



Lead-Free Current Sensing Resistors
RLM Series
 (Halogen-Free)
 AEC-Q 200-Ver D qualified

| | |
|-------------|---------------|
| Document No | TRLM-250S149D |
| Issued date | 2016/06/15 |
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1. Scope :

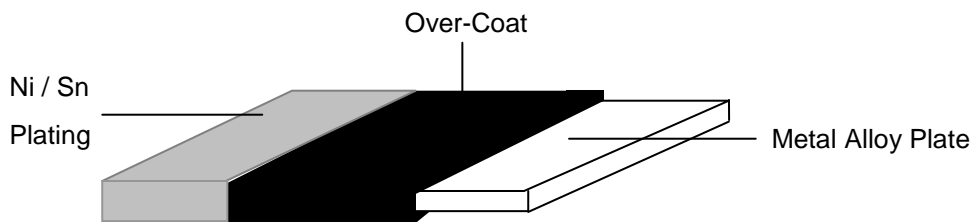
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLM series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation :

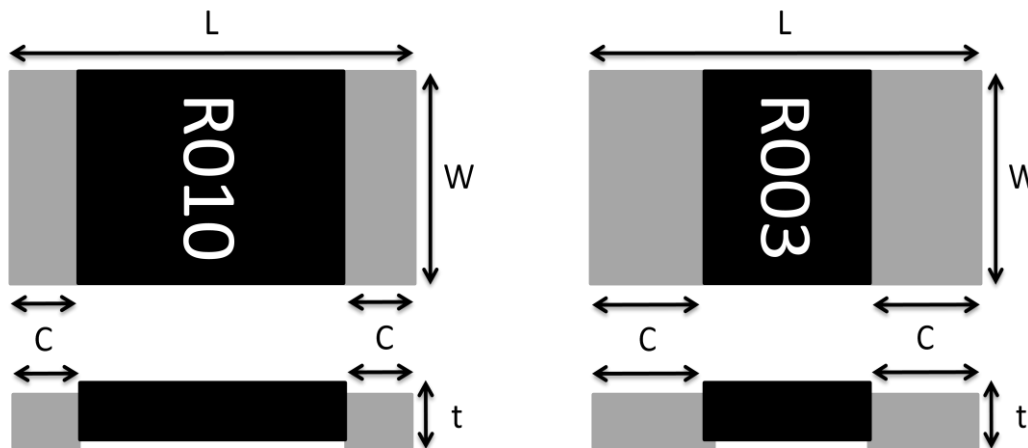
| <u>RLM</u> Item | <u>25</u> Series No. | <u>F</u> Resistance tolerance | <u>E</u> Packaging | <u>C</u> Power rating | <u>R010</u> Resistance |
|--------------------|-------------------------|----------------------------------|-----------------------|--------------------------|--------------------------------|
| | 25:2512 (6432) | F:±1% G:±2% J:±5% | E: Embossed Tape | C=1W D=1.5W E=2W | e.g : R003=3mΩ R050=50mΩ |

3. Construction and Dimension :

3.1 Construction:



3.2 Dimension:



UNIT: mm

| Style | L | W | C | t | Material |
|-------|---------|---------|------------------|-----------|---|
| RLM25 | 6.4±0.2 | 3.2±0.2 | 2.0±0.2(R ≤ 3mΩ) | 0.6 ±0.20 | Metal : Alloy Over Coating : molding Compound UL-94 grade |
| | | | 0.9±0.2(R > 3mΩ) | | |



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4. Features:

| | | |
|---------------------------------------|---|------------|
| Type | RLM | |
| Power Rating | (1W:R=1mΩ~50mΩ) (1.5W:R≤15mΩ) (2W:R≤10mΩ) | |
| Resistance Value | 1mΩ~50mΩ | |
| Operation Temperature Range | -55℃~+170℃ | |
| Temperature Coefficient of Resistance | ±275ppm/℃ | R≤1mΩ |
| | ±50ppm/℃ | 1mΩ<R≤50mΩ |
| Tolerance | ±1%,±2%,±5% | |
| Insulation Resistance | Over 100MΩ | |
| Maximum Working Voltage(V) | $(P \cdot R)^{1/2}$ | |

5. Reliability Tests:

| Test Items | Condition of Test | Test Limits |
|------------------------------------|---|-------------|
| High Temperature Exposure(Storage) | T=125℃,1000hrs,Measurement at 24hrs after test conclusion. | < ±1% |
| Low temperature operation | -55 °C for 45 min | < ±0.5% |
| Temperature Cycling | 1000Cycle (-55℃ to 125℃),Measurement at 24hrs after test conclusion. | < ±0.5% |
| Short time overload | 5 X rated power for 5s | < ±0.5% |
| Biased Humidity | 10% Rated voltage at 85 °C,RH:85% ,1000Hrs, Measurement at 24hrs after test conclusion. | < ±0.5% |
| Operation life | 1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF" | < ±1% |
| Resistance to Soldering Heat | T=260+/-5℃ solder,10+/-1 sec dwell | < ±0.5% |
| Mechanical Shock | 100g's , Normal duration is 6ms , half sine shock pluse | < ±0.5% |
| Resistance to vibration | 5g's for 20min.12cycles, 10-2000Hz | <±0.5% |
| Board Flex | Min 2mm deflection ,60sec. | < ±0.5% |
| Flammability | V-0 or V-1are acceptable, Electrical test not required | |



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5.1 Derating Curve



5.2 Rated Current

The rated voltage is calculated by the following formula:

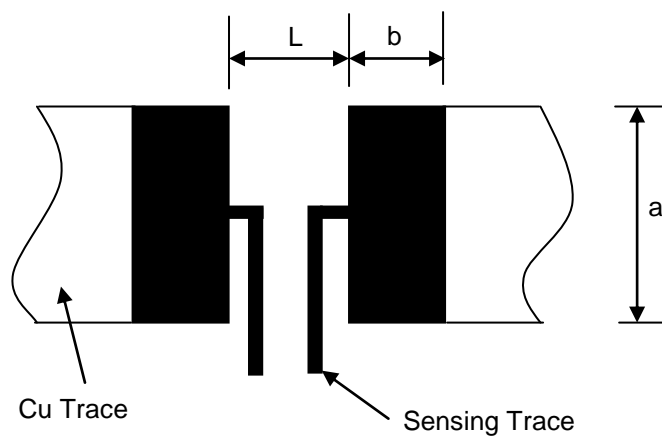
$$I = \sqrt{P \div R}$$

I: Rated Current(A)

P: Rated Power(W)

R: Resistance Value(Ω)

6. Recommended Solder Pad Dimension



| Resistance Range (Ω) | a | b | L |
|----------------------|-----|-----|-----|
| 0.001-0.003 | 4.0 | 3.1 | 1.3 |
| 0.004-0.050 | 4.0 | 2.1 | 4.1 |

Unit: mm



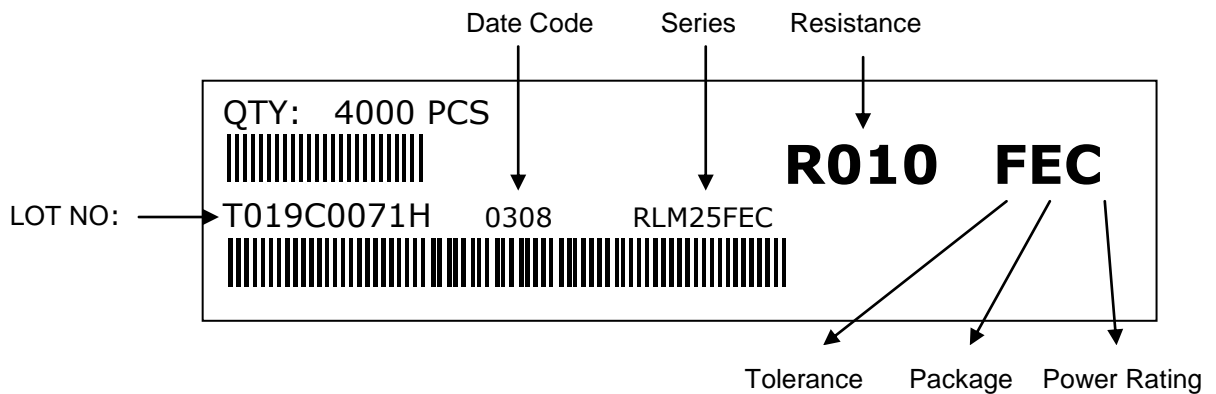
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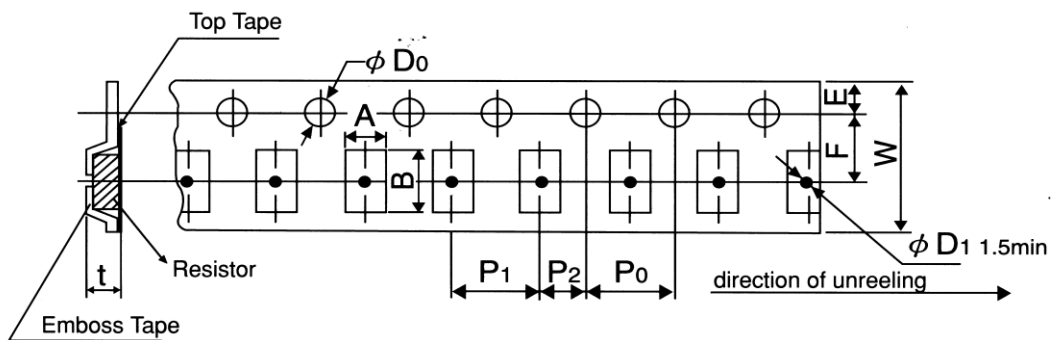
7. Number of Package:

4000 Pieces / package

8. Label:



9. Taping



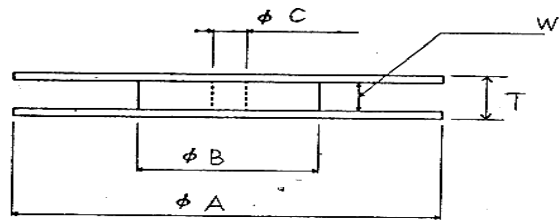
| Packing | Type | A | B | W | F | E | P ₁ | P ₂ | P ₀ | D ₀ | T |
|---------|-------|--------------------------------------|---------|---------|----------|----------|----------------|----------------|----------------|-------------------------|-----------|
| Emboss | RLM25 | 3.6 ^{+0.2} _{-0.18} | 6.9±0.2 | 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) | 0.85±0.15 |



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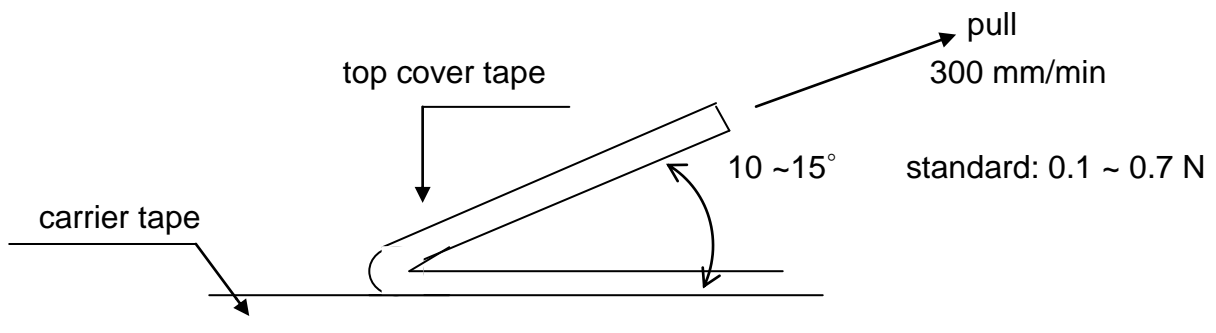
10. Reel Specification



| Series | ϕA | ϕB | ϕC | W | T |
|--------|---------------------------------|----------|----------|----------|----------|
| RLM 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:

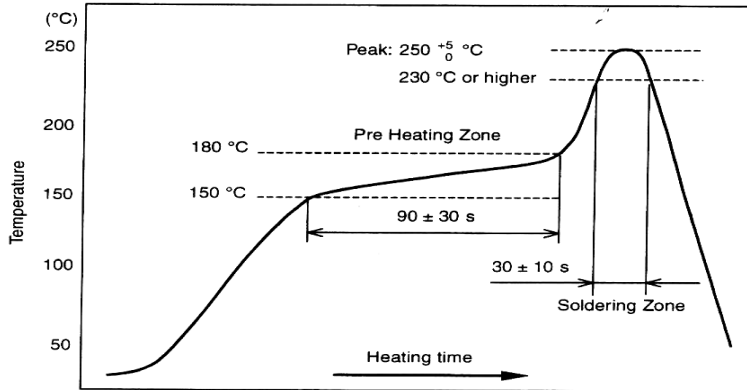
2 years from manufacturing date.



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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 :

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

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Associated companies :

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(3) FORTUNE TASK RESISTOR FACTORY (China – Dongguan)

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Tel :(+62) 21-44820254 Fax : (+62) 21-44820256

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