



深圳市咸阳华星机电有限公司

SHENZHEN XIANYANG HUAXING MACHINERG & ELECTRONIC.CO;LTD

承认书

(APPROVE SHEET)

客 户(Customer): _____

品 名(Description): RI 高压玻璃釉电阻器

规格(Specification): _____

客户料号(Cus. P/N): _____

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RI 高压金属玻璃釉电阻器

Metal Glaze (High Voltage) Resistor

1. 一般事项 General

1.1 适用 Scope

本承认书适用于 [高压金属玻璃釉电阻器], 符合环境关联物质要求之 RoHS 测试。

This specification is available for Metal Glaze (High Voltage) Resistor manufactured, it accords with RoHS test of Environment related substance requirement.

1.2 形名(例) Type designation (example)

依使用种类、额定电力、公称电阻值、容许误差及型状而区别,其构造如下。

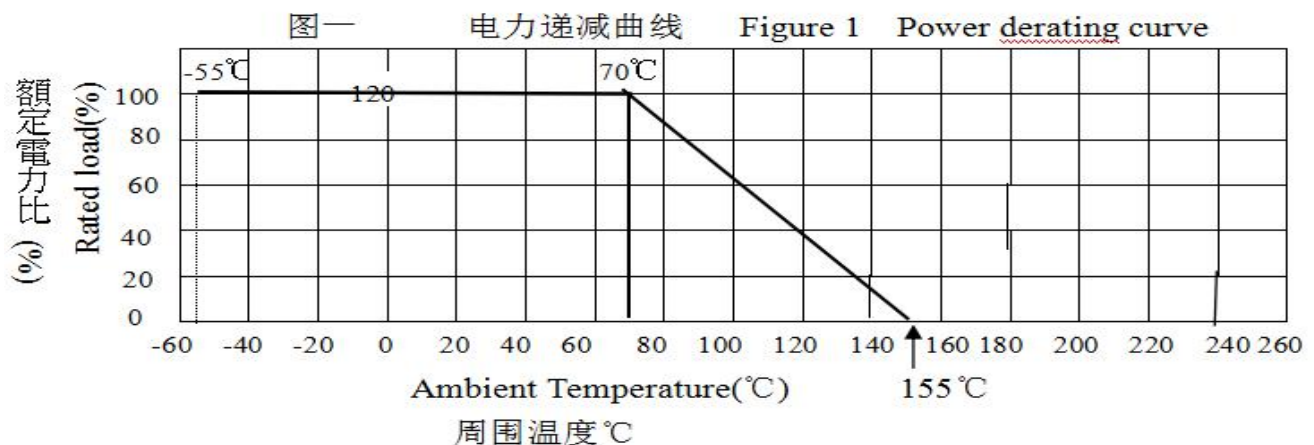
The type designation shall be in the following form and as specified.

RI	1W	100K	± 5%	T62
种类 Type	额定电力 Rated power	公称电阻值 Nominal resistance value	电阻值容许误差 Resistance tolerance	形状 Form
	标准 Normal	E-24 Series	J ± 5%	P 型 P Type
	小型 Small	E-96 Series	G ± 2%	M 型 M Type
	1/4W		F ± 1%	MB 型 MB Type
	1/2W			FK1 型 FK1 Type
	1W			FK2 型 FK2 Type
	2W			FKK 型 FKK Type
	3W			

1.3 额定电力 Rated power

额定电力系应在周围温度 70°C 可以连续负载的最大电力, 如表-1; 但周围温度如超过 70°C 时之额定电力则依图一的电力递减曲线实施。

Rated power is maximum power which can be continuously loaded at specified ambient temperature 70°C, as Table-1; however when the ambient temperature exceeds 70°C, rated power should be determined from the derating curve of Fig.1.



1.4 使用环境温度: -55°C ~ +125°C Operating ambient temperature -55°C ~ +125°C



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1.5 功率因数计算公式: $E = \sqrt{P \times R}$ Where E: 额定电压 Rated voltage(V)

P: 定格电力 Rated power(W)

R: 公称电阻值 Nominal resistance(Ω)

种类 Type	定格电力 Rated power	最大工作电压 Max Working Voltage	最大负荷电压 Max Overload Voltage	绝缘耐电压 Dielectric withstanding voltage
1/4W	0.25W	1000V	1500V	500V
1/2W	0.5W	1500V	2000V	500V
1W	1W	2000V	3000V	700V
2W	2W	3000V	4000V	700V

2. 构造 Construction

2.1 外形尺寸 External dimensions

参照本承认书的 [5. 外形尺寸]。

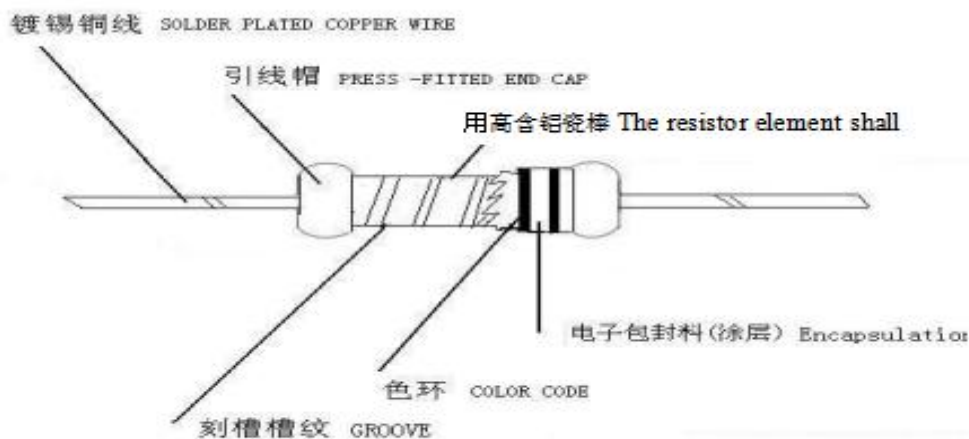
The dimensions shall be satisfied with [5. External dimensions].

2.2 构造图 Structure diagram

MF 系列之金属皮膜固定电阻器系按下表的材料而构成:

The construction of resistor (MF series) shall be as follows:

2.3 外观颜色 Resistor body color: 蓝色(Blue)





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3. 参数特性 Characteristics

表-3 Table-3

项目 Item	规格值 Performance	试验方法(依据 JIS C 5202) Test methods(Conform to JIS C 5202)
温度系数 Temperature Coefficient	±200PPM/°C 以内。 Within ±200PPM/°C.	5.2 项参照 Comply with 5.2 $\frac{R_1 - R_0}{R_0(T_1 - T_0)} \times 10^6 (\text{PPM}/^\circ\text{C})$ R ₀ : 室温(T ₀)所测量之电阻值。 R ₁ : 室温+100°C(T ₁)后所测量之电阻值。 R ₀ : Resistance value at room temp.(T ₀). R ₁ : Resistance value at room temp.plus 100°C (T ₁)
短时间过负荷 Short time overload	±(1%+0.05 Ω)以内。 不得有机械的损伤。 Within ±(1%+0.05 Ω). No evidence of mechanical damage.	5.5 项参照 Comply with 5.5 额定电压×2.5 倍,5 秒。 不可超过最高过负荷电压(见表-1) Rated voltage×2.5 times,5s But not to exceed maximum overload voltage.(See table-1)
绝缘电阻 Insulation Resistance	10 ⁴ MΩ 以上。 10 ⁴ MΩ or more.	5.6 项参照 Comply with 5.6 置于 V 型槽方法。 施加直流电压 500V 60 秒。 V-block method Resistor shall be tested at DC 500V for 60 seconds.
耐电压 Dielectric Withstanding Voltage	无电弧放电、烧损及绝 缘破坏等异状。 No evidence of flashover mechanical damage, arcing or insulation breakdown.	5.7 项参照 Comply with 5.7 常压,置于 V 型槽方法。 施加个别规定之交流电压 60 秒。(见表-1) Constant pressure, V-block method Resistor shall be tested at AC potential respectively for 60 seconds. (See table-1)
断续过负荷 Pulse overload	±(5%+0.1 Ω)以内。 Within ±(5%+0.1 Ω)	5.8 项参照 Comply with 5.8 额定电压×4 倍,10000 回(1 秒 ON,25 秒 OFF)。 不可超过最高断续电压(见表-1) Rated voltage X 4 times, 10000 cyc.(1s ON, 25s OFF) But not to exceed maximum pulse voltage. (See table-1)



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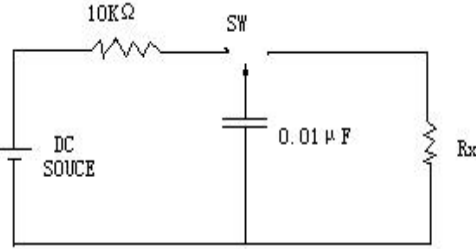
Metal Glaze (High Voltage) Resistor

项 目 Item	规格值 Performance	试验方法(依据 JIS C 5202) Test methods(Conform to JIS C 5202)									
端子强度 Terminal strength	端子不得断裂及松弛。 No evidence of mechanical damage.	6.1 项参照 Comply with 6.1									
		<table border="1"> <thead> <tr> <th>引张强度 Tensile strength</th> <th>线径 mm Diameter</th> <th>引张力 Tensile force N(kgf)</th> <th>时 间 Time</th> </tr> </thead> <tbody> <tr> <td></td> <td>Φ0.38mm~0.50mm</td> <td>5(0.51)</td> <td rowspan="2">10±1 second</td> </tr> <tr> <td></td> <td>Φ0.50mm~0.80mm</td> <td>10(1.02)</td> </tr> </tbody> </table> <p>扭转强度：自电阻体起约 6mm~6.5mm 处之端子线,以约 0.75mm 曲率半径弯曲 90 度,其次由弯曲处向端子线先端 1.2±0.4mm 处挟定端子引出轴,作回转轴,以约 5 秒时间沿直面回转 360° 再逆转 360°,如此施行回逆转 2 次,不可发生折断及松动现象。</p> <p>Tensional strength: To bend the lead wire at the point of about 6mm~6.5mm from resistor body. about 0.75mm curvature radii to 90° then catch the wire at 1.2 ± 0.4mm apart from the bend point end and turn it (clockwise) by 360 degrees perpendicular to the resistor axis at speed of same 5 seconds per turn, and do the same counterclockwise again which constitute a whole turn. Repeat the turn for 2 times without causing any break and looseness.</p>	引张强度 Tensile strength	线径 mm Diameter	引张力 Tensile force N(kgf)	时 间 Time		Φ0.38mm~0.50mm	5(0.51)	10±1 second	
引张强度 Tensile strength	线径 mm Diameter	引张力 Tensile force N(kgf)	时 间 Time								
	Φ0.38mm~0.50mm	5(0.51)	10±1 second								
	Φ0.50mm~0.80mm	10(1.02)									
焊锡耐热性 Resistance to soldering heat	±(1%+0.05 Ω)以内。 不得有机械的损伤。 Within ±(1 %+0.05 Ω) No evidence of mechanical damage.	6.4 项参照 Comply with 6.4 350±10℃, 3±1.0 秒, 试验后放置半小时。 350±10℃, 3±1.0s After test leave for 0.5h.									
焊锡附着性 Solderability	导线至少 95%以上新锡覆盖。 Covered with new solder by 95% at least.	6.5 项参照 Comply with 6.5 焊锡温度: 255±5℃。 浸锡时间: 3±1.0 秒。 Test temperature of solder:255±5℃ Dipping time in solder:3±1.0 s									
耐溶剂性 Resistance to solvent	涂装及色码不得脱落。 No deterioration of protective coating and markings.	6.9 项参照 Comply with 6.9 放入酒精溶剂之超音波机内, 保持 3 分钟。 Specimens shall be immersed in a bath of isoproalcohol completely for 3 minutes with ultrasonic.									



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项目 Item	规格值 Performance	试验方法(依据 JIS C 5202) Test methods(Conform to JIS C 5202)																			
温度循环 Temperature cycle	±(2%+0.05 Ω)以内。 不得有机械的损伤。 Within ±(2%+0.05 Ω) No evidence of mechanical damage.	7.4 项参照 Comply with 7.4 低温侧: -55℃/30 分, 室温: 10~15 分钟 高温侧: +80℃/30 分, 室温: 10~15 分钟 5 回 Low side: -55℃/30min, Room temp.: 10 to 15min High side: 80℃/30min, Room temp.: 10 to 15min 5 cycles																			
耐湿负荷寿命 Load life in humidity	±(5%+0.05 Ω)以内。 Within ±(5%+0.05 Ω)	7.9 项参照 Comply with 7.9 40±2℃, 湿度 90~95%, 1000 小时 定格电压(90 分钟 ON, 30 分钟 OFF) 40±2℃, 90 to 95%RH, 1000h Rated voltage (90 min ON, 30 min OFF)																			
负荷寿命 Load life	±(5%+0.1 Ω)以内。 Within ±(5%+0.1 Ω)	7.10 项参照 Comply with 7.10 70±3℃, 1000 小时 定格电压(90 分钟 ON, 30 分钟 OFF) 70±3℃, 1000h Rated voltage (90 min ON, 30 min OFF)																			
耐冲击试验 Impact test	±(5%+0.1 Ω)以内。 Within ±(5%+0.1 Ω) 	<table border="1"> <thead> <tr> <th>功率 Rated power</th> <th>阻值范围 Ω Resistance Range(Ω)</th> <th>施加电压 applied voltage</th> </tr> </thead> <tbody> <tr> <td>0.25W</td> <td>100K < R</td> <td>3KV</td> </tr> <tr> <td rowspan="3">0.5W</td> <td>10K ≤ R < 100K</td> <td>3KV</td> </tr> <tr> <td>100K ≤ R < 470K</td> <td>5KV</td> </tr> <tr> <td>470K ≤ R < 1M</td> <td>7KV</td> </tr> <tr> <td></td> <td>1M ≤ R</td> <td>10KV</td> </tr> <tr> <td>> 0.5W</td> <td>480K ≤ R</td> <td>10KV</td> </tr> </tbody> </table> <p>将被试电阻器 Rx 接入如下电路中, 照表施加电压, 充电 4.5S、放电 0.5S, 进行 50 次冲击试验。</p> <p>The test resistor Rx was connected to the following circuit, and the voltage was applied according to the meter, charging for 4.5s, discharging for 0.5s, and conducting 50 shock tests.</p>	功率 Rated power	阻值范围 Ω Resistance Range(Ω)	施加电压 applied voltage	0.25W	100K < R	3KV	0.5W	10K ≤ R < 100K	3KV	100K ≤ R < 470K	5KV	470K ≤ R < 1M	7KV		1M ≤ R	10KV	> 0.5W	480K ≤ R	10KV
功率 Rated power	阻值范围 Ω Resistance Range(Ω)	施加电压 applied voltage																			
0.25W	100K < R	3KV																			
0.5W	10K ≤ R < 100K	3KV																			
	100K ≤ R < 470K	5KV																			
	470K ≤ R < 1M	7KV																			
	1M ≤ R	10KV																			
> 0.5W	480K ≤ R	10KV																			

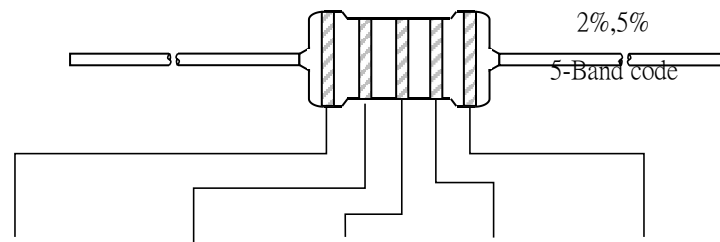


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4. 表示 Indication

色码 Color Code



颜色 Color	第 1 数字 1 st figure	第 2 数字 2 nd figure	第 3 数字 3 RD figure	倍 率 Multiplier	误差率 Tolerance
黑 Black	0	0	0	10^0	
棕 Brown	1	1	1	10^1	±1% (F)
红 Red	2	2	2	10^2	±2% (G)
橙 Orange	3	3	3	10^3	
黄 Yellow	4	4	4	10^4	
绿 Green	5	5	5	10^5	±0.5% (D)
蓝 Blue	6	6	6	10^6	±0.25% (C)
紫 Violet	7	7	7	10^7	±0.1% (B)
灰 Gray	8	8	8		±0.05% (A)
白 White	9	9	9		
金 Gold				10^{-1}	±5% (J)
银 Silver				10^{-2}	±10% (K)
无 Plain					±20% (M)



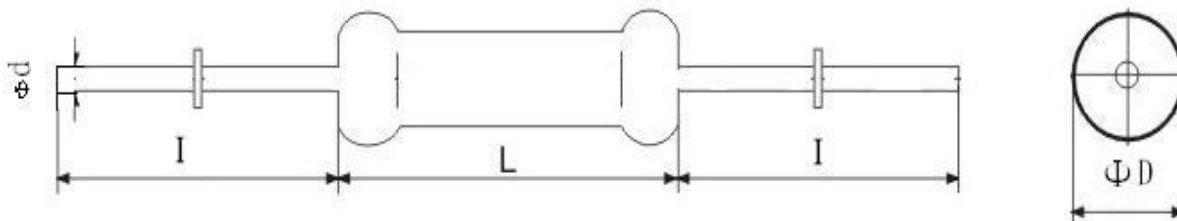
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5. 外形寸法 External dimensions

5.1 散装 P 型 P type

P Type



种类 Type		尺寸 Dimensions				
普通型 Normal Size	小型化 Small Size	I	$L \pm 1.5$	ψD	$\psi d \pm 0.1$	$I \pm 2.0$
1/4W	1/2WS	60	6.5	2.4 ± 0.5	0.50	28
1/2W	1WS	60	9.0	3.3 ± 0.5	0.50	28
1W	2WS	60	11.5	4.5 ± 1.0	0.60	25
		73	11.5	4.5 ± 1.0	0.60	31
2W	3WS	70	15.5	5.0 ± 1.0	0.70	25
		81	15.5	5.0 ± 1.0	0.70	33
		94	15.5	5.0 ± 1.0	0.70	40
3W	5WS	81	17.5	6.0 ± 1.0	0.70	38

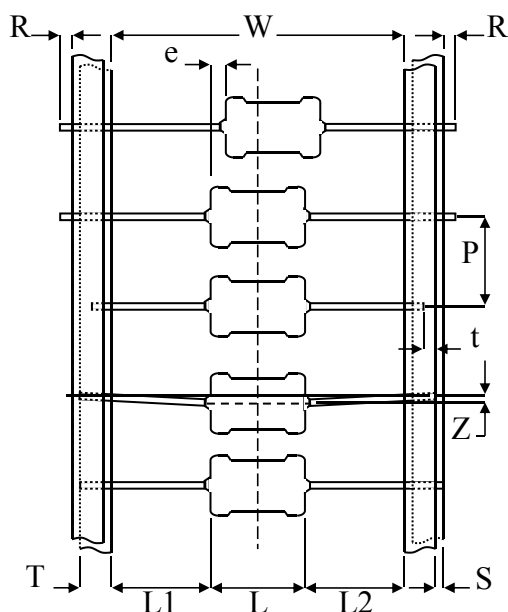


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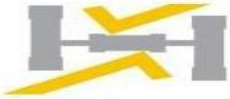
5.2 带装 Axial Lead Taping

Txx Type



单位：mm
Unit：mm

种类 Type		带状 Taping	尺寸 Dimensions									
普通型 Normal Size	小型化 Small Size		L	W	P	L1-L2 Max.	T	Z Max.	R Max.	t Max.	e Max.	S Max.
1/4W	1/2WS	T52	6.5±0.5	52±1.0	5±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5
1/2W	1WS	T52	9.0±1.0	52±1.0	5±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5
1W	2WS	T52	11.5±1.0	52±1.0	5±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5
		T67	11.5±1.0	67±1.0	5±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5
2W	3WS	T52	15.5±1.0	52±1.0	10±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5
		T73	15.5±1.0	73±1.0	10±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5
		T84	15.5±1.0	84±1.0	10±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5
3W	5WS	T84	17.5±1.5	84±1.0	10±0.5	1.0	6±0.5	1.2	0	3.0	0.6	0.5

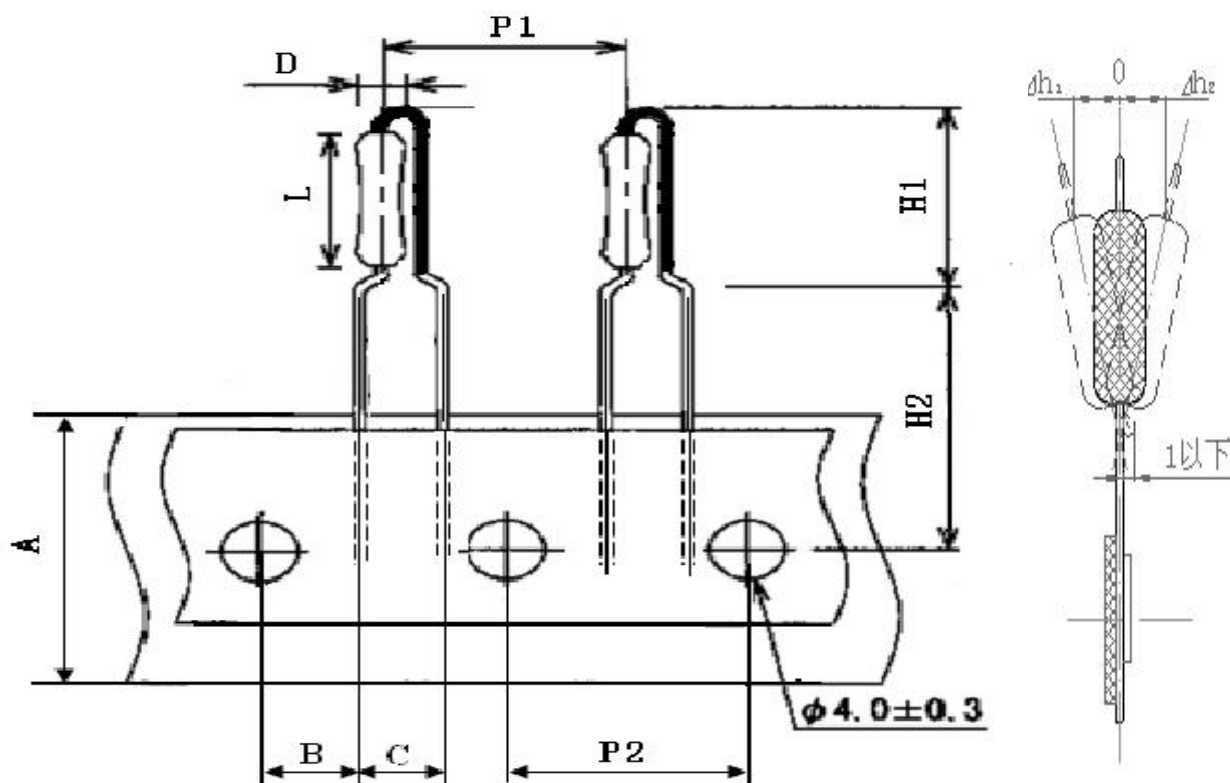


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5.3 FAT 立式编带形状适用于 (1/2W、1WS、1W、2W、3W 功率电阻)

注：引线涂脚漆的客户下单需备注说明，否则默认为不涂装脚漆。



规格	尺寸 (mm)						
	A	B	C	P1	P2	H1	H2
1/2W	$18.0^{+1.0}_{-0.5}$	3.85 ± 0.5	5.0 ± 0.5	12.7 ± 0.5	12.7 ± 0.3	16.0 ± 1.5	$16.0^{+1.0}_{-0.5}$
1WS	$18.0^{+1.0}_{-0.5}$	3.85 ± 0.5	5.0 ± 0.5	12.7 ± 0.5	12.7 ± 0.3	16.0 ± 1.5	$16.0^{+1.0}_{-0.5}$
1W	$18.0^{+1.0}_{-0.5}$	3.85 ± 0.5	5.0 ± 0.5	12.7 ± 0.5	12.7 ± 0.3	16.0 ± 1.5	$16.0^{+1.0}_{-0.5}$
2WS	$18.0^{+1.0}_{-0.5}$	3.85 ± 0.5	5.0 ± 0.5	12.7 ± 0.5	12.7 ± 0.3	16.0 ± 1.5	$16.0^{+1.0}_{-0.5}$
2W	$18.0^{+1.0}_{-0.5}$	3.85 ± 0.5	5.0 ± 0.5	12.7 ± 0.5	12.7 ± 0.5	$21.5^0_{-2.0}$	$16.0^{+1.0}_{-0.5}$
3WS	$18.0^{+1.0}_{-0.5}$	3.85 ± 0.5	5.0 ± 0.5	12.7 ± 0.5	12.7 ± 0.5	$21.5^0_{-2.0}$	$16.0^{+1.0}_{-0.5}$

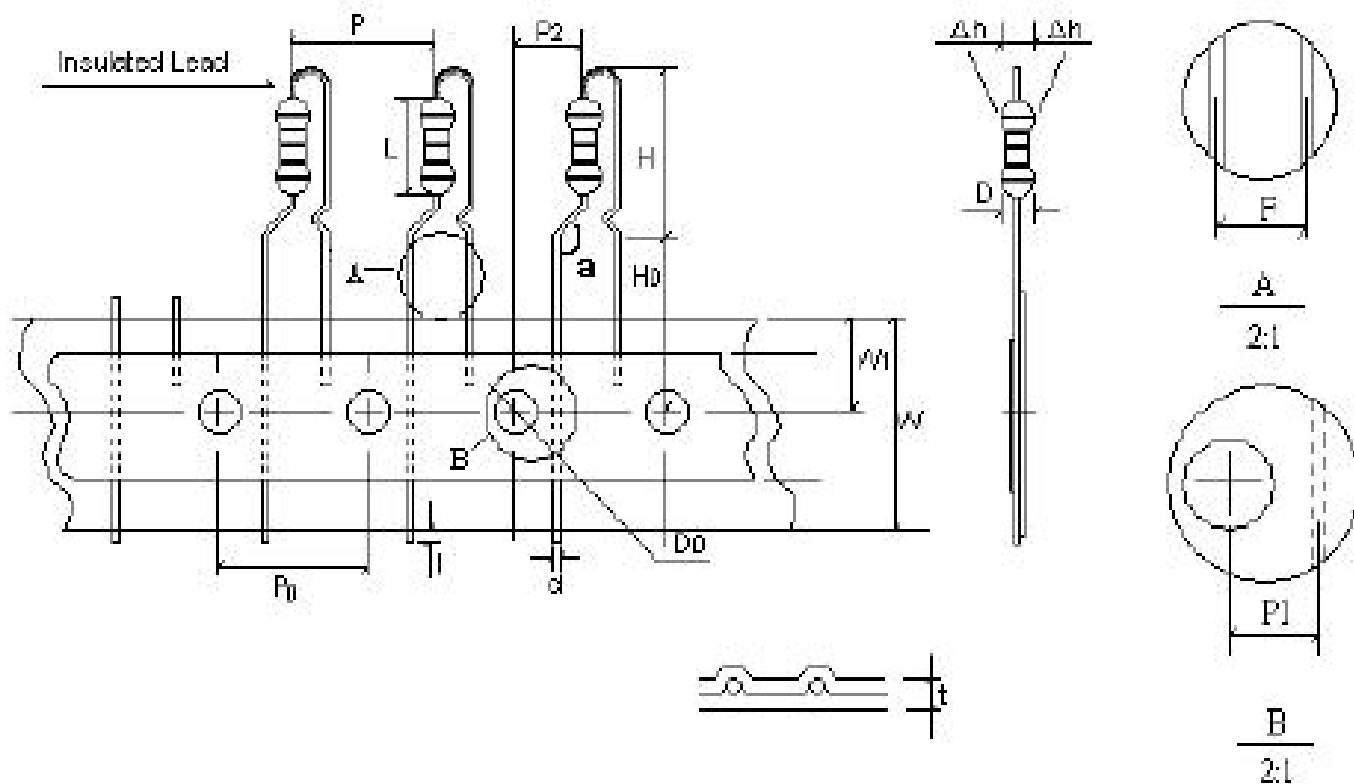


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5.4 FK2 内弯型, (1/2W、1WS、1W、2WS、3W 功率电阻)

注: 引线需涂脚漆的下单需备注说明, 否则默认为不涂装脚漆。



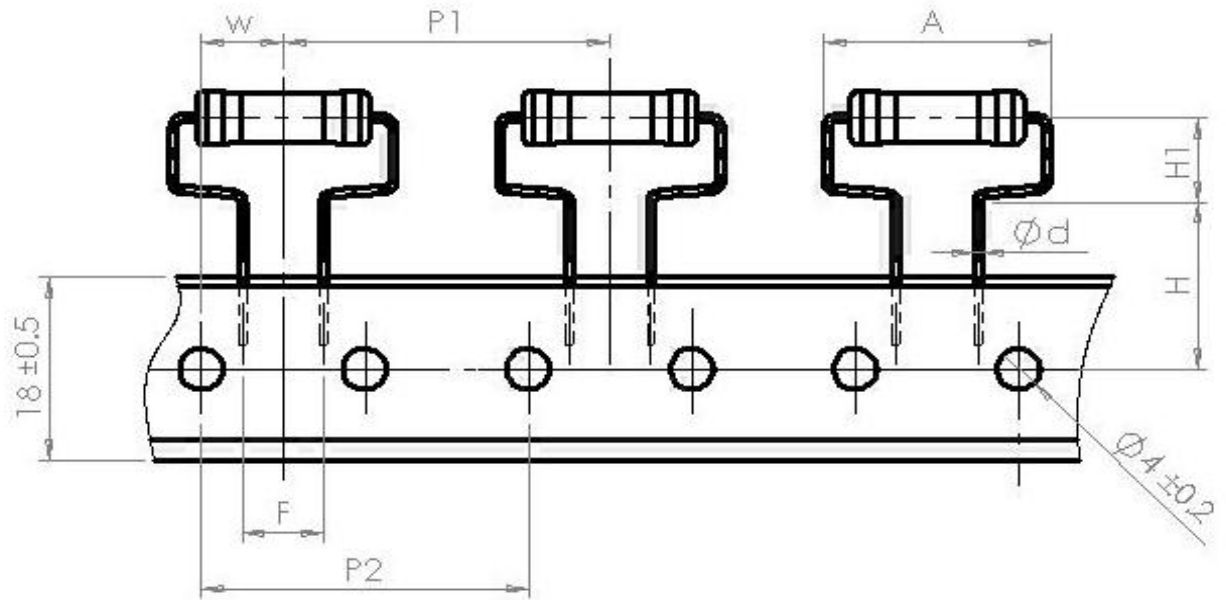
规格	尺寸 (mm)							
	W	DO	F	P	PO	P1	H	HO
1/2W	18.0 ^{+1.0} _{-0.5}	4.0±	5.0±	12.7±	12.7±	3.85±	16.0±	16.0 ^{+1.0} _{-0.5}
		0.3	0.5	0.5	0.3	0.7	1.5	
1WS	18.0 ^{+1.0} _{-0.5}	4.0±	5.0±	12.7±	12.7±	3.85±	16.0±	16.0 ^{+1.0} _{-0.5}
		0.3	0.5	0.5	0.3	0.7	1.5	
1W	18.0 ^{+1.0} _{-0.5}	4.0±	5.0±	12.7±	12.7±	3.85±	16.0±	16.0 ^{+1.0} _{-0.5}
		0.3	0.5	0.5	0.3	0.7	1.5	
2WS	18.0 ^{+1.0} _{-0.5}	4.0±	5.0±	12.7±	12.7±	3.85±	16.0±	16.0 ^{+1.0} _{-0.5}
		0.3	0.5	0.5	0.3	0.7	1.5	
2W	18.0 ^{+1.0} _{-0.5}	4.0±	5.0±	12.7±	12.7±	3.85±	21.5 ⁰ _{-2.0}	16.0 ^{+1.0} _{-0.5}
		0.3	0.5	0.5	0.5	0.7		
3WS	18.0 ^{+1.0} _{-0.5}	4.0±	5.0±	12.7±	12.7±	3.85±	21.5 ⁰ _{-2.0}	16.0 ^{+1.0} _{-0.5}
		0.3	0.5	0.5	0.5	0.7		



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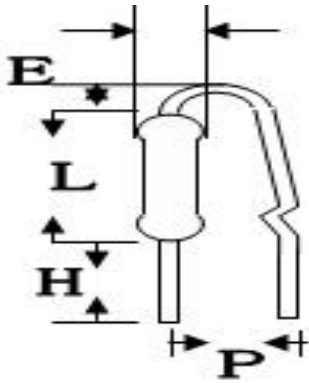
5.5 MT 型卧式编带，适用余 2W、3W 功率



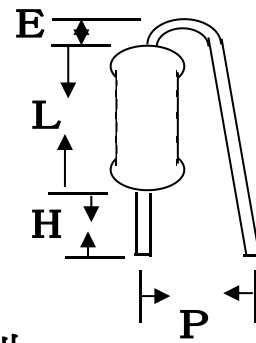
功率	F	W	P1	P2	H	H1	AMax
2W	5.0±1.0	6.5±1.0	25.4±1.0	25.4±1.0	18±1	8.0±1.5	21
3W	10.0±1.0	7.5±1.0	30±1.0	30±0.5	17±1	8.0±1.5	21



RI 高压金属玻璃釉电阻器 Metal Glaze (High Voltage) Resistor



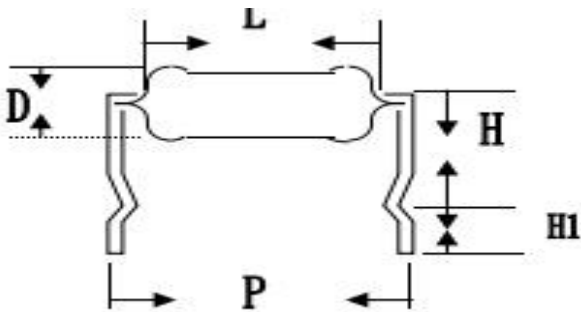
FK2 型



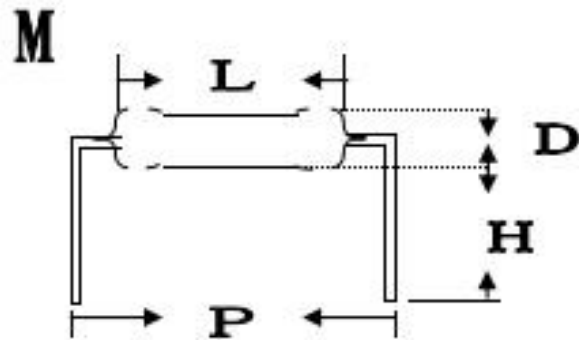
F 型

瓦特数 Watts	尺寸 Dimensions (mm)				
	ΦD	L	P	E Max	H Max
1/2w,1ws	3.2±0.5	9.0±1.0	6.0±2.0	3.5	5.0
1w,2ws	4.5±1.0	11.5±1.0	9.0±2.0	3.5	5.0
2w,3ws	5.0±1.0	15.5±1.0	9.0±2.0	3.5	5.0
3w	6.0±1.0	17.5±1.0	9.0±2.0	3.5	5.0

瓦特数 Watts	尺寸 Dimensions (mm)				
	ΦD	L	P	E Max	H Max
1/2w,1ws	3.2±0.5	9.0±1.0	6.0±2.0	3.5	5.0
1w,2ws	4.5±1.0	11.5±1.0	9.0±2.0	3.5	5.0
2w,3ws	5.0±1.0	15.5±1.0	9.0±2.0	3.5	5.0
3w	6.0±1.0	17.5±1.0	9.0±2.0	3.5	5.0



MK 型



M 型

瓦特数 Watts	尺寸 Dimensions (mm)				
	D	L	P	H MAX	H1
1/2w,1ws	3.2±0.5	9.0±1.0	12.5±1.5	10.0	4.0±0.5
1w,2ws	4.5±1.0	11.5±1.0	15±1.5	10.0	4.0±0.5
2w,3ws	5.0±1.0	15.5±1.5	20±2.0	10.0	4.0±0.5
3W5WS	6.0±1.0	17.5±1.5	25±2.0	10.0	4.0±0.5

瓦特数 Watts	尺寸 Dimensions (mm)				
	D	L	P	H MAX	H1
1/2w,1ws	3.2±0.5	9.0±1.0	12.5±1.5	10.0	4.0±0.5
1w,2ws	4.5±1.0	11.5±1.0	15±1.5	10.0	4.0±0.5
2w,3ws	5.0±1.0	15.5±1.5	20±2.0	10.0	4.0±0.5
3W5WS	6.0±1.0	17.5±1.5	25±2.0	10.0	4.0±0.5

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