

1. 适用范围 / SCOPE

此份规格书涵盖 PMSH2512-Series 金属板电流感测电阻组件相关规格。

This specification covers PMSH2512-Series, which are Metal Strip Current Sensing Resistor.

2. 产品型号/TYPE NUMBER

PMSH	2512	*	3W0	R×××	*
(1)	(2)	(3)	(4)	(5)	

- (1) 产品系列号 / SERIES NUMBER : Ex.PMSH2512 = 短电极/ Short electrode, Low Inductance value ; 两端子 / two terminal ; 有侧导 / side electrode / size "0.25×0.12"
- (2) 产品材质 / Material :Ex. M = 锰铜复合铜合金 / Complex alloy(MnCu,Cu);C = 镍铜复合铜合金 /Complex alloy (NiCu, Cu) ; K = 镍铬铝硅复合合金 / Complex alloy (NiCrAlSi)
- (3) 产品瓦特数 / Power Rating : Ex. 3W0 = 3.0Watt
- (4) 产品阻值 / Nominal Resistance Value : Ex. R075 →75mΩ
- (5) 组件电阻偏差值 / Resistance Tolerance : Ex. F = ±1% ; G = ±2% ; J = ±5%

3. 产品尺寸 / PRODUCT DIMENSION

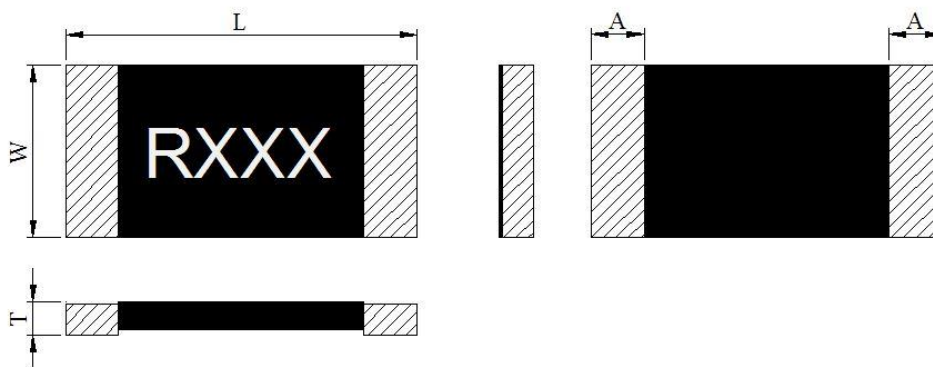


图 1 / Fig.1

Unit(mm)

Part Number	W	L	T	A
PMSH2512-Series R011~R500	3.20±0.20	6.40±0.20	0.80±0.20	0.90±0.20

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

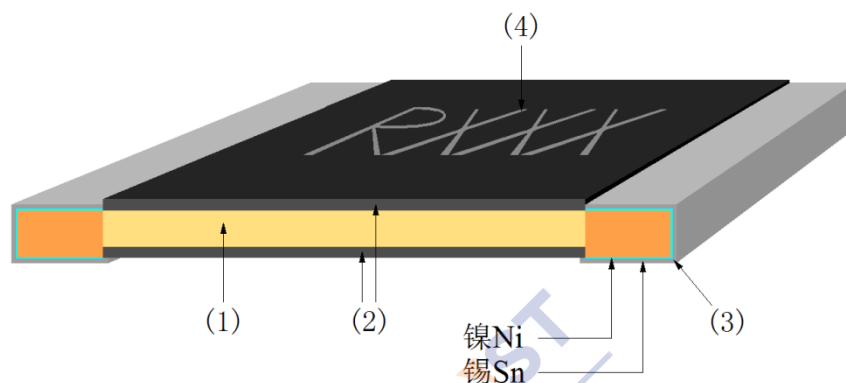


图 2 / Fig.2

4.1 电阻本体 / Resistive element(1) : M = 锰铜复合铜合金 / Complex alloy(MnCu,Cu) ;

4.2 保护防焊层 / Protective coating(2) : 防火级环氧树脂,符合 UL- 94-V0 要求(黑色) /
Flame-retardant epoxy, meets UL- 94-V0 requirements (black)

4.3 电镀层 / Plating layer(3) : 锡、镍/ Sn、Ni

4.4 文字标记 / Marking (4) : 防火级环氧树脂,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	Power Rating (Watt)	Material	Resistance Value (mΩ)	TCR (ppm/°C)	Resistance Tolerance (%)
PMSH2512M3W0-Series R011~R150	3.0	M	11~150	±50	±1%/±2%/±5%
PMSH2512C3W0-Series R151~R180		C	151~180		
PMSH2512K3W0-Series R181~R500		K	181~500		

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

测试方法 Parameter	条件 Conditions	允收标准 Requirements
瞬间过载测试 / Short Time Over Load	$P = 5.0P_r$; $T = 25 \pm 2^\circ\text{C}$, $t = 5\text{sec}$	$\pm(1.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.13
高温测试 / High Temp. Exposure	$T = +170 \pm 2^\circ\text{C}$; $t = 1000\text{h}$	$\pm(1.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.25
低温测试 / 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
湿度负载寿命测试 / Moisture Load Life (60°C、95%RH)	$P_{\text{test}} = P_{\text{rating}}$; $T = 60 \pm 2^\circ\text{C}$; $\text{RH} = 95\%$; $t = 90\text{min ON} , 30\text{min OFF} , 1000\text{h}$	$\pm(2.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.25
冷热冲击测试 / 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个连续循环 / 100Cycles	$\pm(1.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.19
在 70°C 下负载寿命测试 / Load Life at 70°C	$P_{\text{test}} = P_{\text{rating}}$; $T = 70 \pm 2^\circ\text{C}$; $t = 90\text{min ON} , 30\text{min OFF}, 1000\text{h}$	$\pm(2.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.25
可焊性测试 / Solderability	浸入锡炉/Dip into solder at $T = 245 \pm 5^\circ\text{C}$, $t = 3 \pm 0.5\text{sec}$	锡 涵 盖 面 积 /The covered area >95% IEC60115-1 4.17
抗焊热性测试 / Resistance to Solder Heat	经三次热风式回焊炉 / Through Reflow , 3times ; $T = 260 \pm 5^\circ\text{C}$, $t = 20 \pm 1\text{sec}$	$\pm(1.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.18
机械冲击测试 / Mechanical Shock	加速度 $a = 100\text{G}$, 振幅时间 $t = 6\text{ms}$ $A = 100\text{G}$, $t = 6\text{ms}$	$\pm(1.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.21
基板弯曲测试 / Substrate Bending	两支撑点间距 / Span between fulcrums : 90mm ; 振幅 / Bend Width: 2mm ; 测试板/Test board: 玻璃纤维板/ Glass-Epoxy Board ;厚度 / Thickness = 1.6mm	$\pm(1.0\%+0.5\text{m}\Omega)$ IEC60115-1 4.33

7. 环境特性 / ENVIRONMENTAL CHARACTERISTIC

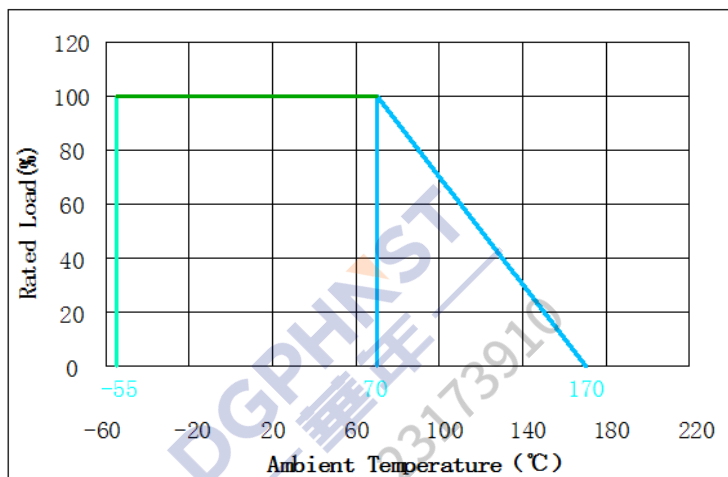
7.1 作温度范围: $-55^\circ\text{C} \sim 170^\circ\text{C}$ / Operating Temperature: $-55^\circ\text{C} \sim 170^\circ\text{C}$

额定功率温度衰变曲线 / Typical Thermal Derating Curve

额定功率乃指于 70°C 以内可连续满额功率使用的术语。

下图为当操作温度高于 70°C 时的可使用功率衰减曲线。

Power rating is based on continuous full load operation at rated ambient temperature of 70 °C. For resistors operated at ambient temp. in excess of 70 °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≤75%的密闭条件下可存放2年。

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。

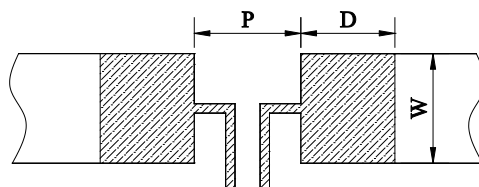
Under airtight in temperature+10°C ~ 40°C、relative humidity ≤75% can store 2 years. Without dew in temperature+10°C ~ 60°C、relative humidity be 95% maximum value for 30days.

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
PMSH2512-Series R011~R500	3.18mm	3.57mm	2.11mm

loading : 适用于本司建议焊垫设计并使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)

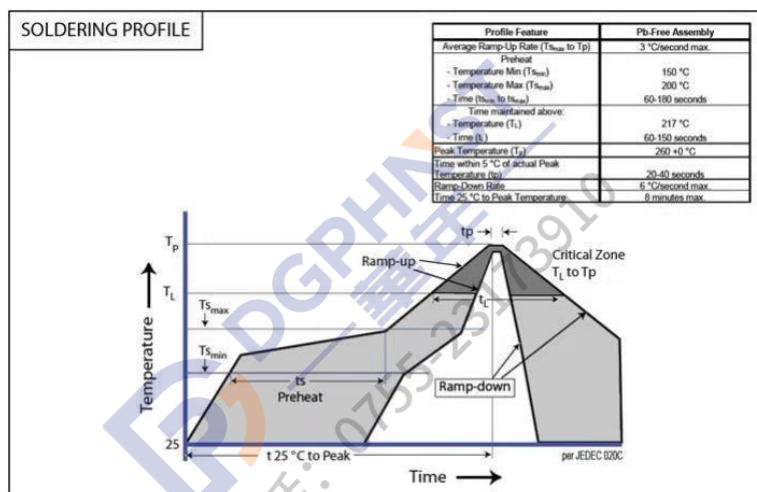


图 3 / Fig.3

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 : 利用放大鏡進行檢查 / Visual

標準 / Acceptance Criteria : 不能有脏污、不潔、文印錯誤、破損等 / No parts are outstandingly stained

9.2 尺寸 / Dimensions

方法 / Procedure : 使用合適且經校正的標尺 / As appropriate, calipers, micrometers, optical comparator, or approved gages

標準 / Acceptance Criteria : 尺寸均在規定標準範圍內 / No parts outside specific dimensions

9.3 單體組件電阻(Ro) / Resistance (Ro)

方法 / Procedure : 在 25°C 下利用四線量測技術量測之 / Resistance shall be measured with 25°C in the 4-wire resistance test

標準 / Acceptance Criteria : 電阻值均在規定標準範圍內 / The resistance of the test device shall be within the limits specified

9.4 電阻溫度係數 / TCR

方法 / Procedure : 利用四線法量測出組件分別在 25°C 及 125°C 下的電阻值, 並將其帶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

標準 / Acceptance Criteria : 溫度係數值均在規定標準範圍內 / All parts must within the specific

$$TCR = (R_b - R_a) / R_a \times 1 / (T_b - T_a) \times 10^{-6}$$

9.5 絕緣電阻 / Insulation resistance (Ri)

方法 / Procedure : 利用絕緣測試儀量測 / Resistance between protective layer and resistive shall be measured by high ohm meter

標準 / Acceptance Criteria : 防焊層與電阻本體絕緣電阻至少高於 100MΩ / The resistance of the test device shall over 100MΩ

9.6 電感值/Inductance

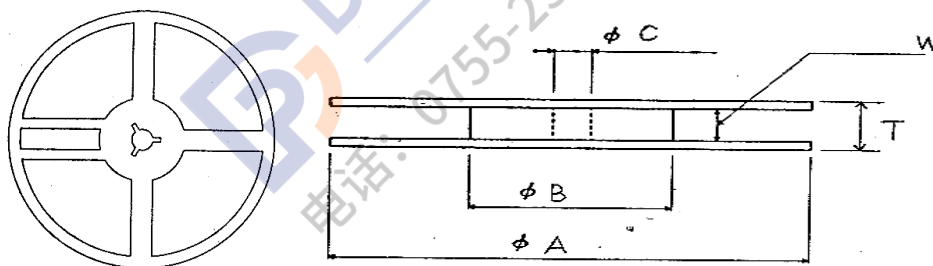
电感特性: 小于 5 纳亨 (电路频率涵盖 40kHz-200kHz & 100MHz-1000MHz) / Inductance characteristics: <5nH(Circuit frequency is covers 40kHz-200kHz & 100MHz-1000MHz)

10. 包装讯息 / PACKAGING INFORMATION

10.1 包装数量、重量 / QUANTITY & WEIGHT

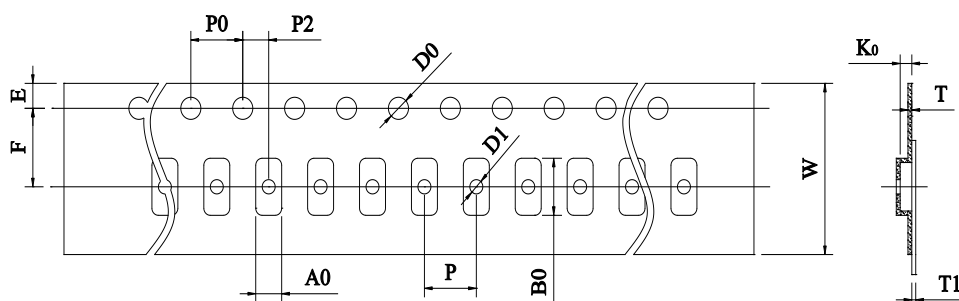
型号 / Type Number	数量 / Quantity (pcs)
PMSH2512-Series	4,000

10.2 卷轮规格 / Reel & Tape specifications



Unit: mm

型号 / Type Number	ψA	ψB	ψC	W	T
PMSH2512-Series	178±2.0	60±1.0	13.0±1.0	9.0±1.0	15.4±2.0



Unit: mm

PMSH2512-Series							
W	12.0 ± 0.30	P0	4.00 ± 0.10	P	4.00 ± 0.10	P2	2.00 ± 0.10
A0	3.50 ± 0.10	B0	6.80 ± 0.10	D0	1.50 ± 0.10	F	5.50 ± 0.10
E	1.75 ± 0.10	T	0.20 ± 0.10	T1	MAX. 0.10	K0	1.00 ± 0.20

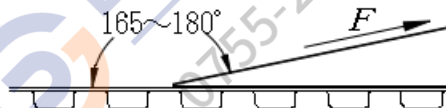
10.3 密封胶膜剥离强度要求 / Peeling Strength of Seal Tape

V = 剥离速度 : 300 mm/min

V = Peeling Speed : 300 mm/min

F = 剥离强度 : 0.1 – 0.7N (10 - 70gf)

F = Peeling Strength : 0.1 – 0.7N (10 - 70gf)



11. 其他 / OTHERS

11.1 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.

11.2 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