



广东风华高新科技股份有限公司
GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO., LTD.

承 认 书

APPROVAL SHEET

客户名称: _____

CUSTOMER _____

品 名: _____ 氧化膜电阻

PARTNAME _____

规 格: _____ FHMOR-*W***J

SPECIFICATION _____

版 本 号: _____

VERSION _____

日 期: _____

DATE _____

制 造			客 户*		
APPROVAL			APPROVAL		
拟制	审核 (29)	确认	检验	审核	批准

Note: A red circular stamp is overlaid on the table, containing the text '广东风华高新科技股份有限公司 质管部' (Guangdong Fenghua Advanced Technology Holding Co., Ltd. Quality Management Department).



一. 品名 TYPE NAME

依据其种类，分别标明型号、额定功率、标称阻值、精度、和形态。

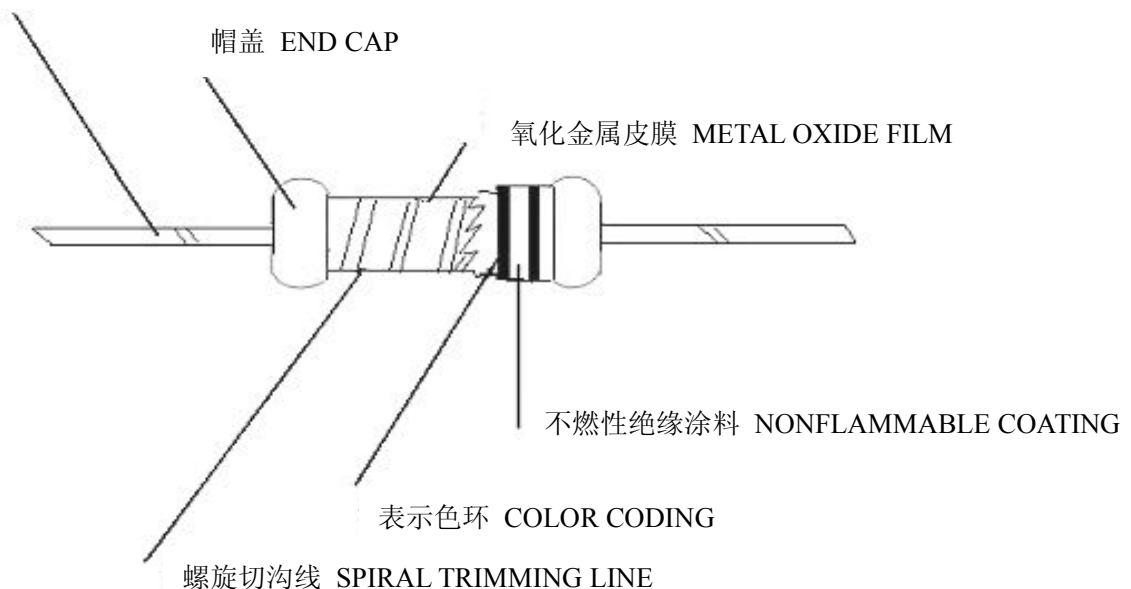
According to the types of power rated, resistor value, tolerance and shapes.

FHMOR	<u>1/4W</u>	<u>10Ω</u>	<u>± 5%</u>
Type	Wattage	Nominal resistance	tolerance
型号	额定功率	标称阻值	误差

S (small): 为体积小型化

二. 金属氧化膜电阻器结构图 METAL OXIDE FILM CONSTRUCTION

镀锡铜线 SOLDER PLATED COPPER LEAD WIRE



REMARK: 底漆颜色 COATING COLOR: 灰色 (GREY)

三. 特点 FEATURES

1. 具有大负荷下的优良耐久性。
GOOD DURABILITY UNDER HEAVY LOAD.
2. 不燃性绝缘涂装。
FLAME RETARDANT COATING WITH NON-FLAMABLE PAINT.
3. 标准误差: ± 5% (1%、± 2%客户要求)
STANDARD TOLERANCES: ± 5% (1% , ± 2% IS AVAILABLE ON REQUEST)
2. 环保无铅产品
RoHS COMPLIANT / LEAD-FREE AVAILABLE.



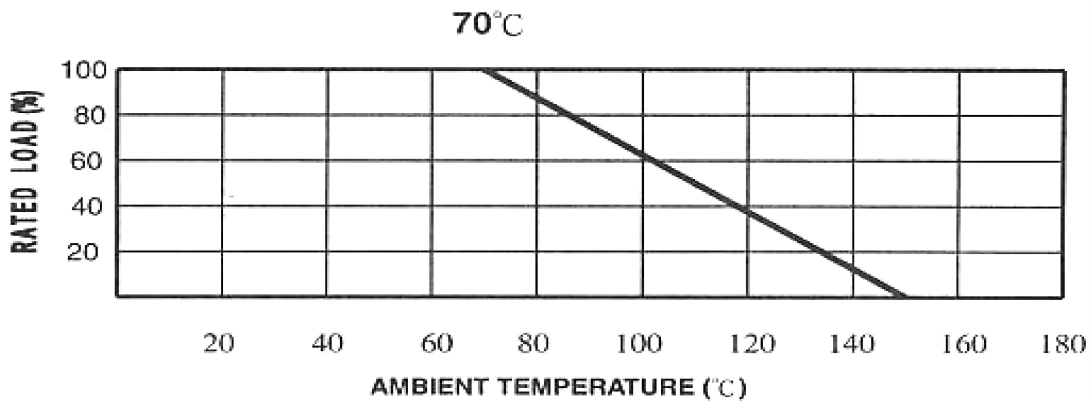
四. 主要技术指标 MAIN SPECIFICATION

功率 POWER	最大工作电压 WORKING	最大负荷电压 MAX OVERLOAD	额定功率 RatedPowerat70°C	电阻范围 RESISTANCE VALUE RANGE
MO 1/4W / 1/4WS	200V	350V	0.25W	1Ω—22KΩ
MO 1/2W / 1/2WS	250V	400V	0.5W	1Ω—75KΩ
MO 1W / 1WS	350V	600V	1W	1Ω—100KΩ
MO 2W / 2WS	350V	800V	2W	1Ω—120KΩ
MO 3W / 3WS	500V	800V	3W	1Ω_150KΩ
MO 5W/ 5WS	750V	1000V	5W	1Ω_180KΩ

1. 额定功率 POWER RATING

额定功率是指在环境温度 70°C 最大输出功率，当环境温度超过 70°C 时功率变化如下图：
 Power rating is defined as maximum power rating continuously applied under ambient temperature at 70°C. when the ambient temperature exceeds 70°C.

FIG.1 DERATING CURVE



2. 额定电压 RATED VOLTAGE

额定电压为交流或直流电压（频率为 50Hz 或 60Hz）额定电压计算方式为：
 Rated voltage is defined as the DC or AC (effective Value at commercial frequency example 50 C/S,60 C/S), Voltage when rated power is applied and can be calculated By the following:

$$V = \sqrt{P \times R}$$

V = RATED VOLTAGE V 标示电压

P = RATED POWER (WATTS) P 表示功率

R = NOMINAL RESISTANCE VALUE (OHM) R 表示阻值

When the calculated rated voltage exceeds the Maximum usable voltage flue shown in CHART, the Maximum usable voltage is defined as the voltage According to the power-decreasing curve shown in CHART.



3. 产品性能 PERFORMANCE

项目 ITEM	性能及验收标准 PERFORMANCE AND QUALITY ACCEPTANCE	测试方法 TEST METHOD
温度系数 Resistance to temperature coefficient	±350PPM/°C	$\text{PPM}/^{\circ}\text{C} = \frac{R - R_0}{R_0} * \frac{10^6}{T - T_0}$ <p>R = Measured resistance (Ω) at T T °C 电阻实测值 (Ω) R₀ = Measured resistance (Ω) at T₀ T₀ °C 电阻实测值 (Ω) T = Measured test temperature(°C) 测试温度的实测值 T₀ = Measured base temperature(°C) 基准温度的实测值</p>
短时负荷 Short time overload	±(2% + 0.1ohm) Shall be no mechanical breakage 无破损 (外观正常)	2.5 倍额定电压 (交流或直流), 5 秒。 AC or DC voltage 2.5times the rated Voltage for 5 seconds .
耐电压 Voltage endurance	No breakdown or flashover 无击穿或飞弧	将电阻放于“V”形槽内, 加 1.42 倍 额定电压, 保持一分钟。 Lay the resistor on the 90° angle metal “V” peak is 1.42 times as much as insulate voltage .
端子强度 Terminal strength	内外部无损伤 Shall be no mechanical breakage	施加 3.5KG 30S 的拉力 Pull test apply 3.5KG force to the lead in the direction of lead axis for 30±5 seconds.
耐焊性 Heat resistively against soldering	± (1% + 0.05ohm) Shall be no mechanical breakage 无破损 (外观正常)	将电阻引出端浸入 350°C ± 10°C 的 锡中, 深度离电阻体 3±0.05mm, 时 间 3.5±0.5 秒。放置一小时再测试。 Dip the lead in to a solder bath having a temperature of 350 °C ± 10°C up to 3±0.05mm from the body of the resistor and hold it for 3.5± 0.5seconds leave the resistor ,at room temperature 1 hours after ,then Measure.

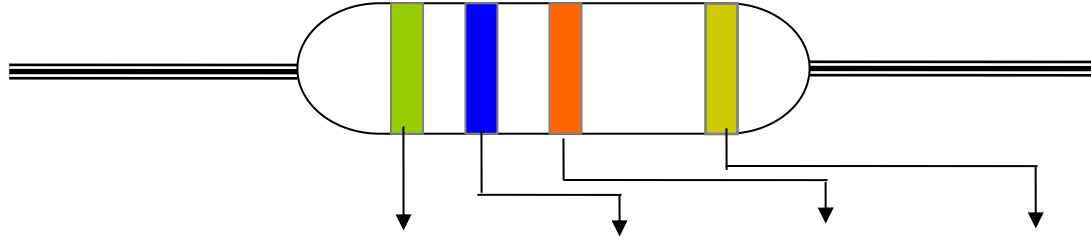


RoHS

项目 ITEM	性能及验收标准 PERFORMANCE AND QUALITY ACCEPTANCE	测试方法 TEST METHOD
寿命试验 Load life test	$\pm(5\% + 0.1\text{ohm})$ Shall be no mechanical breakage 无破损（外观正常）	在 70℃ 的环境中施加额定电压，1 小时通，0.5 小时断 1000 小时。 In the constant temperature chamber 70℃ ,apply rated voltage for 1 hour and shut voltage for 0.5 hour and repeat this cycle for 1000 hours,
上锡效果 Solder ability	吃锡面积 $\geq 95\%$ Solder area $\geq 95\%$	浸入 260℃ $\pm 5\%$ 的锡槽中， 时间 5 ± 0.5 秒。 Dip the lead in to a solder bath having a temperature of 260℃ $\pm 5\%$. Time:5 ± 0.5 seconds.
湿度负荷试验 Humidity load test	$\pm (5\% + 0.1\text{ohm})$ Shall be no mechanical breakage 无破损（外观正常）	温度在 40℃ $\pm 2\%$ ，相对湿度 90 - 95% 室内，用额定电压 1.5 小时开和关闭电压 0.5 小时，重复这个周期 1000 小时，离开 1 小时后在室温下测试。 In temperature chamber 40℃ $\pm 2\%$ ，relative humidity 90 - 95%,Apply rated voltage 1.5hour and shut voltage 0.5 hour repeat this cycle for 1000 hours, leave in room temperature for 1 hour after test,
不燃性 Flammability	不燃烧现象 No evidence of flaming	本体用试验火焰烧 15 秒，离开 15 秒，5 次。 The test flame shall be applied and removed for 15 secretary respectively,and repeated cycle for 5times.

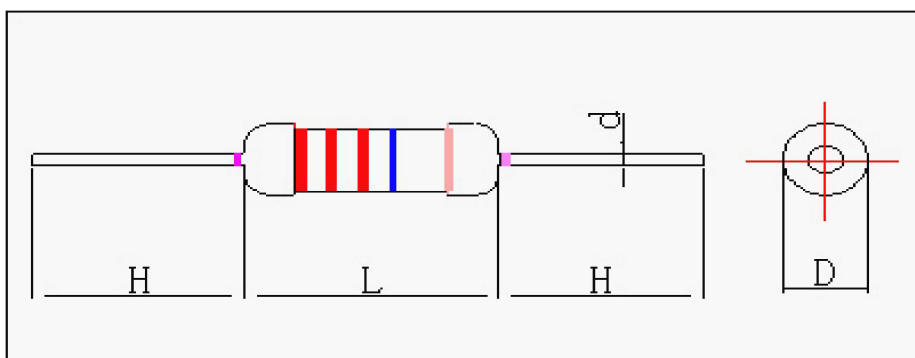


五. 标示 Marking



Color	1 st Band	2 nd Band	3 th Band	Tolerance
Black 黑	0	0	10^0	
Brown 棕	1	1	10^1	±1% (F)
Red 红	2	2	10^2	±2% (G)
Orange 橙	3	3	10^3	
Yellow 黄	4	4	10^4	
Green 绿	5	5	10^5	±0.5% (D)
Blue 蓝	6	6	10^6	±0.25% (C)
Violet 紫	7	7	10^7	±0.1% (B)
Grey 灰	8	8	10^8	±0.05% (A)
White 白	9	9	10^9	
Gold 金			10^{-1}	±5% (J)
Silver 银			10^{-2}	±10% (K)

六. B 型尺寸 Dimension (B)

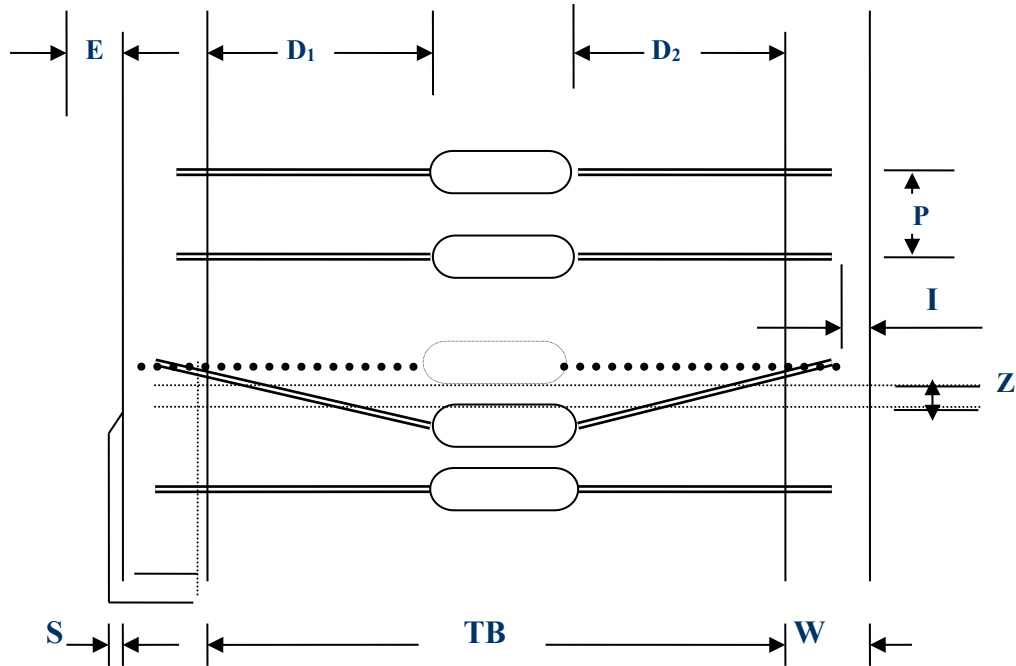


Unit: mm/mm

POWER	L	D	H	d ±0.02m	PULLING(Kg)
1/4W / 1/2WS / 1WS	6.0±0.5	2.3±0.3	27.0±2.0	0.45±0.02	2.5Kg-30S
1/2W / 1WS	9.0±1.0	3.5±0.5	26.0±2.0	0.50±0.02	2.5Kg-30S
1W	11.0±1.0	4.5±0.5	30.0±2.0	0.60±0.02	3.0Kg-30S
2WS	11.0±1.0	4.5±0.5	30.0±2.0	0.65±0.05	3.0Kg-30S
2W / 3WS	15.0±1.0	5.0±0.5	32.0±2.0	0.65±0.05	5.0Kg-30S
3W /5WS	17.0±1.0	6.0±0.5	31.5±2.0	0.70±0.05	5.0Kg-30S
5W	24.0±1.0	8.0±1.0	28.0±2.0	0.70±0.05	5.0Kg-30S



七. 编带尺寸 Taping Dimension (TB)



Unit: mm/mm

POWER	Type	TB	P±0.5	W±0.5	(D1-D2) MAX	E MAX	Z MAX	S MAX	(I) MAX
1/4W / 1/2WS	T 26	26±1.5	5	6	0.8	0	1.2	0.8	3.2
	T 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1/2W / 1WS	T 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1W / 2WS	T52	52±1.5	5	6	0.8	0	1.4	0.8	3.2
	T 63	63±1.5	5	6	0.8	0	1.4	0.8	3.2
2W / 3WS	T63	63±1.5	5	6	0.8	0	1.4	0.8	3.2
	T 73	73±1.5	5	6	0.8	0	1.4	0.8	3.2
3W / 5WS	T 73	73±1.5	10	6	0.8	0	1.4	0.8	3.2
5W	T 73	73±1.5	10	6	0.8	0	1.4	0.8	3.2

