



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

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**1. Scope :**

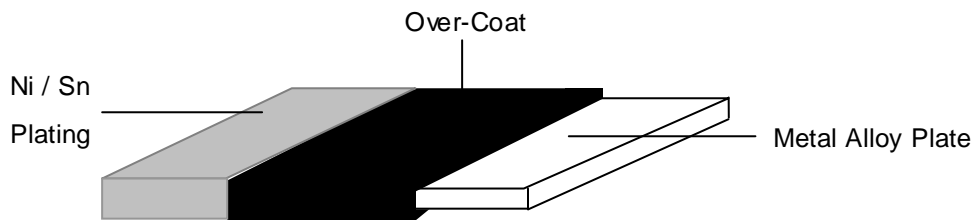
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLM series manufactured by TA-I TECHNOLOGY CO.,LTD.

**2. Type Designation :**

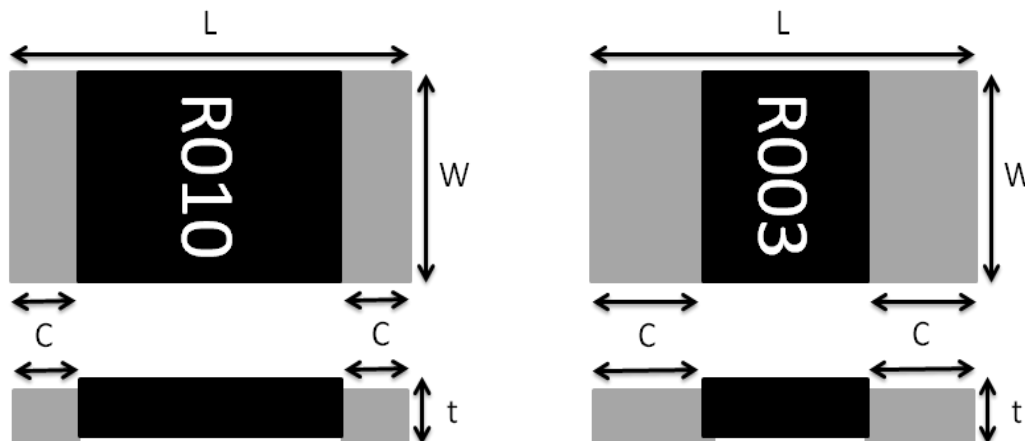
RLM Item	A	25 Series No.	F Resistance tolerance	E Packaging	C Power rating	R010 Resistance
	AECQ	25:2512 (6432)	F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W D=1.5W E=2W	e.g : R003=3mΩ R050=50mΩ

**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:**

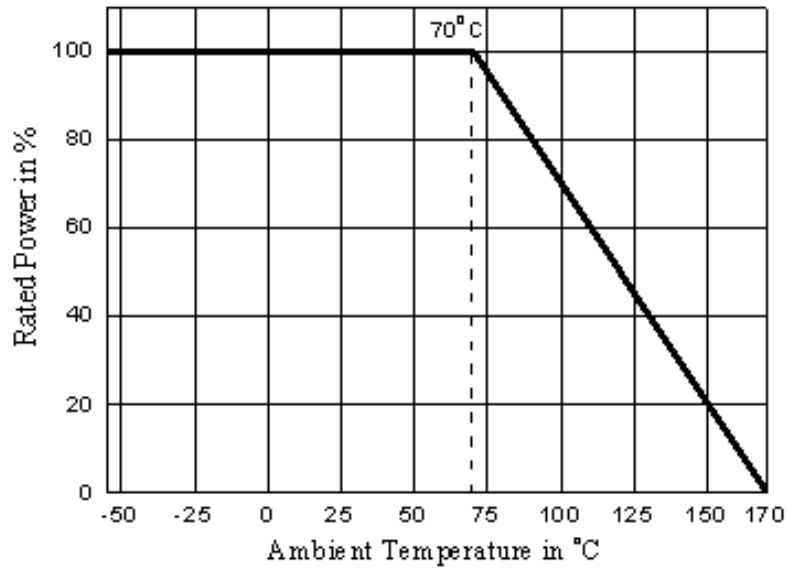
Type	RLM	
Power Rating	(1W:R=1mΩ~50mΩ) (1.5W:R≤15mΩ) (2W:R≤10mΩ)	
Resistance Value	1mΩ~50mΩ	
Operation Temperature Range	-55℃~+170℃	
Temperature Coefficient of Resistance	±275ppm/℃	R≤1mΩ
	±50ppm/℃	1mΩ<R≤50mΩ
Tolerance	±1%,±2%,±5%	
Insulation Resistance	Over 100MΩ	
Maximum Working Voltage(V)	(P*R) <sup>1/2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

**5. Reliability Tests:**

Test Items	Condition of Test	Test Limits
Temperature Coefficient of Resistance	+25 ~ 125℃	Refer 4.0
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	



### 5.1 Derating Curve



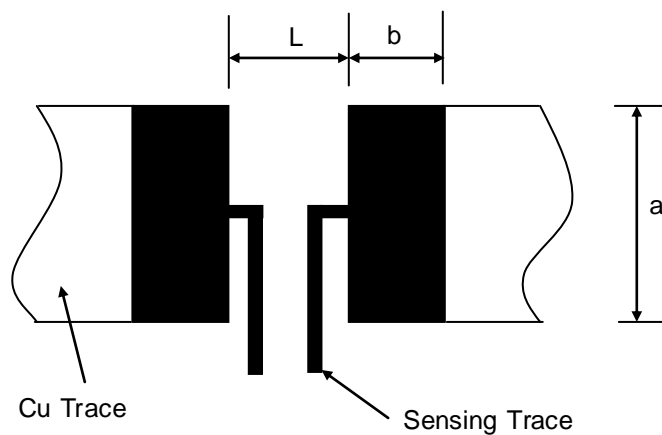
### 5.2 Rated Current

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



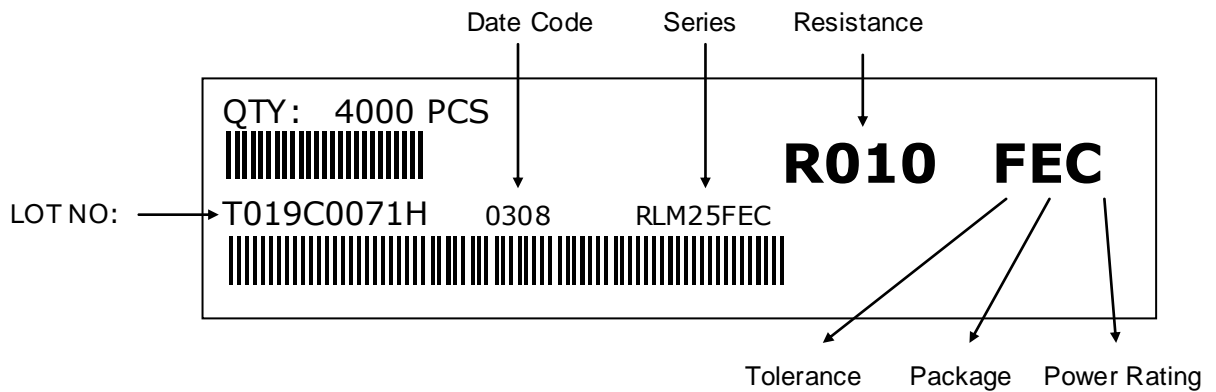
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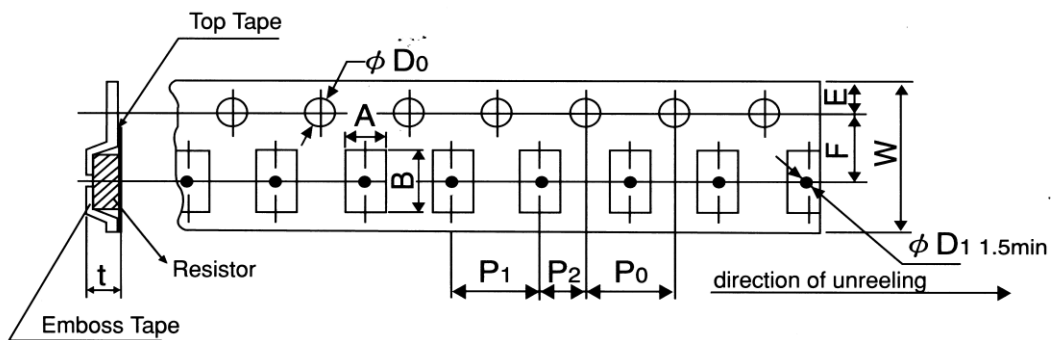
**7. Number of Package:**

4000 Pieces / package

**8. Label:**



**9. Taping**



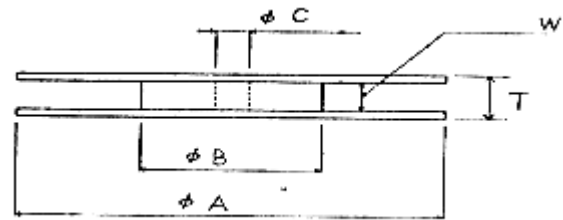
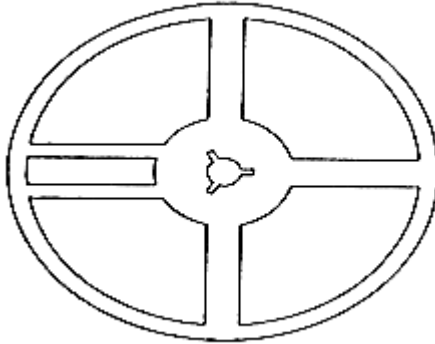
Packing	Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	T
Emboss	RLM25	3.6 <sup>+0.2</sup> <sub>-0.18</sub>	6.9±0.2	12±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	φ 1.5 (+0.1/-0)	0.85±0.15



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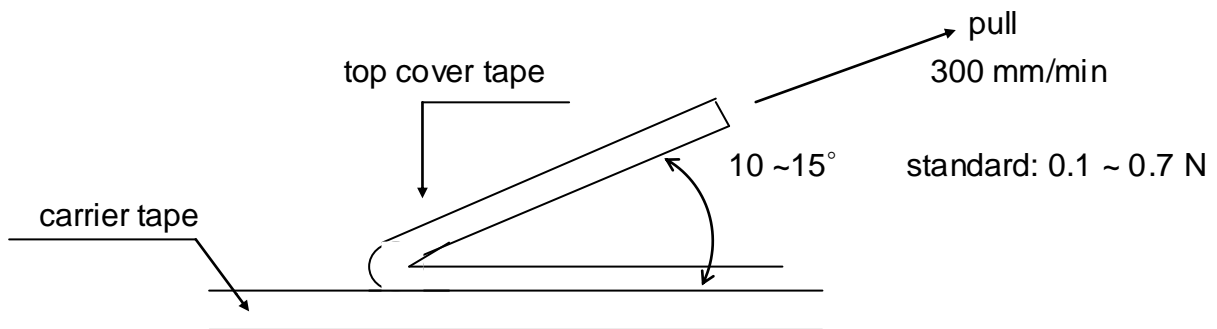
### 10. Reel Specification



Series	$\phi A$	$\phi B$	$\phi C$	W	T
RLM 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:

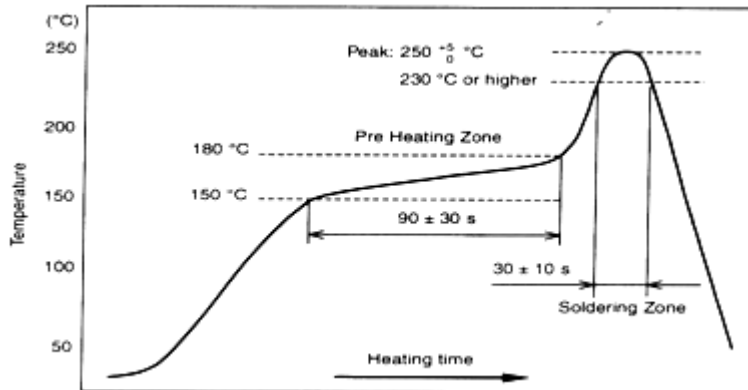
2 years from manufacturing date.



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



**Peak :**  $260 \begin{matrix} + 5 \\ - 0 \end{matrix}$  °C , 5 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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Tel : (+86) 769-8339-4790~3 Fax : (+86) 769-8339-4794

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**TA-I TECHNOLOGY CO., LTD**