

### 1. 适用范围 / SCOPE

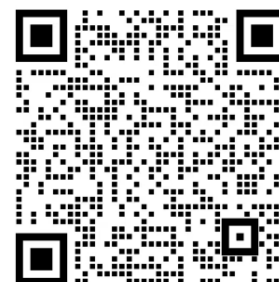
此份规格书涵盖 HFPL0805MW50-Series 金属箔电流感测电阻组件相关规格.

This specification covers HFPL0805MW50-Series, which are Metal Foil Current Sensing Resistor.

### 2. 产品型号 / TYPE NUMBER

<b>HFPL</b>	<b>0805</b>	<b>M</b>	<b>W50</b>	<b>Rxxx</b>	<b>*</b>
(1)	(2)	(3)	(4)	(5)	

- (1) 产品系列号 / SERIES NUMBER : Ex.HFPL0805= 长电极/ Long electrode ; 四端子 / four terminal ; 无侧导/ without side electrode ; 尺寸 / size “0.08×0.05”
- (2) 产品材质 / Material : M = 锰铜合金 / MnCu alloy
- (3) 产品瓦特数 / Power Rating : Ex. W50=0.5 Watt
- (4) 产品阻值 / Nominal Resistance Value : Ex. 1.0mΩ → R001
- (5) 组件电阻偏差值 / Resistance Tolerance : Ex. F=±1% ; G=±2%



### 3. 产品尺寸 / PRODUCT DIMENSIONS

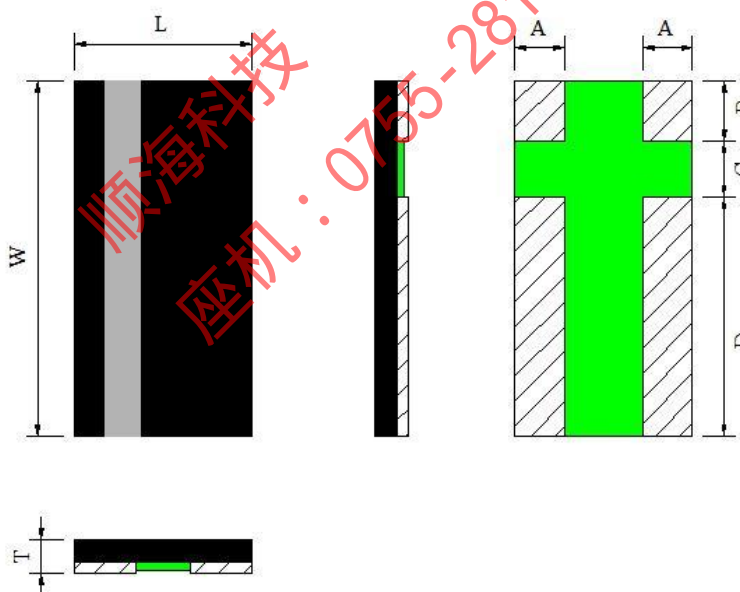


圖 1 / Fig.1

Unit(mm)

Part Number	W	L	A	B	C	D	T
HFPL0805MW50-Series R001~R002	2.00±0.20	1.25±0.20	0.35±0.15	0.30±0.15	0.30±0.15	1.40±0.20	0.40±0.20

4. 产品结构及使用材料说明 (参考图 2) / STRUCTURE & MATERIAL (Ref to Fig.2)

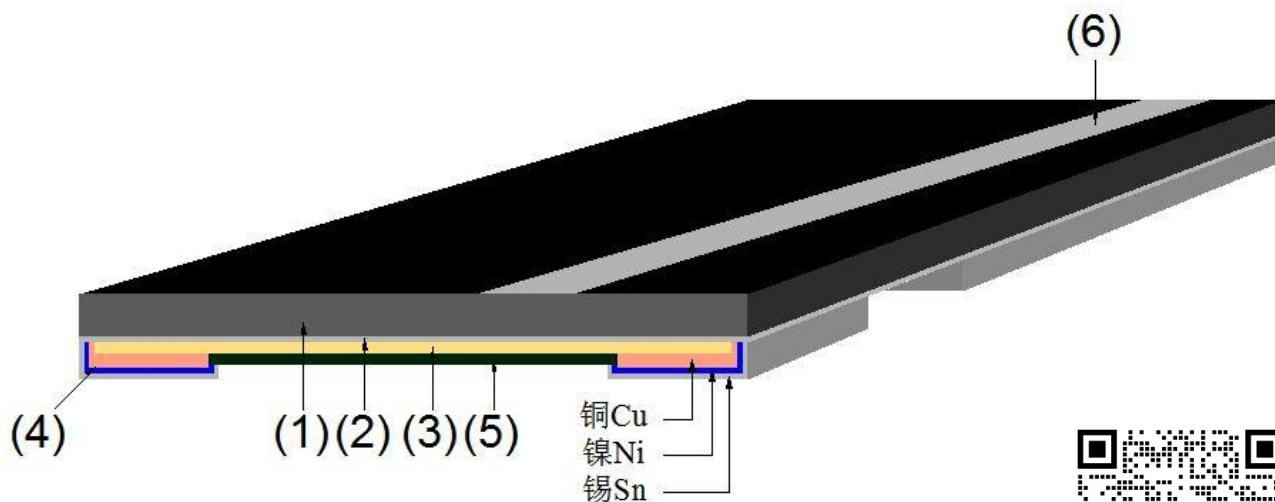
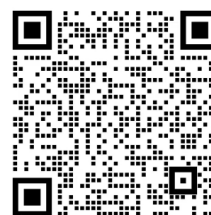


图 2 / Fig.2



4.1 基板 / Substrate(1) : 環氧樹脂 / epoxy

4.2 粘著膠層/Adhesive(2): 環氧樹脂 / epoxy

4.3 電阻本體 / Resistive element(3) : 銅合金 / Cu - alloy

4.4 端電極 / Terminal electrode(4) : 錫、鎳、銅 / Sn、Ni、Cu

4.5 保護防焊層 / Protective coating(5) : 防火級環氧樹脂,符合 UL- 94-V0 要求(绿色) /  
Flame-retardant epoxy, meets UL- 94-V0 requirements (green)

4.6 文印防焊層 / Marking coating(6) : 防火級環氧樹脂,符合 UL- 94-V0 要求(白色) /  
Flame-retardant epoxy, meets UL- 94-V0 requirements (white)

5. 电气特性 / ELECTRICAL CHARACTERISTICS

Part Number	Resistance Value (mΩ)	Power Rating (Watt)	Resistance Tolerance (%)	TCR (ppm/°C)
HFPL0805MW50-Series R001~R002	1~2	0.5	±1%(F)/±2%(G) ±3%(H)/±5%(J)	±100

规格外阻值可依客户需求提供 / We can provide other resistance value per request

6. 产品特性及信赖性测试规范 / PRODUCT CHARACTERISTICS AND RELIABILITY TEST STANDARD

測試方法 Parameter	條件 Conditions	允收標準 Requirements
瞬間過載測試 / Short Time Over Load	$P = 2.5P_r$ ; $T = 25 \pm 2^\circ\text{C}$ , $t = 5\text{sec}$ .	$\pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.13
高溫測試 / High Temp. Exposure	$T = +155 \pm 2^\circ\text{C}$ ; $t = 1000\text{h}$	$\pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.25
低溫測試 / Low Temp. Storage	$T = -55 \pm 2^\circ\text{C}$ ; $t = 1000\text{h}$	$\pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.25
濕度負載壽命測試 / Moisture Load Life ( $60^\circ\text{C}$ 、 $95\%RH$ )	$V_{\text{test}} = V_{\text{max}}$ ; $T = 60 \pm 2^\circ\text{C}$ ; $RH = 95\%$ ; $t = 90\text{min ON}$ , $30\text{min OFF}$ , $1000\text{h}$	$\pm(2.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.25
冷熱衝擊測試 / Thermal Shock	$[-55^\circ\text{C } 30\text{min.} \rightarrow \text{R.T. } 3\text{min.} \rightarrow +155^\circ\text{C } 30\text{min.}$ $\rightarrow \text{R.T. } 3\text{min.}]$ , 100 個連續循環 / 100Cycles	$\pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.19
在 $70^\circ\text{C}$ 下負載壽命測試 / Load Life at $70^\circ\text{C}$	$V_{\text{test}} = V_{\text{max}}$ ; $T = 70 \pm 2^\circ\text{C}$ ; $t = 90\text{min ON}$ , $30\text{min OFF}$ , $1000\text{h}$	$\pm(2.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.25
可焊性測試 / Solderability	浸入錫爐 / Dip into solder at $T = 245 \pm 5^\circ\text{C}$ , $t = 3 \pm 1\text{sec}$ .	錫涵蓋面積 / The covered area $> 95\%$ IEC60115-1 4.17
抗焊熱性測試 / Resistance to Solder Heat	經熱風式迴焊爐 / Through Reflow Parts are subjected to 3 reflow cycles.	$\pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.18
機械衝擊測試 / Mechanical Shock	加速度 $a = 100G$ , 振幅時間 $t = 6\text{ms}$ $a = 100G$ , $t = 6\text{ms}$	$\pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.21
基板彎曲測試 / Substrate Bending	兩支撐點間距 / Span between fulcrums : $90\text{mm}$ ; 振幅 / Bend Width : $2\text{mm}$ ; 測試板 / Test board : 玻璃纖維板 / Glass-Epoxy Board 厚度 / Thickness : $1.6\text{mm}$	$\pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.33

## 7. 環境特性 / ENVIRONMENTAL CHARACTERISTIC

### 7.1 操作溫度範圍: $-55^\circ\text{C} \sim 155^\circ\text{C}$ / Operating Temperature: $-55^\circ\text{C} \sim 155^\circ\text{C}$

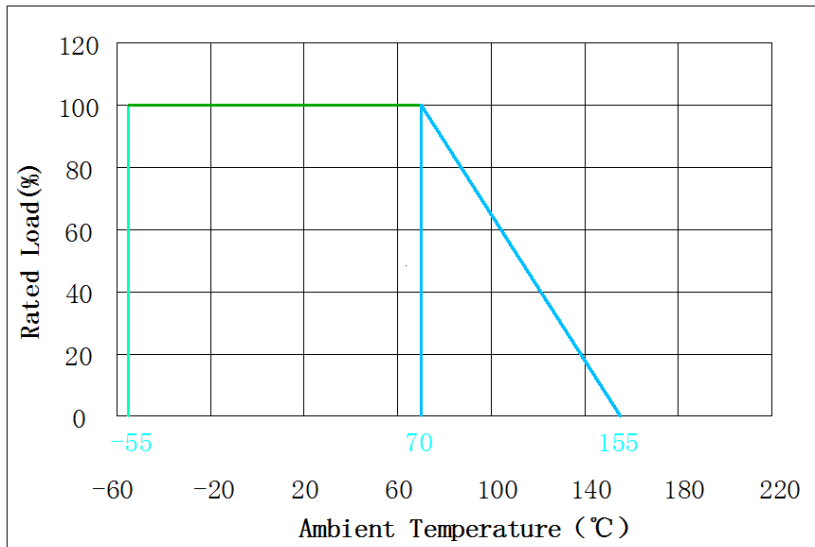
額定功率溫度衰變曲線 / Typical Thermal Derating Curve

額定功率乃指于  $70^\circ\text{C}$  以內可連續滿額功率使用的術語。

下圖為當操作溫度高於  $70^\circ\text{C}$  時的可使用功率衰減曲線。

Power rating is based on continuous full load operation at rated ambient temperature of  $70^\circ\text{C}$ . For resistors operated at ambient temp. in excess of  $70^\circ\text{C}$ , the max. load shall be derated in accordance with the following curve.





## 7.2 存储条件 / STORAGE CONDITIONS

在温度+10°C~40°C、相对湿度 $\leq 75\%$ 的密闭条件下可存放2年。 /

Under airtight in temperature+10°C~40°C、relative humidity  $\leq 75\%$  can store 2 years.

在温度+10°C~60°C、相对湿度为95%的非露天下最多可存放30天。 /

Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30days.

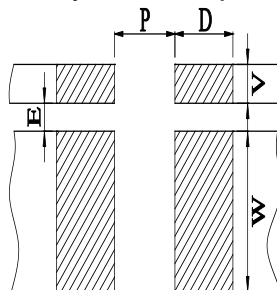
## 8. 焊锡垫尺寸及焊接条件 / SOLDER PAD SIZE AND WELDING CONDITIONS

8.1 建议如下图焊接方式焊接，并满足所要求的尺寸。 /

Propose that the following picture installation way is installed, and satisfied the required size.

Part Number	P	W	D	V	E	Loading
HFPL0805MW50-Series R001~R002	0.50mm	1.60mm	0.70mm	0.45mm	0.25mm	0.5W

loading : 适用于本公司建议焊垫设计并用于限定稳定电流下 /  
suit for specific pad layout and specific steady current



## 8.2 建议客户焊接参数 / Recommended Customer Soldering Parameters

8.2.1 回流焊温度曲线 / Solder reflow Temperature condition (图 3 / Fig.3)

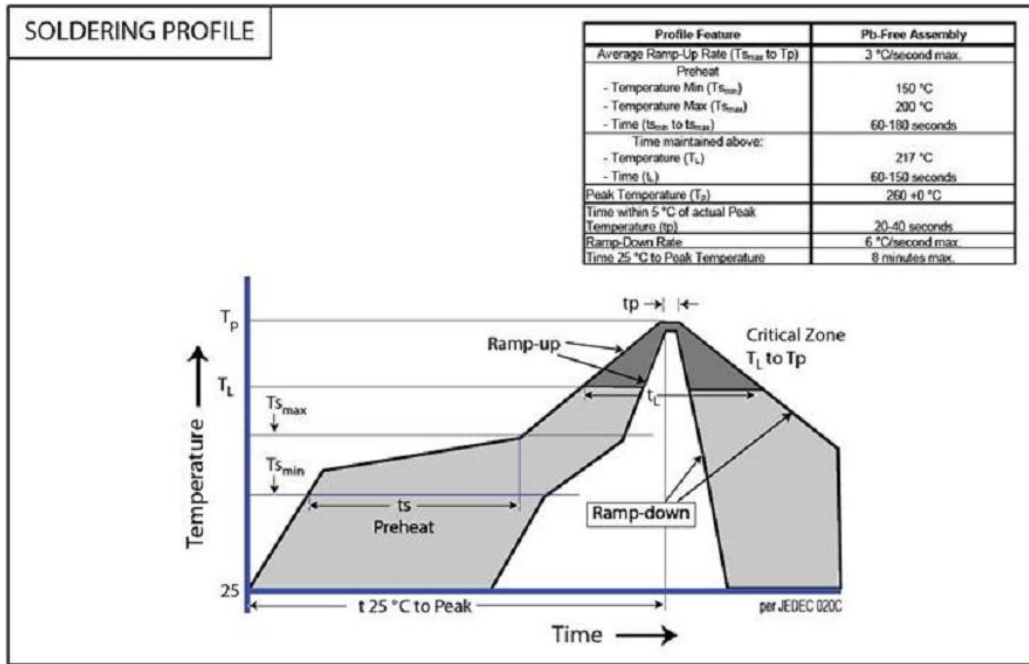


图3 / Fig.3

8.2.2 允许烙铁焊接条件(热风设备) / Rework temperature (hot air equipment) : 350°C, 3~5seconds

8.2.3 焊接方法建议 / Recommended reflow methods

焊接热源方式可用红外线, 热蒸气, 热风. / IR, vapor phase oven, hot air oven  
如果焊锡温度超过允许最高温度, 则产品本身会有功能损坏的疑虑. / If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

9. 批量生产后出货测试项目 / Lot ACCEPTANCE TEST REQUIREMENTS

每一批生产均须作入库检验, 每一批生产单量不可超过500Kpcs. /  
Qualification shall consist of passing a program of following tests. Parts shall be pulled from each lot and maximum lot quantity shall be within 500Kpcs.

9.1 外观 / Visual

方法 / Procedure : 利用放大镜进行检查 / Visual  
标准 / Acceptance Criteria : 不能有脏污、不洁、文印错误、破损等 / No parts are outstandingly stained

9.2 尺寸 / Dimensions

方法 / Procedure : 使用合适且经校正的标尺 / As appropriate, calipers, micrometers, optical comparator, or approved gages  
标准 / Acceptance Criteria : 尺寸均在标准范围内 / No parts outside specific dimensions

9.3 单体组件电阻(Ro) / Resistance (Ro)

方法 / Procedure : 在 25°C 下利用四线量测技术量测之 / Resistance shall be measured with 25°C in the 4-wire resistance test

标准 / Acceptance Criteria : 电阻值均在規定标准范围内 / The resistance of the test device shall be within the limits specified

#### 9.4 电阻温度系数 / TCR

方法 / Procedure : 利用四线法量测出组件分别在 25°C 及 125°C 下的电阻值, 并将其带入下面公式中即可得出 TCR 值 / Getting the sampling device resistance values measured in 25°C and 125°C and put them in to the following equation to calculate the TCR

标准 / Acceptance Criteria : 温度系数值均在規定标准范围内 / All parts must within the specific  
 $TCR = (R_b - R_a) / R_a \times 1 / (T_b - T_a) \times 10^6$

#### 9.5 绝缘电阻 / Insulation resistance (Ri)

方法 / Procedure : 利用绝缘测试仪器量测 / Resistance between protective layer and resistive shall be measured by high ohm meter

标准 / Acceptance Criteria : 防焊层与电阻本体绝缘电阻至少高于 100MΩ / The resistance of the test device shall over 100MΩ

### 10. 其他 / OTHERS

- 10.1 如果在使用中有超出本规格书的要求, 必须经由双方协商确认. / In the event that an impropriety is found beyond this specification, it shall be fixed by mutual agreement between the parties.
- 10.2 如果本规格书有不适当的情况, 必须通过双方协商并由本公司修改. / In the event that an impropriety is found in this specification, Juneway Electronic Technology Co., Ltd. shall amend it by mutual agreement between the parties.

