



**High Power Current Sensing Resistors RLP Series  
( Halogen-Free )  
AEC-Q 200-Ver D qualified**

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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 :**

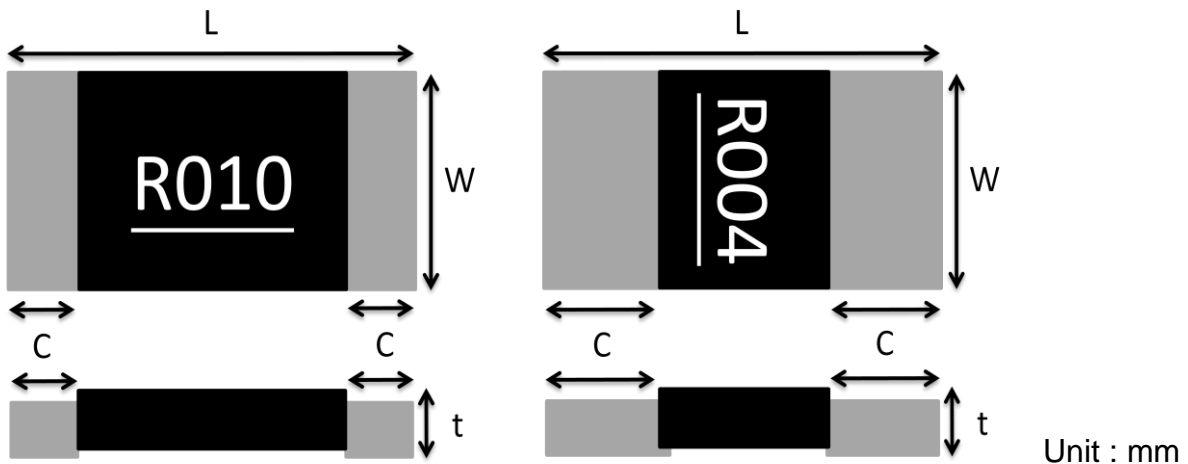
<u>R</u> L <u>P</u> Item	<u>2</u> 5 Series No.	<u>E</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power rating	<u>M</u> Metal	<u>R</u> 0 <u>1</u> 0 Resistance
	25:2512 (6432)	F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W D=1.5W E=2W G=3W	M=Mn/Cu	e.g : R010=10mΩ

**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 mΩ ≤ R ≤ 60mΩ (1W、1.5W、2W、3W)
Resistance Value	1 mΩ ~ 60mΩ
Operation Temperature Range	-55°C ~ +170°C
Temperature Coefficient of Resistance	±50ppm/°C
Tolerance	±1%, ±2%, ±5%
Insulation Resistance	Over 100MΩ
Maximum Working Current( I )	(P/R) <sup>1/2</sup>

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

**5. Reliability Tests :**

Test Items	Reference	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8	+25 ~ 125°C	Refer 4.0
High Temperature Exposure(Storage)	MIL-STD-202 Method 108	T=125°C, 1000hrs, Measurement at 24hrs after test conclusion.	< ±1%
Low temperature operation	IEC60115-1 4.23.4	-55 °C for 45 min	< ±0.5%
Temperature Cycling	JESD22 Method JA-104	1000Cycle (-55°C to 125 °C), Measurement at 24hrs after test conclusion.	< ±0.5%
Short time overload	IEC60115-1 4.13	5 X rated power for 5s	< ±0.5%
Biased Humidity	MIL-STD-202 Method 103	10% Rated voltage at 85 °C, RH:85% , 1000Hrs, Measurement at 24hrs after test conclusion.	< ±0.5%
Operation life	MIL-STD-202 Method 108	1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	< ±1%
Resistance to Soldering Heat	IEC60115-1 4.18	T=260+/-5°C solder, 10+/-1 sec dwell	< ±0.5%
Mechanical Shock	MIL-STD-202 Method 213	100g's , Normal duration is 6ms , half sine shock pulse	< ±0.5%
Resistance to vibration	MIL-STD-202 Method 204	5g's for 20min. 12cycles, 10-2000Hz	< ±0.5%
Board Flex	AEC-Q200-005	Min 2mm deflection , 60sec.	< ±0.5%
Flammability	UL-94	V-0 or V-1 are acceptable, Electrical test not required	



### 5.1 Derating Curve



### 5.2 Rated Current

The rated voltage is calculated by the following Formula:

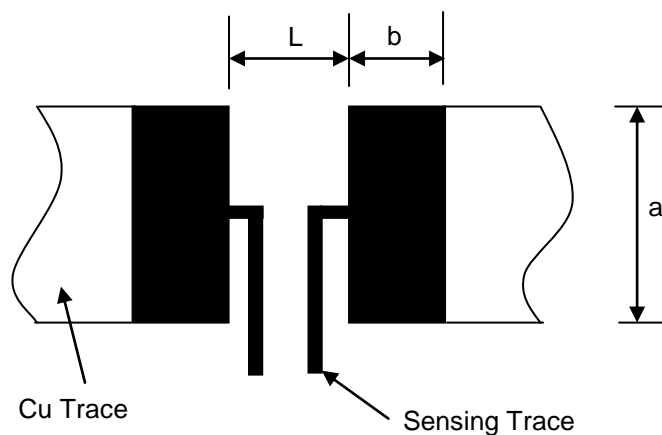
$$I = \sqrt{P \div R}$$

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



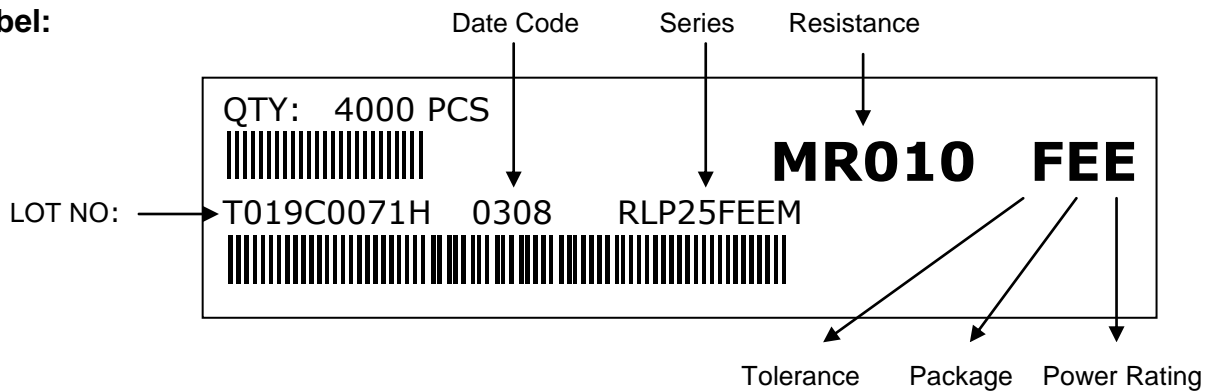
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7. Number of Package:

4000 Pieces / package

8. Label:



9. Taping



Packing	Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	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



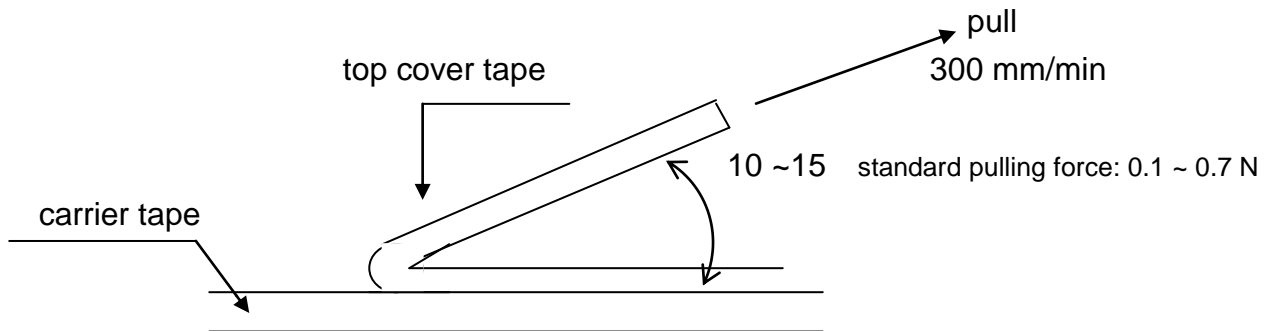
### 10. Reel Specification



Series	$\phi A$	$\phi B$	$\phi C$	W	T
RLP 25	180 <sup>+0</sup> <sub>-3</sub>	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:

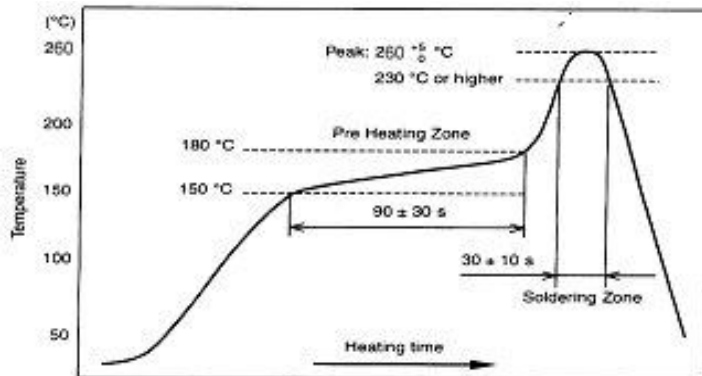
2 years from manufacturing date.



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



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

**Pre – heat zone :** 150 to 180 °C,  $90 \pm 30$  sec

**Soldering zone :** 230°C or higher ,  $30 \pm 10$  sec

**Iron Solder:**  $350 \pm 10$  °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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