



**Lead-Free Current Sensing Resistors**  
**RLM Series**  
**( Halogen-Free )**

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**1. Scope :**

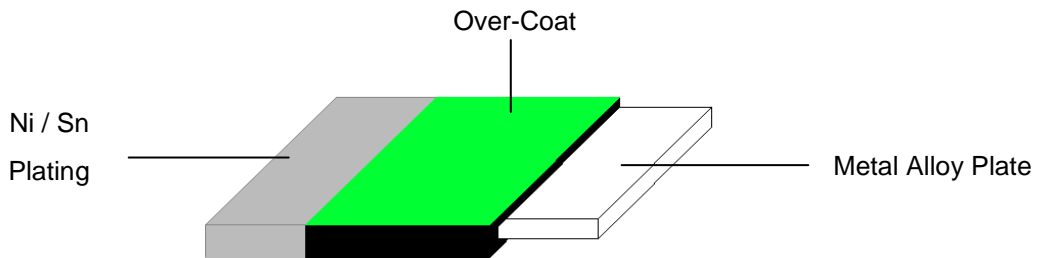
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLM series manufactured by TA-I TECHNOLOGY CO.,LTD.

**2. Type Designation :**

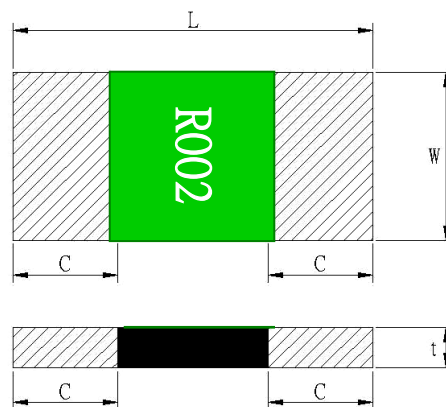
<u>RLM</u> Item	<u>25</u> Series No.	<u>F</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power Rating	<u>M</u> Metal	<u>R002</u> Resistance
25:2512(6432)		F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W E=2W	M=Mn/Cu	e.g : R002=2mΩ R010=10mΩ

**3. Construction and Dimension :**

**3.1 Construction:**



**3.2 Dimension:**



UNIT : mm

Style	L	W	C	t	Material
RLM	6.4±0.2	3.2±0.2	2.0±0.2(R ≤ 2mΩ)	0.6 ±0.20	Metal : Copper-Manganese Alloy Over Coating : molding Compound UL-94 grade
			0.9±0.2(R > 2mΩ)		



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**4. Features:**

Type	RLM	
Power Rating	1&2 W (1W:R=1~40 mΩ ) (2W:R≤ 10mΩ )	
Resistance Value	1 ~40mΩ	
Operation Temperature Range	-55℃ ~+170℃	
Temperature Coefficient of Resistance	±275ppm/℃	R ≤ 2mΩ
	±100ppm/℃	2mΩ < R ≤ 10mΩ
	±75ppm/℃	R > 10mΩ
Tolerance	±1%, ±2%, ±5%	
Insulation Resistance	Over 100MΩ	
Maximum Working Voltage(V)	$(P \cdot R)^{1/2}$	

**5. Reliability Tests :**

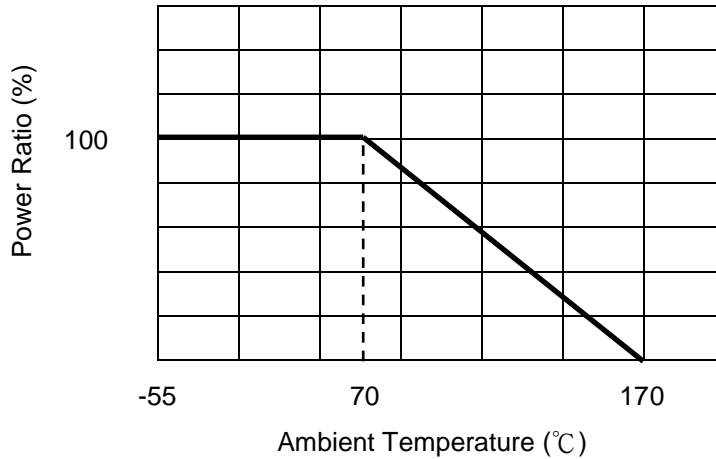
Test Items	Condition of Test	Test Limits
Temperature Coefficient of Resistance	+25℃ ~ +125℃	Refer 4.0
Load Life	1000hours at rated power, 70℃, 1.5hours "ON", 0.5hour "OFF"	< ±1%
Short Time Overload	5 X rated power for 5s	< ±0.5%
Moisture no Load	85℃, 85%RH, 1000hrs	< ±0.5%
Temperature cycle	-40℃ & +125℃, 1000cycle, 15min per extreme condition	< ±0.5%
Resistance to Soldering Heat	260±5℃ for 20±1 sec	< ±0.5%
Solderability	245±5℃, 2±0.5sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	170℃, 1000hrs	< ±0.5%
Low Temperature Storage	-55℃, 1000hrs	< ±0.5%
Substrate Bending	Bending width 2mm, Epoxy thickness 1.6mm, Fulcrums distance 90mm	< ±0.5%
Insulation Resistance	100V DC for 1 minute	>100 MΩ



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### 5.1 Derating Curve



### 5.2 Rated Voltage

The rated voltage is calculated by the following fomula:

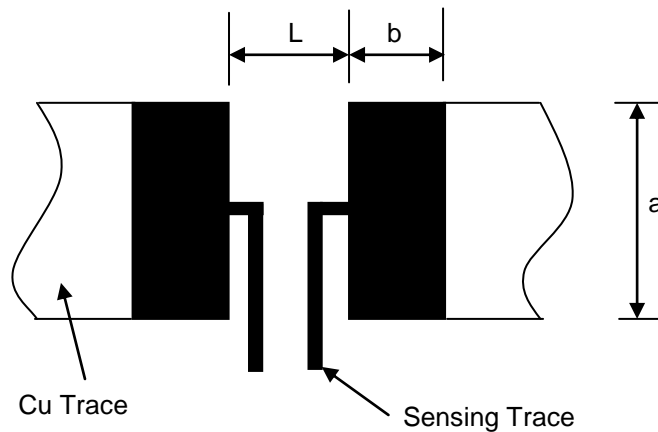
$$V = \sqrt{P \cdot R}$$

V:Rated Voltage(V)

P:Rated Power(W)

R:Resistance Value( $\Omega$ )

### 6. Recommended Solder Pad Dimension



Resistance Range ( $\Omega$ )	a	b	L
0.001-0.002	4.0	3.1	1.3
0.003-0.050	4.0	2.1	4.1

Unit:mm



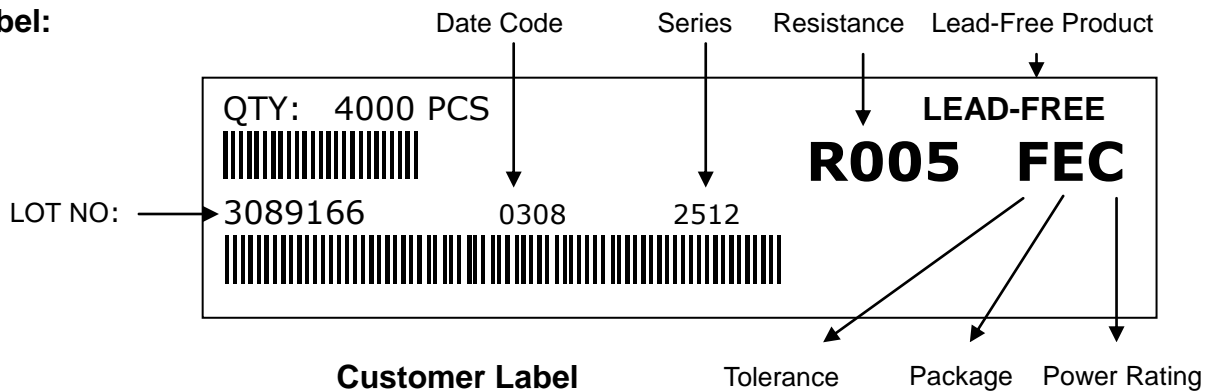
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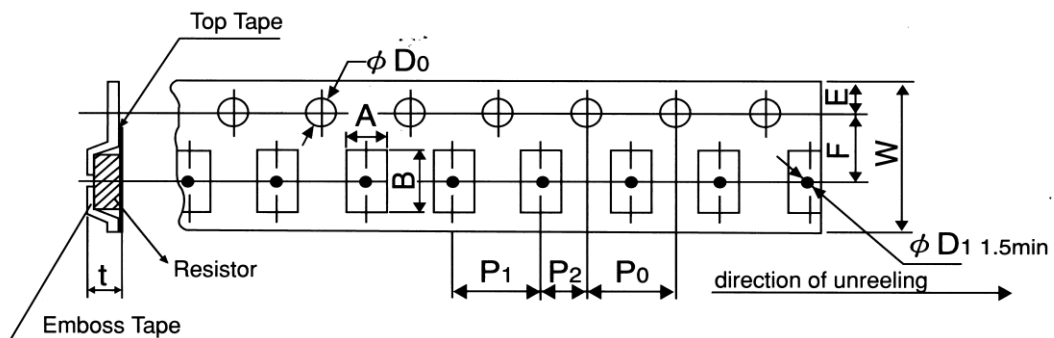
**7. Number of Package:**

4000 Pieces / package

**8. Label:**



**9. Taping**



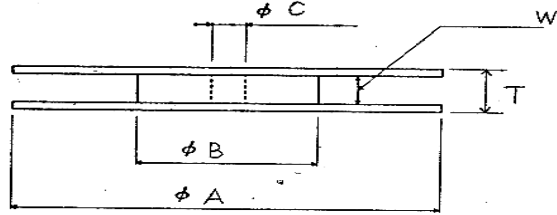
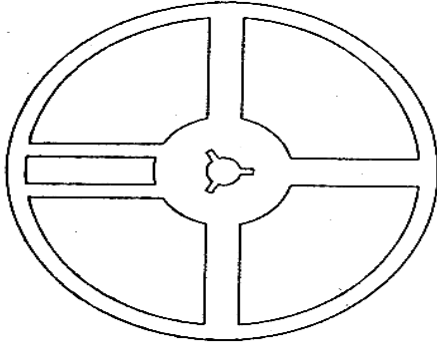
Packing	Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	T
Emboss	RLM25	3.6 <sup>+0.2</sup> <sub>-0.18</sub>	6.9±0.2	12±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	φ 1.5 (+0.1/-0)	0.85±0.15



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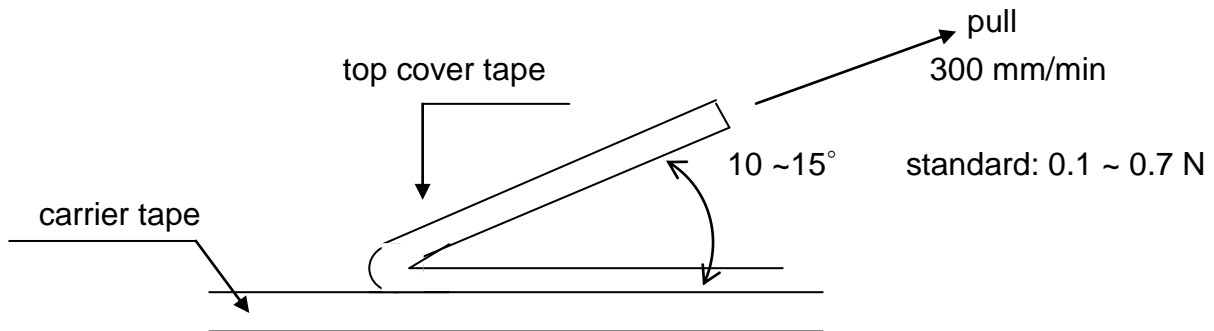
**10. Reel Specification**



Series	$\phi A$	$\phi B$	$\phi C$	W	T
RLM 25	180 <sup>+0</sup> <sub>-3</sub>	60 min	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:**

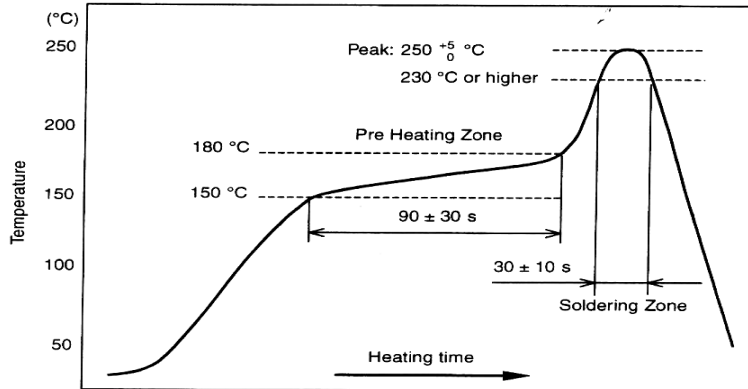
2 years from manufacturing date.



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



Peak :  $250 \begin{matrix} +5 \\ -0 \end{matrix} ^\circ\text{C}$  , 5 sec

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

Soldering Zone : 230°C or higher , 30±10 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 )  
Tel: (+886)-3-3246169 Fax : (+886)-3-3247410

**Associated companies :**

(1) FORTUNE TASK RESISTOR FACTORY ( China – Dong Guan )  
Tel : (+86)-769-83394790 Fax : (+86)-769-83394794

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(3) TAI OHM ELECTRONICS ( M ) SDN. BHD. ( Malaysia – Penang )  
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(4) P.T.TAI ELECTRONICS Indonesia ( Indonesia – Jakarta )  
Tel : (+62)-21-44820254 Fax : (+62)-21-44820256