



High Power Current Sensing Resistors RLP 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 :

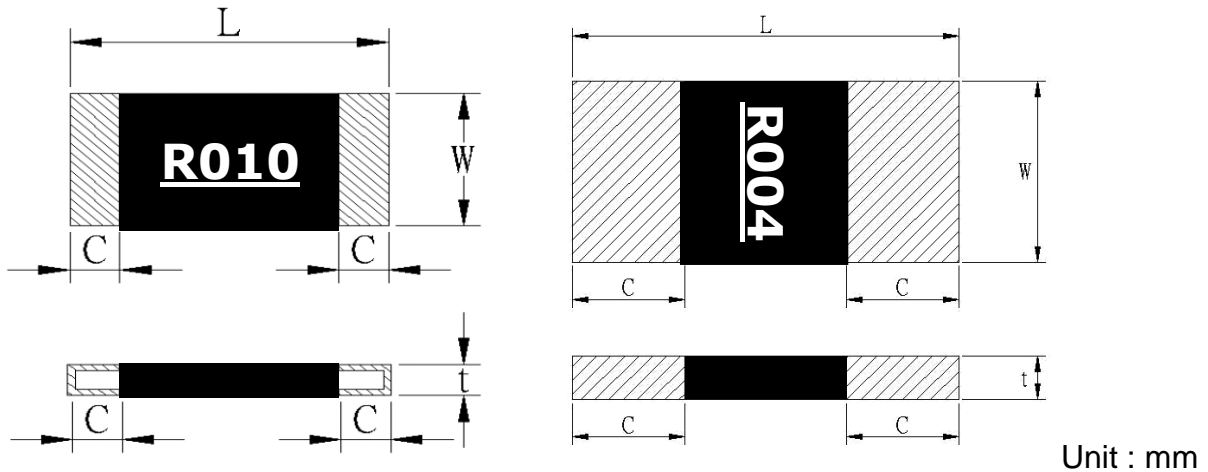
<u>RLP</u> Item	<u>25</u> Series No.	<u>E</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power rating	<u>M</u> Metal	<u>R010</u> Resistance
	25:2512 (6432)	F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W D=1.5W E=2W G=3W	M=Mn/Cu	e.g : R010=10mΩ

3. Construction and Dimension :

3.1 Construction:



3.2 Dimension:



Style	L	W	C	T	Material
RLP25	6.4±0.2	3.2±0.2	2.0±0.2(≤4mΩ)	0.7 ±0.20	Strip : Alloy Over Coating : molding Compound UL-94V-0 grade
			0.9±0.2(R>4mΩ)		



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4. Features:

Type	RLP25
Power Rating	$1\text{ m}\Omega \leq R \leq 60\text{m}\Omega$ (1W、1.5W、2W、3W)
Resistance Value	$1\text{ m}\Omega \sim 60\text{m}\Omega$
Operation Temperature Range	$-55^{\circ}\text{C} \sim +170^{\circ}\text{C}$
Temperature Coefficient of Resistance	$\pm 75\text{ppm}/^{\circ}\text{C}$
Tolerance	$\pm 1\%, \pm 2\%, \pm 5\%$
Insulation Resistance	Over $100\text{M}\Omega$
Maximum Working Current(I)	$(P/R)^{1/2}$

5. Reliability Tests :

Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1-4.8 JIS-C5201-4.8	$+25^{\circ}\text{C} \sim +125^{\circ}\text{C}$	Refer 4.0
Load Life	IEC60115-1-4.25.1 JIS-C5201-4.25.1	1000hours at rated power, 70°C , 1.5hours "ON", 0.5hour "OFF"	$< \pm 1\%$
Short Time Overload	IEC60115-1-4.13 JIS-C5201-4.13	5 X rated power for 5s	$< \pm 0.5\%$
Moisture no Load	IEC60115-1- 4.24.2.1a) JIS-C5201- 4.24.2.1a)	85°C , 85%RH, 1000hrs	$< \pm 1\%$
Temperature cycle	IEC60115-1-4.19 JIS-C5201-4.19	-55°C & $+155^{\circ}\text{C}$, 300cycle, 15min per extreme condition	$< \pm 0.5\%$
Resistance to Soldering Heat	IEC60115-1-4.18 JIS-C5201-4.18	$260 \pm 5^{\circ}\text{C}$ for 20 ± 1 sec	$< \pm 0.5\%$
Solderability	IEC60115-1-4.17 JIS-C5201-4.17	$245 \pm 5^{\circ}\text{C}$, 2 ± 0.5 sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	IEC60115-1- 4.23.2 JIS-C5201-4.23.2	170°C , 1000hrs	$< \pm 1\%$
Low Temperature Storage	EC60115-1- 4.23.4 JIS-C5201-4.23.4	-55°C , 1000hrs	$< \pm 0.5\%$
Substrate Bending	IEC60115-1-4.33 JIS-C5201-4.33	Bending width 2mm	$< \pm 1\%$
Insulation Resistance	IEC60115-1-4.6 JIS-C5201-4.6	100V DC for 1 minute	$> 100\text{ M}\Omega$

Note:2&3watts total Solder pad and trace size of 300mm



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5.1 Derating Curve



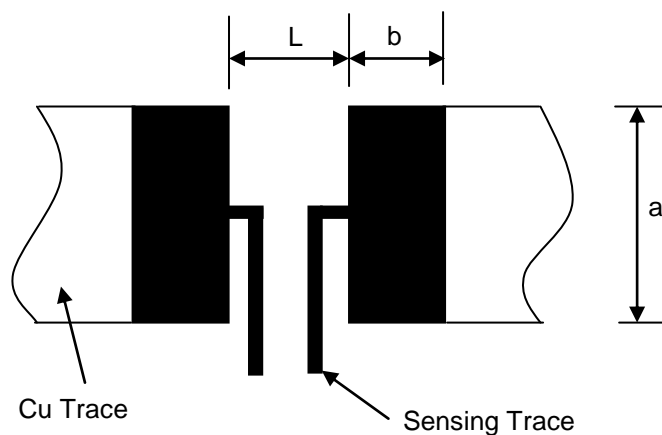
5.2 Rated Current

The rated voltage is calculated by the following Formula:

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

I:Rated Current(I)
P:Rated Power(W)
R:Resistance Value(Ω)

6. Recommended Solder Pad Dimension



Resistance Range (Ω)	a	b	L
R > 0.004	4.0	2.1	4.1
R ≤ 0.004	4.0	3.1	1.3

Unit: mm



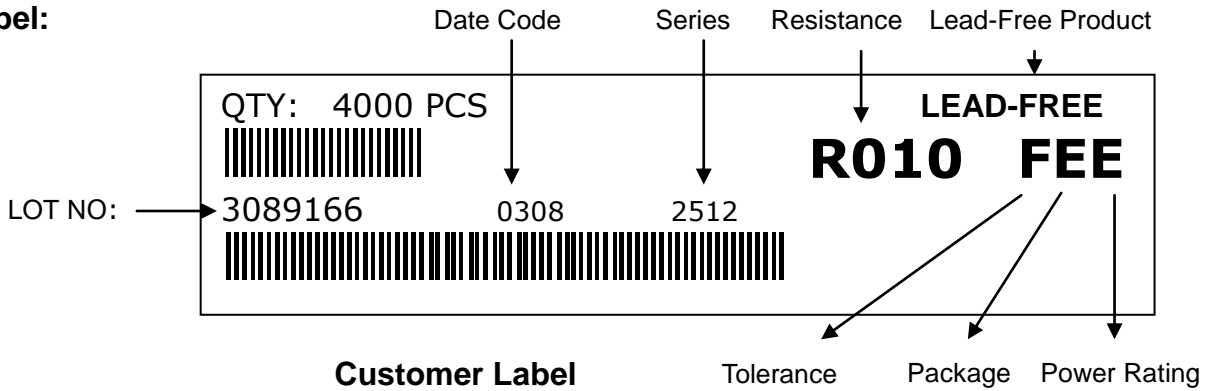
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7. Number of Package:

4000 Pieces / package

8. Label:



9. Taping



Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	t
Emboss	RLP25	3.6±0.2	6.9±0.2	12±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	$\phi 1.5$ (+0.1/-0)	1.2±0.15



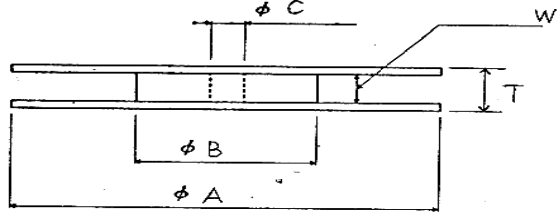
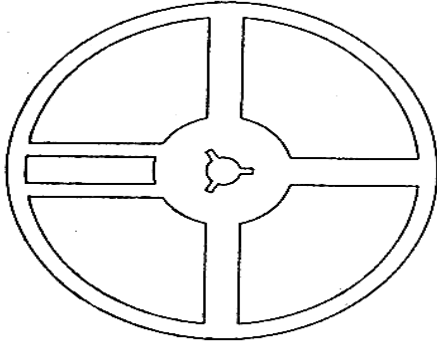
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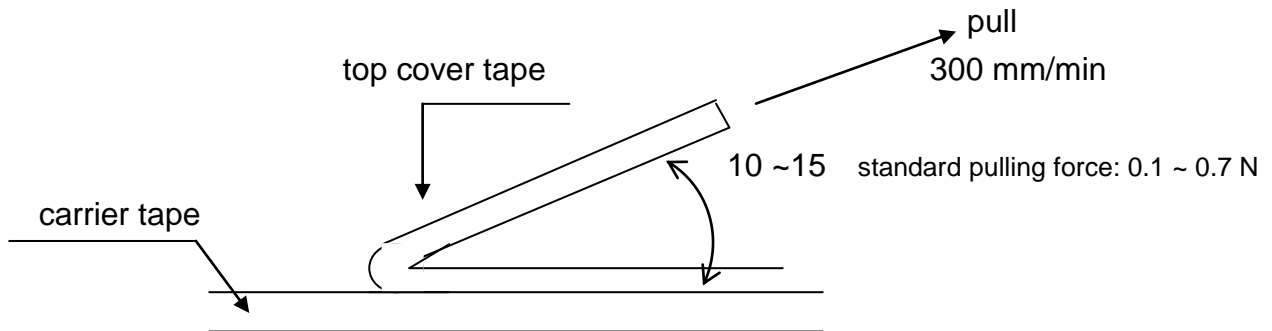
10. Reel Specification



Series	ϕA	ϕB	ϕC	W	T
RLP 25	180 ⁺⁰ ₋₃	60 ±1.0	13.0±1.0	13.0±1.0	15.4±2.0

11. Peeling Strength of Top Cover Tape

Test Condition: 0.1 to 0.7 N at a peel-off speed of 300 mm / min.



12. Storage Conditions:

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

13. Shelf Life:

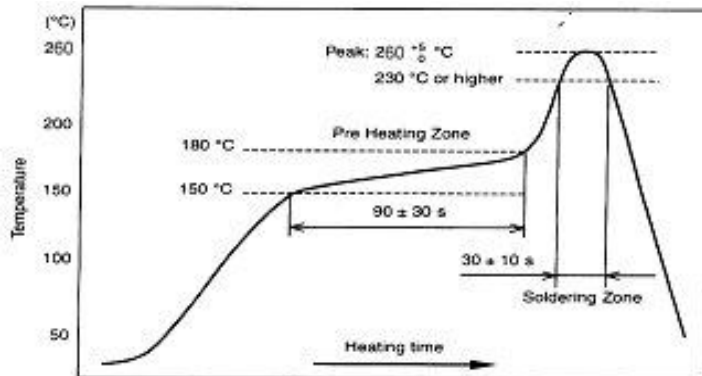
2 years from manufacturing date.



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



Peak : 260 $\begin{matrix} +5 \\ -0 \end{matrix}$ °C , 5 sec

Pre – heat zone : 150 to 180 °C, 90±30 sec

Soldering zone : 230°C or higher , 30±10 sec

Iron Solder: 350±10°C , 3+1/-0 sec

15. 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.

16. Manufacturing Country & City :

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