

1. 适用范围 / SCOPE

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

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

2. 产品型号/TYPE

PMSB PMSH	2512	*	3W0	Rxxx	*
(1)	(2)	(3)	(4)	(5)	

- (1) 产品系列号 / SERIES NUMBER : Ex. PMSB /PMSH1206 = 短电极/ Short electrode; 两端子 / two terminal ; 有侧导 / side electrode ; 大电极 / Big electrode ; 尺寸 / size "0.25×0.12"
- (2) 产品材质 / Material : 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. 75mΩ → R075;
- (5) 组件电阻偏差值 / Resistance Tolerance : Ex. F = ±1% ; G = ±2% ; J = ±5%

3. 产品尺寸 / PRODUCT DIMENSIONS

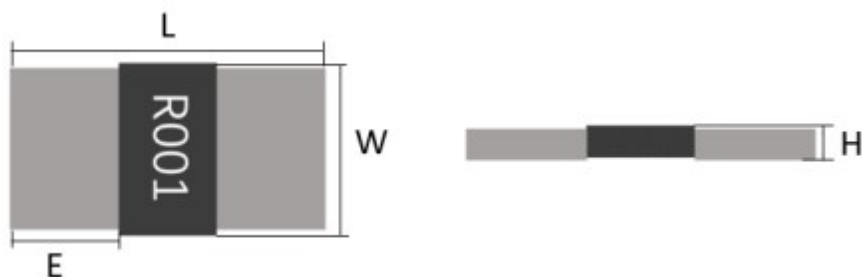


图 1 / Fig.1 (PMSB2512-Series)

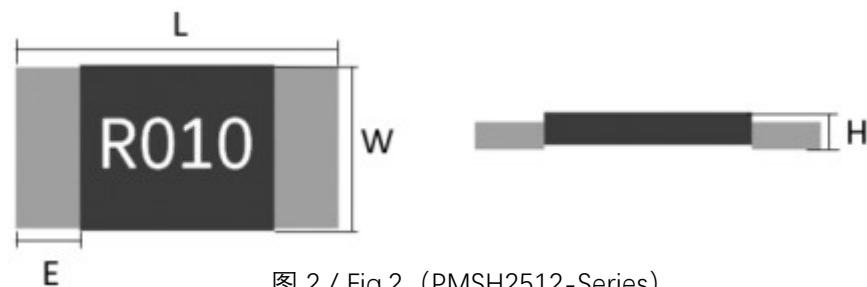


图 2 / Fig.2 (PMSH2512-Series)

Unit(mm)				
Part Number	W	L	H	E
PMSB2512-Series	3.20±0.20	6.40±0.20	0.80±0.10	2.20±0.20
PMSH2512-Series				1.00±0.20

4. 产品结构及使用材料说明 / STRUCTURE & MATERIAL

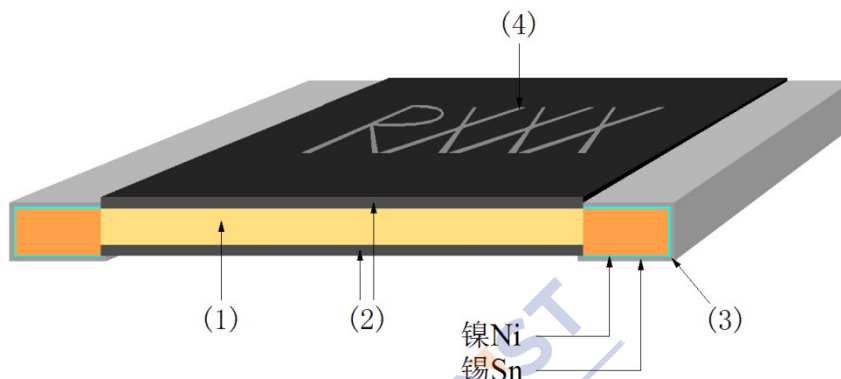


图 3 / Fig.3

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 UL94 V-0 要求(黑色) / Flame-retardant epoxy, meets UL94 V-0 requirements (black)

4-3 电镀层 / Plating layer(3) : 锡、镍 / Sn、Ni

4-4 文字标记 / Marking (4) : 环氧树脂 / Epoxy resin

5. 电气特性 / ELECTRICAL CHARACTERISTICS

Part Number	Power Rating (Watt)	Material	Resistance Value (mΩ)	TCR (ppm/°C)	Resistance Tolerance (%)
PMSB2512-Series	2.0/3.0	Cu	$R < 0.2\text{m}\Omega$	/	$\pm 1\% / \pm 2\% / \pm 5\%$
		MnCu	$0.5\text{m}\Omega \leq R < 1\text{m}\Omega$	± 350	
			$1\text{m}\Omega \leq R \leq 4\text{m}\Omega$	± 50	
PMSH2512-Series	2.0/3.0	MnCu	$0.5\text{m}\Omega \leq R \leq 1.5\text{m}\Omega$	± 350	$\pm 1\% / \pm 2\% / \pm 5\%$
			$2\text{m}\Omega \leq R \leq 20\text{m}\Omega$	± 50	
			$21\text{m}\Omega < R \leq 220\text{m}\Omega$	± 50	
		KaMa	$220\text{m}\Omega < R \leq 500\text{m}\Omega$	± 50	

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

测试项目 Test Items	条件 Conditions	允收标准 Requirements
阻值数据 Resistance Data	Resistance data at 25°C	必须满足数据表要求 / Must meet datasheet requirements
温度系数数据 TCR Data	Tested at 25°C and 125°C $TCR = (R_b - R_a) / R_a \times 1 / (T_b - T_a) \times 10^6$	必须满足数据表要求 / Must meet datasheet requirements
尺寸数据 Dimensional Data	测量数据表中指定的所有尺寸 Measure all dimensions specified in datasheet	必须满足数据表要求 / Must meet datasheet requirements
瞬间过载测试 Short Time Over Load	$P = 5.0P_r$; $T = 25 \pm 2^\circ\text{C}$, $t = 5\text{sec}$	$\Delta R \leq \pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.13
高温测试 High Temp. Exposure	$T = +170 \pm 2^\circ\text{C}$; $t = 1000\text{h}$	$\Delta R \leq \pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.25
低温测试 Low Temp. Storage	$T = -55 \pm 2^\circ\text{C}$; $t = 1000\text{h}$	$\Delta R \leq \pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.25
长期耐湿 Moisture with Load	85°C±2°C, 85%±3%RH, 持续 1000 小时, 额定功率, 通 1.5 小时/断 0.5 小时 85°C±2°C, 85%±3%RH, 1000 hours, rated power, 1.5 hours on / 0.5 hours off	$\Delta R \leq \pm(1.0\% + 0.05\text{m}\Omega)$
温度循环 Rapid change of Temperature	[-55°C 30min. → R.T. 5min. → +155°C 30min → R.T. 5min.], 1000个连续循环 / 1000Cycles	$\Delta R \leq \pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.19
在 70°C 下负载寿命测试 Load Life at 70°C	$P_{\text{test}} = P_{\text{rating}}$; $T = 70 \pm 2^\circ\text{C}$; $t = 90\text{min ON}, 30\text{min OFF}, 1000\text{h}$	$\Delta R \leq \pm(2.0\% + 0.5\text{m}\Omega)$ 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; $T = 260 \pm 5^\circ\text{C}$, $t = 20 \pm 1\text{sec}$	$\Delta R \leq \pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.18
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	$\Delta R \leq \pm(1.0\% + 0.5\text{m}\Omega)$ IEC60115-1 4.33

7. 环境特性/ ENVIRONMENTAL CHARACTERISTIC

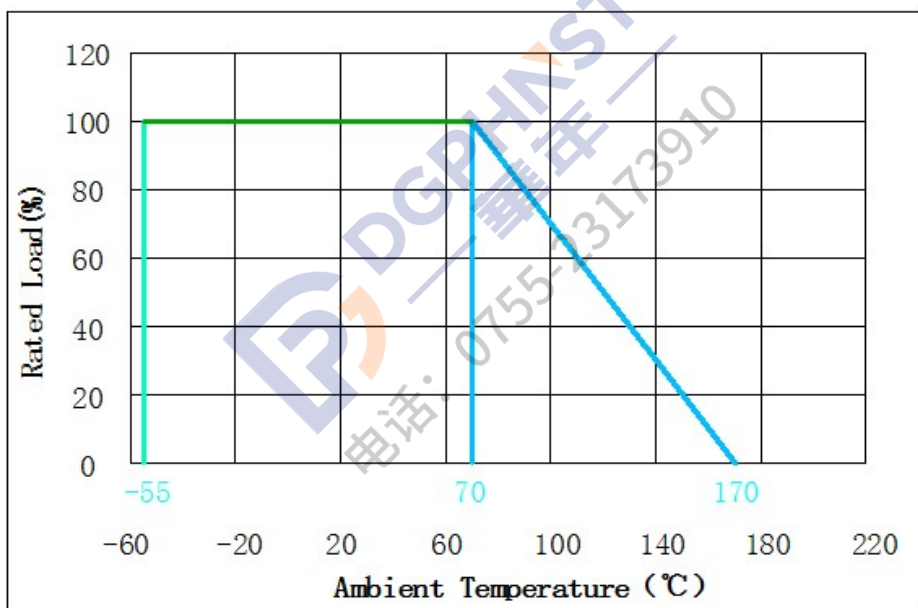
7-1 操作温度范围: $-55^{\circ}\text{C} \sim 170^{\circ}\text{C}$ / Operating Temperature: $-55^{\circ}\text{C} \sim 170^{\circ}\text{C}$

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 $+5^{\circ}\text{C} \sim 35^{\circ}\text{C}$ 、相对湿度 $45 \sim 75\%$ 的密闭条件下可存放1年。

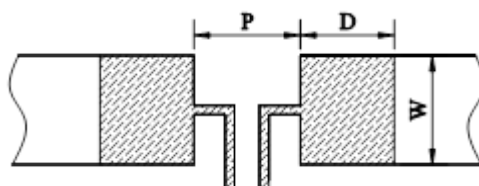
Under airtight in temperature $+5^{\circ}\text{C} \sim 35^{\circ}\text{C}$ 、relative humidity $45 \sim 75\%$ can store 1 years.

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
PMSB2512-Series	1.3mm	4.0mm	3.1mm
PMSH2512-Series	4.1mm	4.0mm	2.1mm

loading : 适用于本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 4 / Fig.)

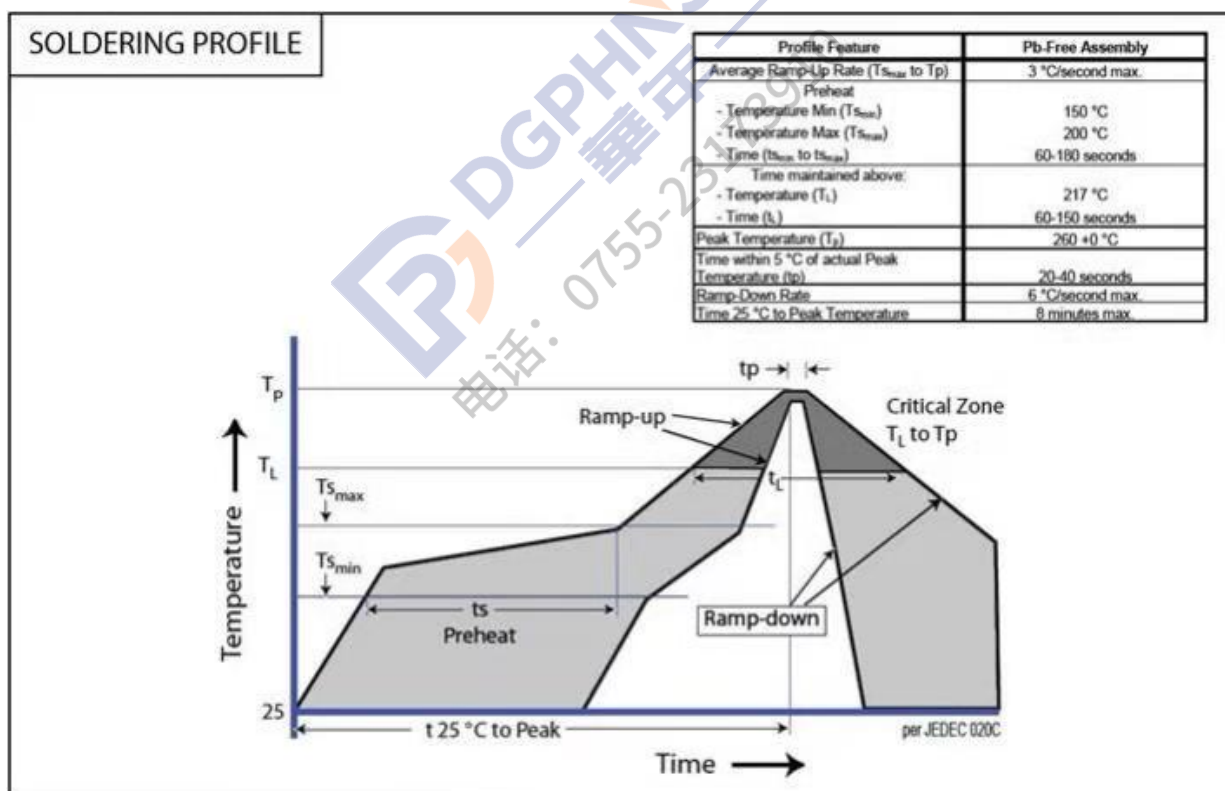


图 4 / Fig.4

8-2-1 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

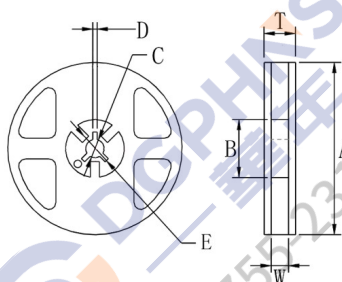
如果焊锡温度超过允许最高温度, 则产品本身会有功能损坏的疑虑. / If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

9. 包装信息/ PACKAGING INFORMATION

9-1 包装数量、重量 / Quantity & Weight

型号 Type Number	数量 Quantity (pcs)
PMSB/PMSH2512-Series	4000

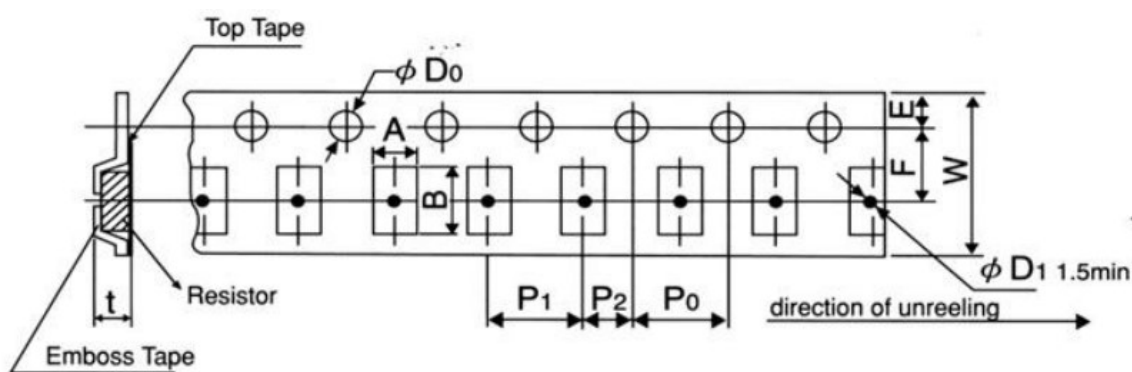
9-2 卷轮规格 / Reel specifications



Unit(mm)

型号 Type Number	ψA	ψB	ψC	ψD	ψE	W	T
PMSB/PMSH2512-Series	178 ± 2.0	60 ± 1.0	13.0 ± 1.0	2.0 ± 0.5	>22	13.3 ± 0.5	15.4 ± 0.5

9-3 载带规格 / Tape specifications



Unit(mm)

PMSB/PMSH2512-Series							
W	12.0 ± 0.20	P0	4.00 ± 0.05	P1	4.00 ± 0.10	P2	2.00 ± 0.05
A	3.50 ± 0.15	B	6.80 ± 0.10	D0	$1.50 \sim 1.60$	F	5.50 ± 0.05
E	1.75 ± 0.10	t	1.00 ± 0.10	/	/	/	/

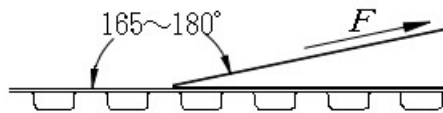
9-4 密封胶剥离强度要求 / Peeling Strength of Seal Tape

V = 剥离速度 : 300 mm/min

V = Peeling Speed : 300 mm/min

F = 剥离强度 : 0.1 – 1N (10 - 100gf)

F = Peeling Strength : 0.1 – 1N (10 - 100gf)

**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 , WALTER ELECTRONIC CO., LTD. shall amend it by mutual agreement between the parties.