



**High Power Current Sensing Resistors RLP28 Series
(Halogen-Free)**

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1. Scope :

This specification applied to the products of current sensing resistor of metal foil for Lead-Free RLP series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation :

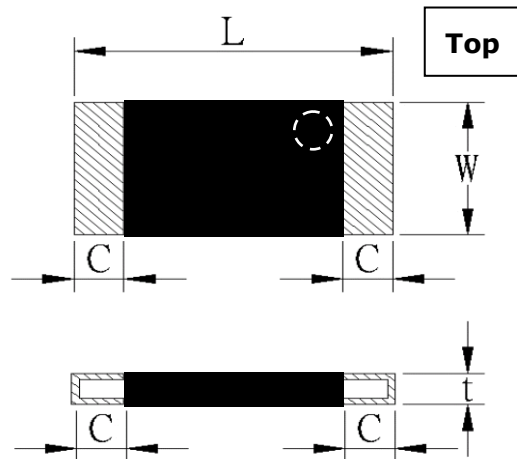
<u>RLP</u> Item	<u>28</u> Series No.	<u>F</u> Resistance tolerance	<u>A</u> Packaging	<u>G</u> Power rating	<u>R010</u> Resistance
	28:2817 (7142)	F:±1%	A: Semi Finished	G=3W	e.g : R010=10mΩ

3. Construction and Dimension :

3.1 Construction:



3.2 Dimension:



Unit : mm

Style	L	W	C	T	Material
RLP28	7.1±0.2	4.2±0.1	0.9±0.2	0.8 ±0.20	Strip : Alloy Over Coating : Polymer Compound UL-94V-0 grade



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4. Features & Reliability Tests:

试验项目	试验方法	技术要求
封装	——	SMT2817
文字标识	——	无文字标识
阻值	Mil-std-202 方法 303	10mΩ/20mΩ
阻值精度	Mil-std-202 方法 303	±1%
额定功率	——	3W
温度系数	MIL-STD-202 方法 304 以 22℃ 为基准温度	-100ppm/K~0ppm/K (-55℃~22℃) ±50 ppm/K (22℃~60℃) ±60 ppm/K (60℃~170℃)
全功率使用的最高温度	——	105℃
工作温度范围	——	-55~170℃
温度冲击	MIL-STD-202 方法 107 试验条件 F1 -65℃&150℃, 25 次循环	产品无机械损伤 阻值变化率不超过±0.1%
短时过载	GJB1432B-2009 方法 4.5.6 5 倍额定功率, 5s	产品无机械损伤 阻值变化率不超过±0.2%
可焊性	Mil-std-202 方法 208H 焊 槽法 235±5℃, 2±0.5s	引出端 95% 以上面积被新的光洁 焊料覆盖 阻值变化率不超过±0.1%
耐溶剂性	Mil-std 方法 215, 2.1a, 2.1d	产品无机械损伤
低温贮存	IEC60115-1-4.23.4 JIS-C5201-4.23.4 无负荷、-55℃、1000h	阻值变化率不超过±0.1%
低温工作	GJB1432B-2009 方法 4.5.5 -65℃、无负荷、1h -65℃、额定功率、45min 25℃、无负荷、24±4h	产品无机械损伤 阻值变化率不超过±0.1%



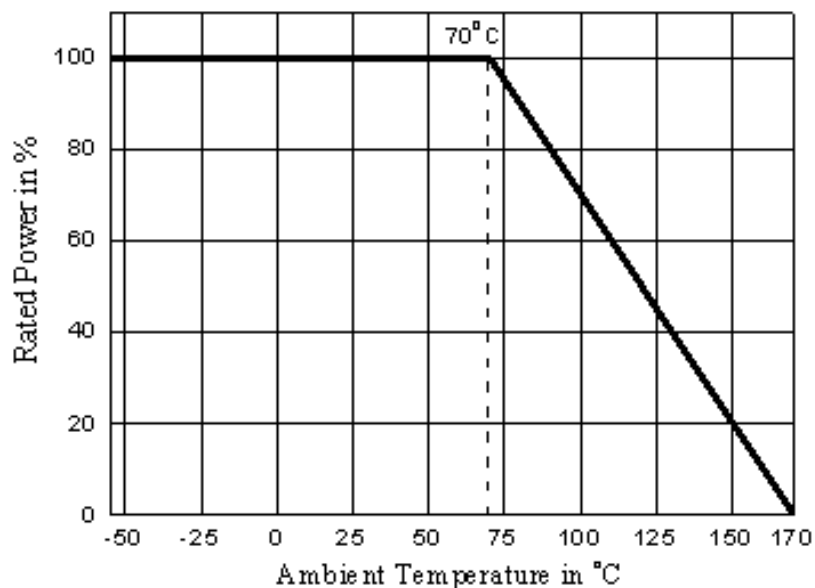
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耐焊接热	MIL-STD-202 方法 210 试验条件 C 260±5℃, 20±1s	阻值变化率不超过±0.1% 无机械损伤
耐湿	MIL-STD-202 方法 106	产品无机械损伤 阻值变化率不超过±0.1%
寿命	GJB1432B-2009 方法 4.5.11 额定功率、105℃、2000h、 1.5h 通电、0.5h 断电	产品无机械损伤 阻值变化率不超过±1%
高温贮存	MIL-STD-202 方法 108 试验条件 F 170℃, 2000h	产品无机械损伤 阻值变化率不超过±0.3%
高温暴露	140℃, 2000h	产品无机械损伤 阻值变化率不超过±0.2%
介质耐压	MIL-STD-202 方法 301 200V, 直流与交流	无击穿

Note: 3watts total Solder pad and trace size of 300mm

5. Derating Curve





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5.1 Rated Current & Voltage

The rated Current and Voltage are calculated by the following formula:

$$I = \sqrt{P \div R}$$

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

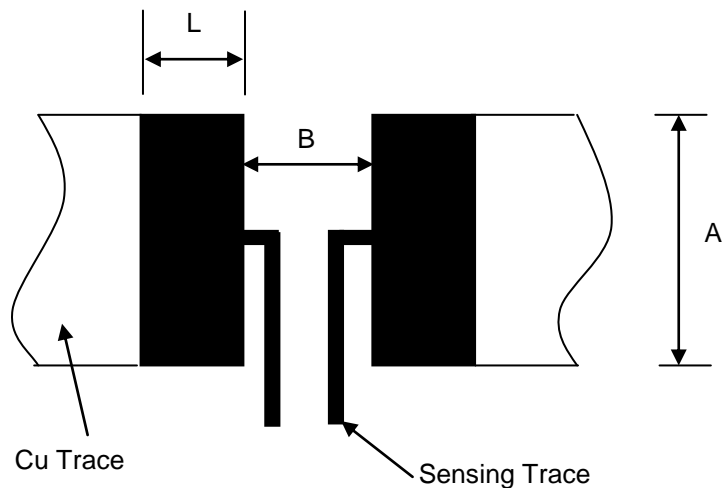
I: Rated Current(I)

V: Rated Voltage(V)

P: Rated Power(W)

R: Resistance Value(Ω)

6. Recommended Solder Pad Dimension



Resistance Range (Ω)	A	L	B
0.01	4.6	3.4	0.6

Unit: mm

7. Storage Conditions:

Temperature: 5°C~35°C, Humidity: 40%~75%

8. Shelf Life:

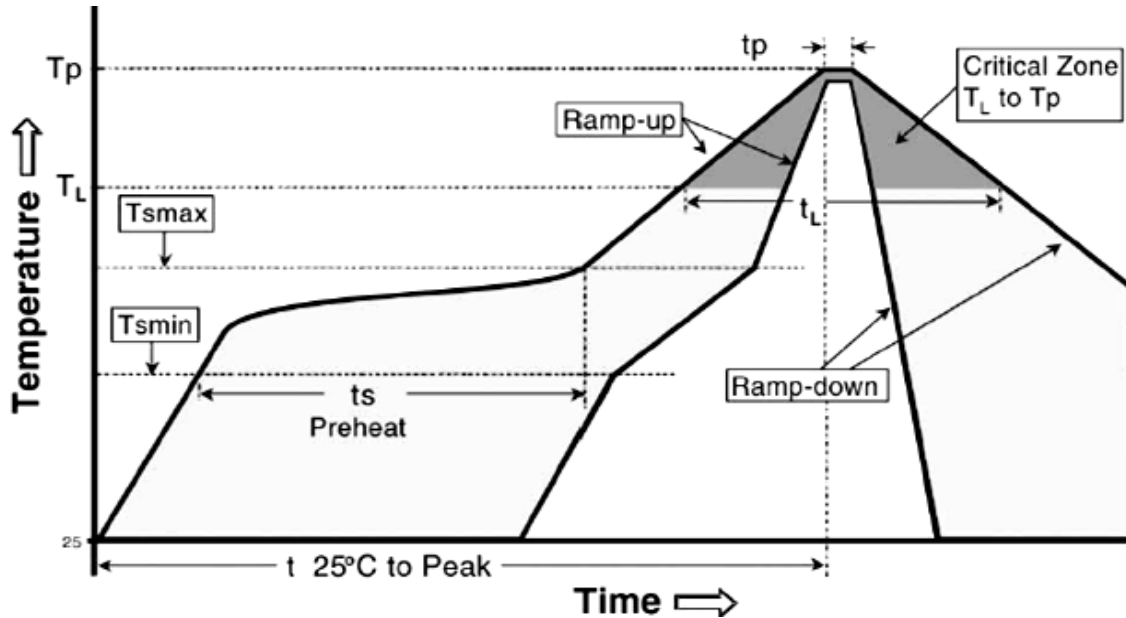
2 years from manufacturing date.



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9. Recommend IR – Reflow profile: (solder: Sn96.5 / Ag3 / Cu0.5)



Alloyed Re-flow times : 3 times

Remark : To avoid discoloration phenomena of chip on terminal electrodes, please use N2 Re-flow furnace .

Iron Solder: 350±10°C , 3+1/-0 sec

Profile Feature	Lead (Pb)-Free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C / second max.
Preheat - Temperature Min (T _{smin}) - Temperature Max (T _{smax}) - Time (T _{smin} to T _{smax}) (ts)	150°C 200°C 60 -150 seconds
Time maintained above : - Temperature (T _L) - Time (T _L)	217°C 60-120 seconds
Peak Temperature (T _p)	260°C
Time within $\begin{matrix} +0 \\ -5 \end{matrix}$ °C of actual Peak Temperature (t _p) ²	10 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8minutes max.



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10. ECN

Engineering Change Notice: The customer will be informed with ECN if there is significant modification on the characteristics and materials described in approval sheet.