



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

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1. Scope :

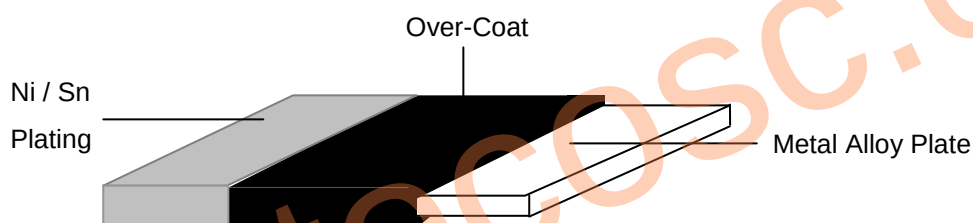
This specification applied to the products of current sensing resistor of metal foil for Lead-Free RLP series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation :

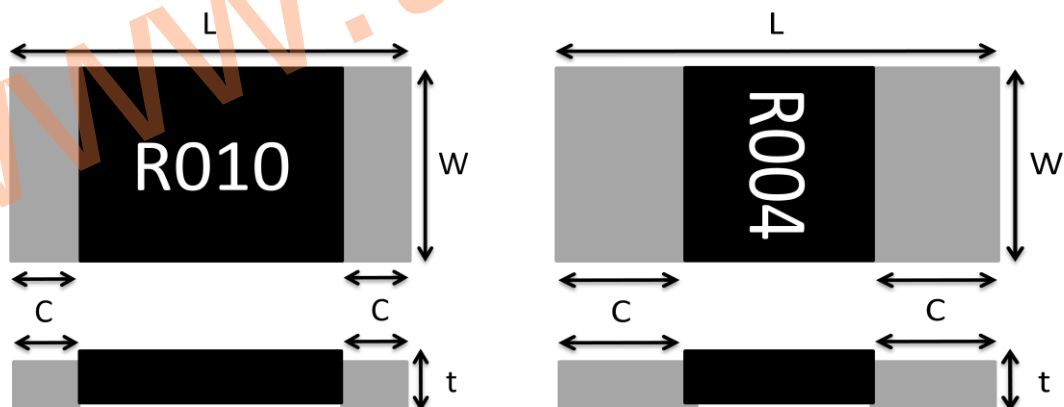
<u>RLP</u> Item	<u>25</u> Series No.	<u>E</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power rating	<u>R010</u> Resistance
	25:2512 (6432)	F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W D=1.5W E=2W G=3W	e.g : R010=10mΩ R100=100mΩ R500=500mΩ

3. Construction and Dimension :

3.1 Construction:



3.2 Dimension:



Unit : mm

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 : Polymer Compound UL-94V-0 grade
			0.9±0.2(R>4mΩ)		



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4. Features:

Type	RLP25
Power Rating	$1\text{ m}\Omega < R \leq 100\text{ m}\Omega$ (1W、1.5 W、2 W、3W) $100\text{ m}\Omega < R \leq 500\text{ m}\Omega$ (1W、1.5 W、2 W)
Resistance Value	$1\text{ m}\Omega < R \leq 500\text{ m}\Omega$
Operation Temperature Range	-55°C ~ +170°C
Temperature Coefficient of Resistance	$\pm 50\text{ ppm}/^\circ\text{C}$
Tolerance	$\pm 1\%, \pm 2\%, \pm 5\%$
Insulation Resistance	100 Meg Ohms Minimum
Maximum Working Current (A)	$(P/R)^{1/2}$

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

5. Reliability Tests :

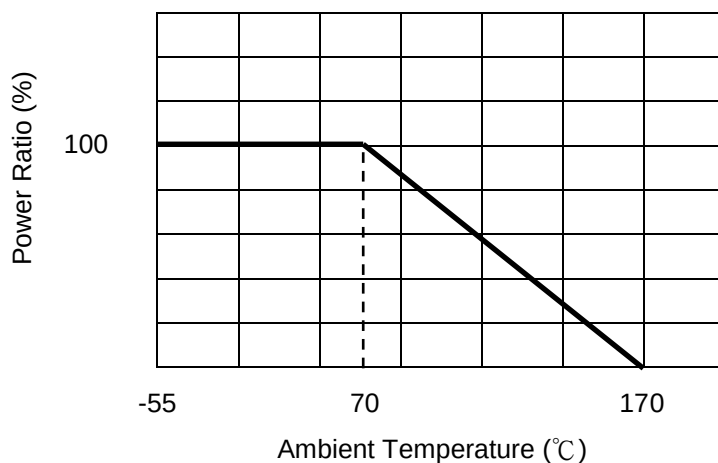
Test Items	Reference	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8	+25 ~ 125°C	Refer 4.0
High Temperature Exposure(Storage)	MIL-STD-202 Method 108	T=125°C, 1000hrs, Measurement at 24hrs after test conclusion.	< $\pm 1\%$
Low temperature operation	IEC60115-1 4.23.4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



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5.1 Derating Curve



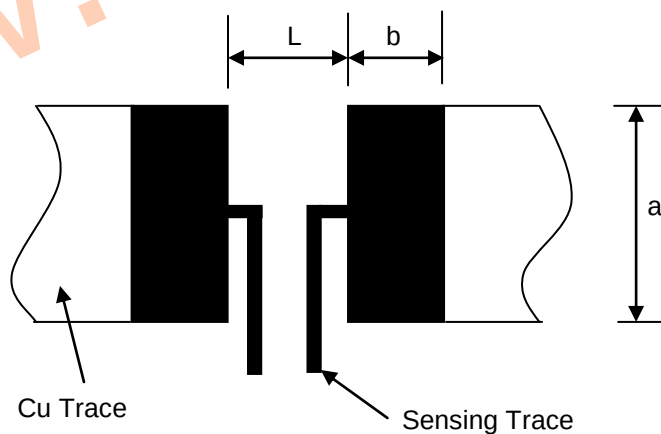
5.2 Rated Current

The rated current is calculated by the following Formula:

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

I : Rated Current (A)
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
$R \leq 0.004$	4.0	3.1	1.3

Unit: mm



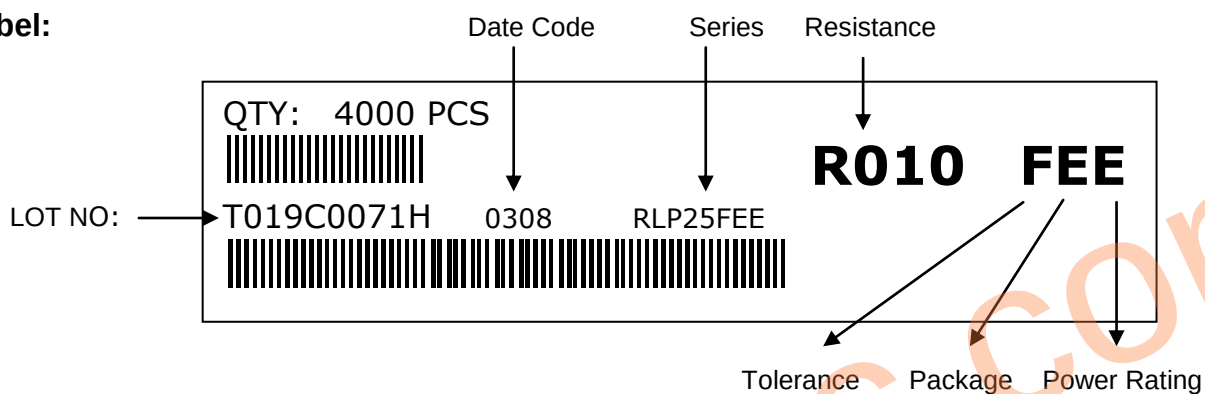
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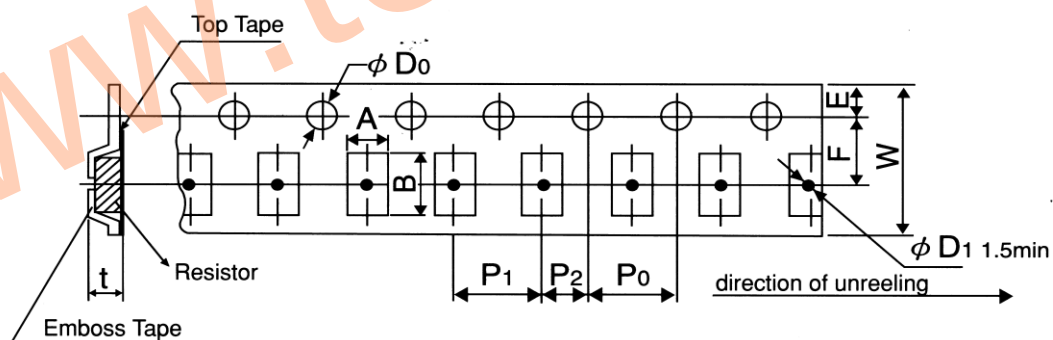
7. Number of Package:

4000 Pieces / package

8. Label:



9. Taping



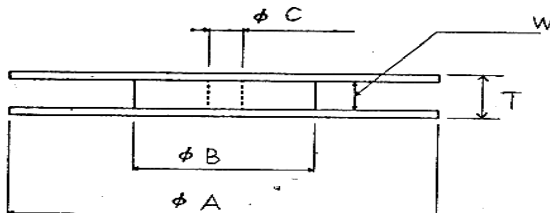
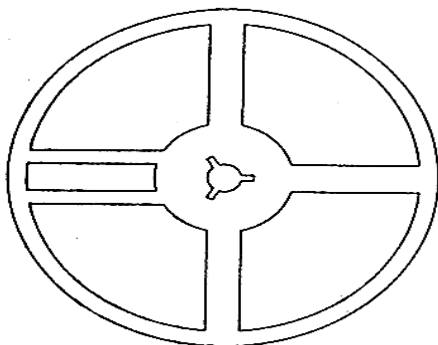
Packing	Type	A	B	W	F	E	P_1	P_2	P_0	D_0	t
Emboss	RLP25	3.6 ± 0.2	6.9 ± 0.2	$12. \pm 0.2$	5.5 ± 0.05	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.05	$\phi 1.5$ ($+0.1/-0$)	1.2 ± 0.15



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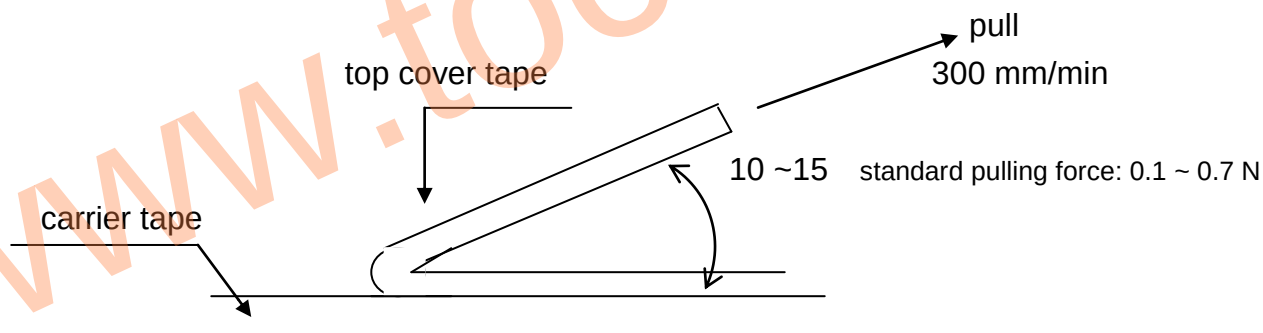
10. Reel Specification



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:

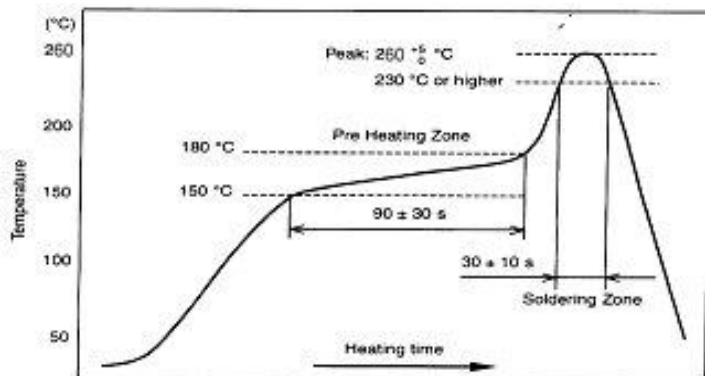
2 years from manufacturing date.



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



Peak : $260 \begin{smallmatrix} +5 \\ -0 \end{smallmatrix}^{\circ}\text{C}$, 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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