



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

| | |
|-------------|---------------|
| Document No | TRLP-250S008F |
| Issued date | 2016/10/11 |
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1. Scope :

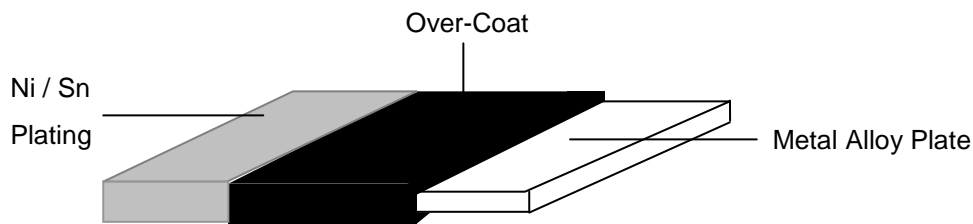
This specification applied to the products of current sensing resistor of metal foil for Lead-Free RLP series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation :

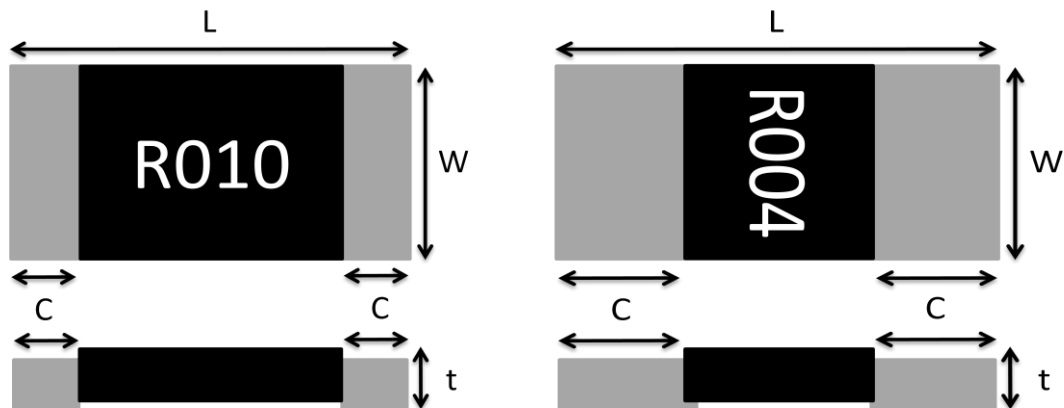
| <u>RLP</u> Item | <u>25</u> Series No. | <u>E</u> Resistance tolerance | <u>E</u> Packaging | <u>C</u> Power rating | <u>R010</u> Resistance |
|--------------------|-------------------------|----------------------------------|-----------------------|--------------------------------|--|
| | 25:2512 (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 mΩ < R ≤ 100mΩ (1W、1.5 W、2 W、3W) 100 mΩ < R ≤ 500mΩ (1W、1.5 W、2 W) |
| Resistance Value | 1mΩ < R ≤ 500mΩ |
| Operation Temperature Range | -55°C ~ +170°C |
| Temperature Coefficient of Resistance | ±50ppm/°C |
| Tolerance | ±1%, ±2%, ±5% |
| Insulation Resistance | 100 Meg Ohms Minimum |
| Maximum Working Current (A) | (P/R) ^{1/2} |

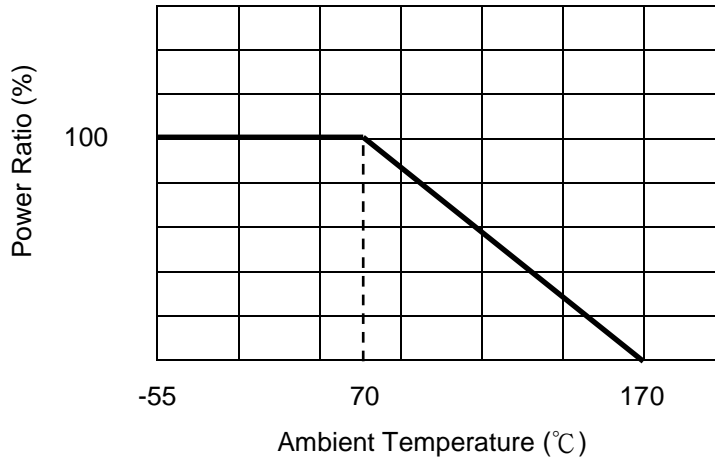
Note: 2&3watts total Solder pad and trace size of 300mm

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. | < ±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



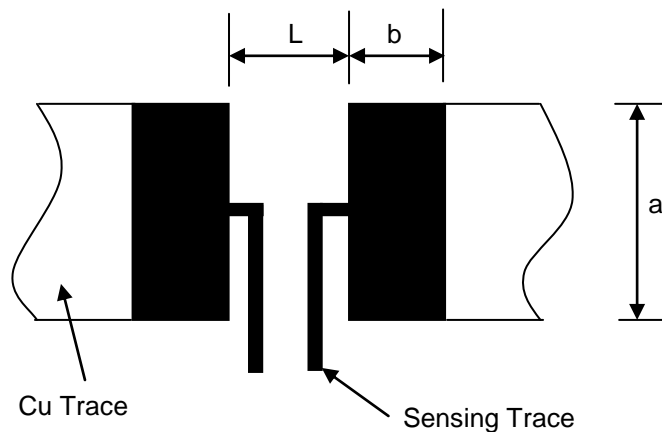
5.2 Rated Current

The rated 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 ≤ 0.004 | 4.0 | 3.1 | 1.3 |

Unit: mm



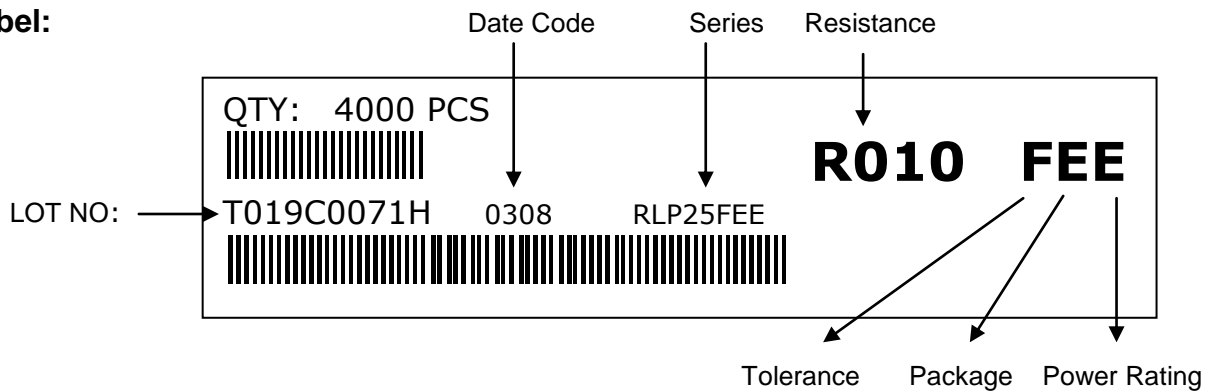
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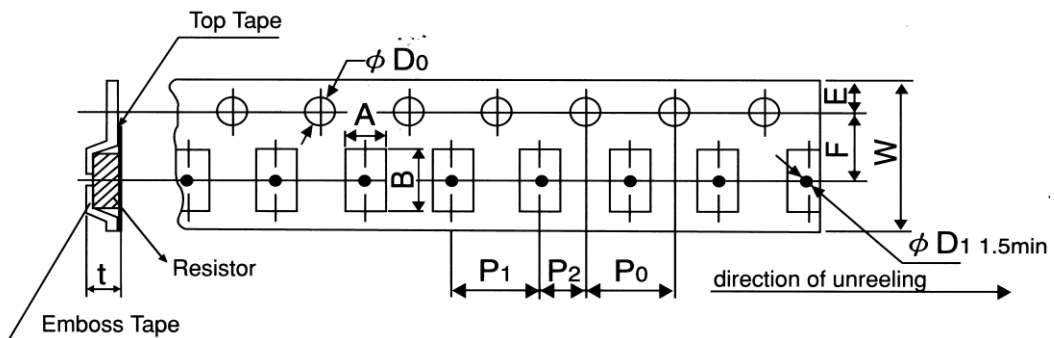
7. Number of Package:

4000 Pieces / package

8. Label:



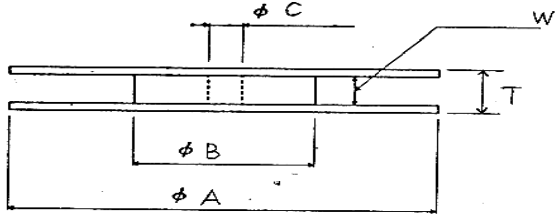
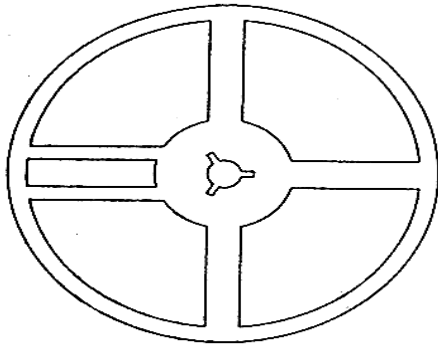
9. Taping



| 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 | φ 1.5 (+0.1/-0) | 1.2±0.15 |



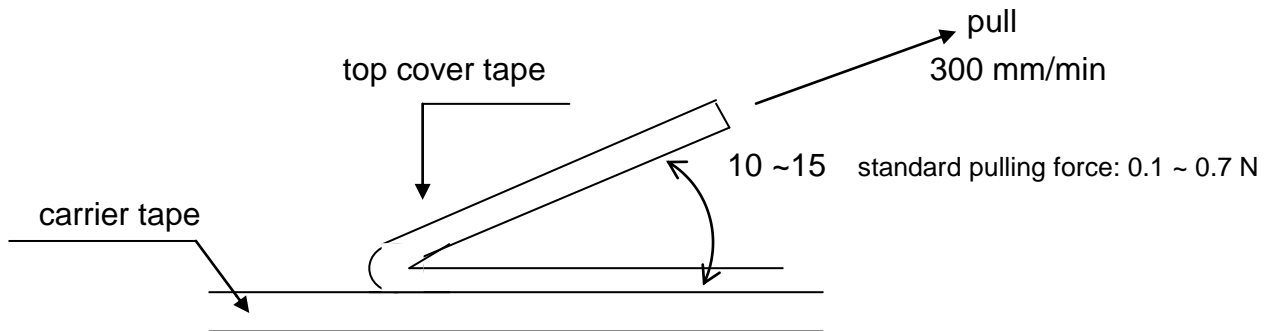
10. Reel Specification



| 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:

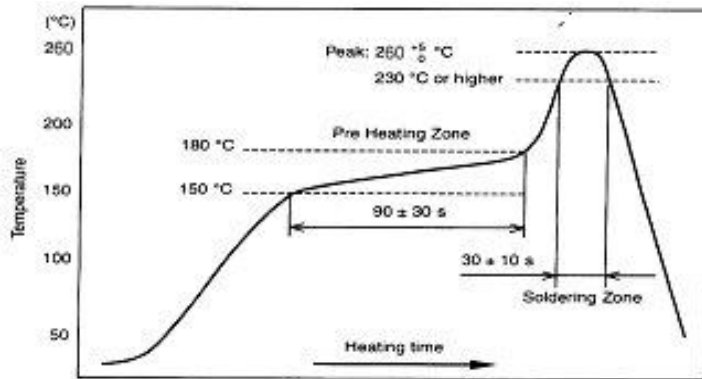
2 years from manufacturing date.



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



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

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

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

Iron Solder: $350 \pm 10 \text{ } ^\circ\text{C}$, 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 :

TA-I TECHNOLOGY CO., LTD. (Taiwan– Tao Yuan)

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[PR2512FKF7W0R004L](#) [RC1005F124CS](#) [RL73K3AR56JTDF](#) [RL7520WT-R001-F](#) [RL7520WT-R009-G](#) [RL7520WT-R020-F](#)
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