back pages.

### 二次加工对应表 Taping & Forming Matrix

型号 Type	轴向编带 Axial Taping		U成形 U Forming	M成形 M Forming	
	T26	T52	U	M10	M12.5
MFP 1/4DC	○	○	○	M10F	—
MFP 1/2DC	—	○	—	—	M12.5R

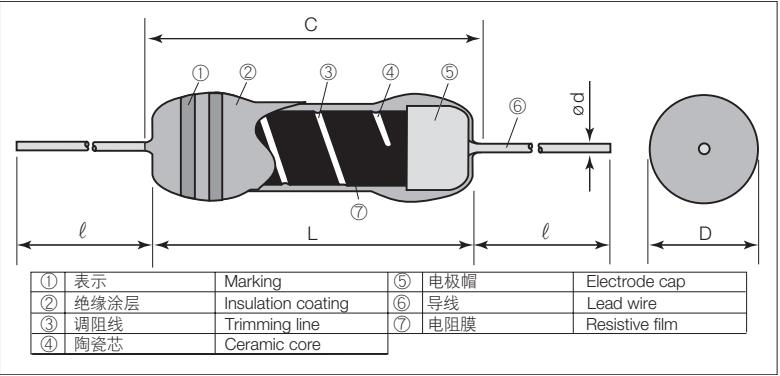
### 额定值 Ratings

型号 Type	额定功率 Power Rating	电阻值范围 (Ω) Resistance Range	电阻温度系数 T.C.R. ( $\times 10^{-6}/K$ )	最高使用电压 Max. Working Voltage	最高过载电压 Max. Overload Voltage	耐电压 Dielectric Withstanding Voltage	额定环境温度 Rated Ambient Temperature	使用温度范围 Operating Temp. Range	编带和包装数/AMMO包装 Taping & Qty/AMMO (pcs)	
		F: $\pm 2\%$ E24 • E96							T26A	T52A
MFP 1/4DC	0.25W	10~100k	D: $\pm 100$	158V	395V	500V	+70°C	-55°C~+155°C	2,000	2,000
MFP 1/2DC	0.5W			223V	557V				—	2,000

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的值为额定电压。

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

### 结构图 Construction



### 外形尺寸 Dimensions

型号 Type	尺寸 Dimensions (mm)					Weight (g) (1000pcs)
	L	C Max.	D	d (Nominal)	$\phi \pm 3^*$	
MFP1/4	6.3 $\pm$ 0.5	7.1	2.3 $\pm$ 0.3	0.6	28	215
MFP1/2	9.0 $\pm$ 1.0	12	3.5 $\pm$ 0.5			360

※ 引线长度按照成型和编带而改变。

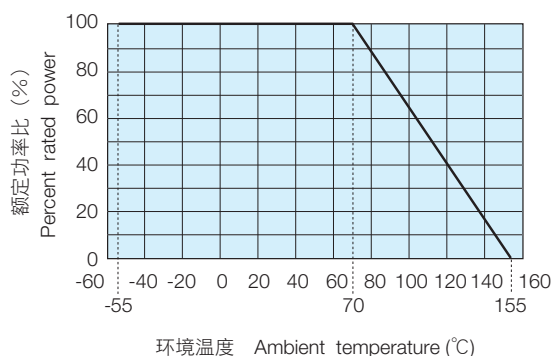
※ Lead length changes depending on taping and forming type.

### 参考标准 Reference Standards

IEC 60115-1

JIS C 5201-1

## ■ 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.

## ■ 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
	保证值 Limit	代表值 Typical	
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 / +125°C
过载（短时间） Overload (Short time)	0.5	0.3	额定电压×2.5倍或者最高过载电压，取两者中低的一方施加5秒 Rated voltage×2.5 or Max. overload vol., whichever is lower, for 5s.
耐焊接热 Resistance to soldering heat	0.75	0.5	260°C±5°C, 10s±1s
端子强度 Terminal strength	不应出现导线外露，端子松弛的情况 No lead-coming off and loose terminals	—	Twist 360°, 5 times
温度突变 Rapid change of temperature	1	0.75	—55°C (30min.) / +125°C (30min.) 5 cycles
耐湿负荷 Moisture resistance	5	3	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℃时的耐久性 Endurance at 70°C	3	2	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

## ■ 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。
- 由于外装涂层具有阻燃性特征，因此对外部冲击比较弱，在使用时请注意。请进行最小限度的清洗。刚刚清洗好以后的涂层非常薄弱，在产品完全干燥之前，请勿对涂层施加外力。产品干燥后，涂层将恢复原有强度，请注意在洗净后的20分钟内，勿对电阻器的涂层施加外力。特别是，请勿将PCB板堆放起来。
- 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.
- Be careful to handle these resistors because outer coatings are comparatively weak to outer shock due to flameproof special coats. Please wash them to a minimum. No external force is given to the coating films until they are well dried because the coating films become weaker right after washing. The original strength will be returned after they are dried, so please pay attention not to apply any external force onto the coating film of resistors for 20 minutes after drying. Especially no PC boards shall be piled up.