



**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 :**

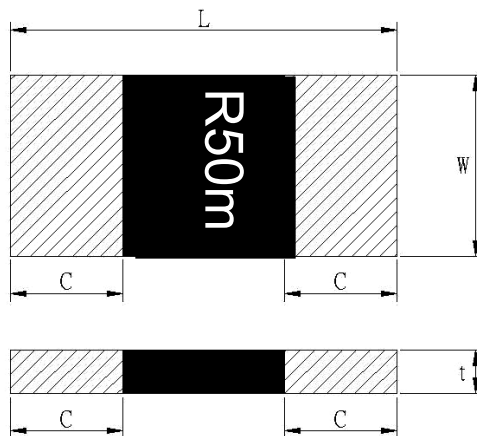
<u>RLM</u> Item	<u>25</u> Series No.	<u>F</u> Resistance tolerance	<u>E</u> Packaging	<u>E</u> Power Rating	<u>M</u> Metal	<u>R50M</u> Resistance
25:2512(6432)		F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W E=2W G=3W	M=MnCu	e.g : R50m=0.5mΩ

**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	2.6±0.2	0.6 ±0.20	Metal: Copper-Manganese Alloy Over Coating : molding Compound UL-94V-0 grade



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#### 4. Features:

Type	RLM25
Power Rating	1W 、 2 W 、 3W
Resistance Value	0.5mΩ~0.75mΩ
Operation Temperature Range	-55℃~+170℃
Temperature Coefficient of Resistance	±75ppm/℃
Tolerance	±1% 、 ±2% 、 ±5%
Insulation Resistance	Over 100MΩ
Maximum Working Voltage(V)	$(P \cdot R)^{1/2}$

#### 5. Reliability Tests :

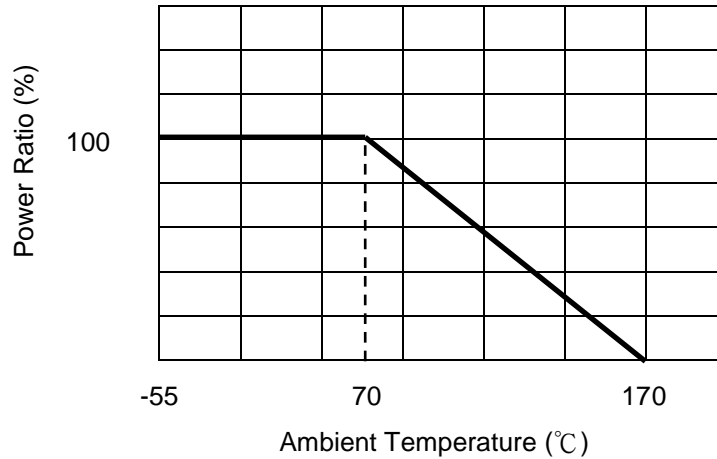
Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8 JIS C 5201-1 4.8	+25℃ ~ +125℃	Refer 4.0
Load Life	IEC60115-1 4.25.1 JIS C 5201-1 4.25.1	1000hours at rated power, 70℃, 1.5hours "ON", 0.5hour "OFF"	< ±1%
Short Time Overload	IEC60115-1-4.13 JIS-C5201-4.13	5 X rated power for 5s	< ±0.5%
Moisture no Load	IEC60115-1 4.13 JIS C 5201-1 4.13	85℃, 85%RH, 1000hrs	< ±0.5%
Temperature cycle	IEC60115-1 4.24.2.1a) JIS C 5201-1 4.24.2.1a)	-55℃ & +155℃, 300cycle, 15min per extreme condition	< ±0.5%
Resistance to Soldering Heat	IEC60115-1 4.19 JIS C 5201-1 4.19	260±5℃ for20±1 sec	< ±0.5%
Solderability	IEC60115-1 4.18 JIS C 5201-1 4.18	245±5℃, 2±0.5sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	IEC60115-1 4.17 JIS C 5201-1 4.17	170℃, 1000hrs	< ±1%
Low Temperature Storage	IEC60115-1 4.23.2 JIS C 5201-1 4.23.2	-55℃, 1000hrs	<±0.5%
Substrate Bending	EC60115-1 4.23.4 JIS C 5201-1 4.23.4	Bending width 2mm	< ±0.5%
Insulation Resistance	IEC60115-1 4.33 JIS C 5201-1 4.33	100V DC for 1 minute	>100 MΩ



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### 5.1 Derating Curve



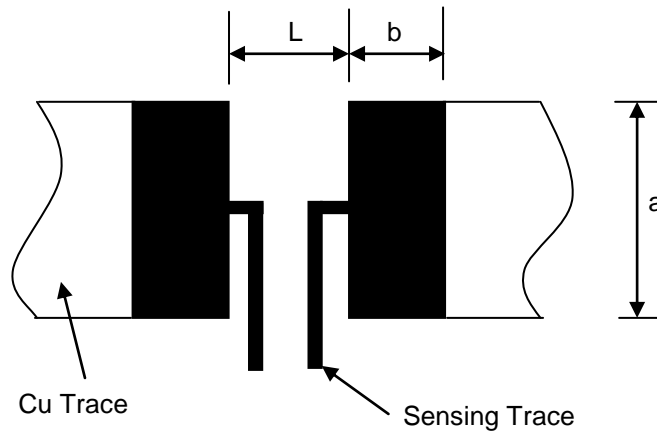
### 5.2 Rated Current

The rated current is calculated by the following formula:

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

- I: Rated Current (A)
- P: Rated Power (W)
- R: Resistance Value ( $\Omega$ )

### 6. Recommended Solder Pad Dimension



Resistance Range ( $\Omega$ )	a	b	L
0.0005~0.00075	4.0	3.1	1.3

Unit: mm



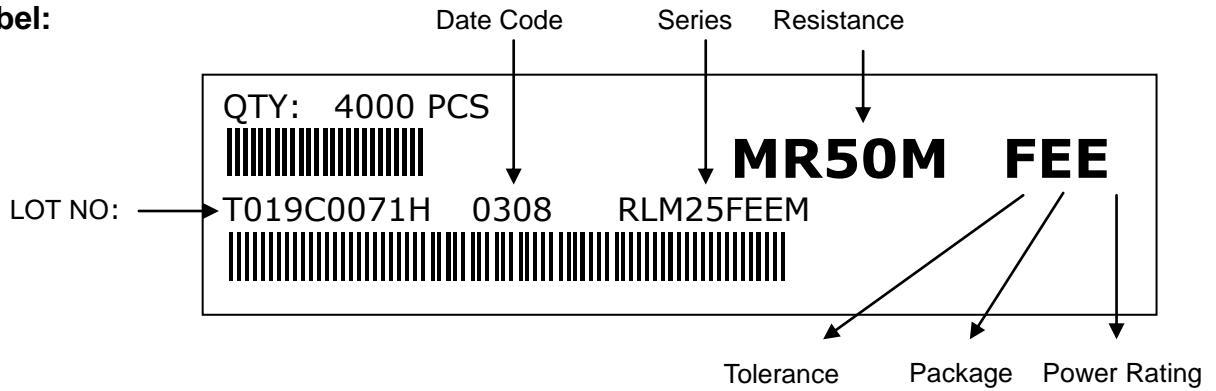
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**7. Number of Package:**

4000 Pieces / package

**8. Label:**



**9. Taping**



Packing	Type	A	B	W	F	E	P <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

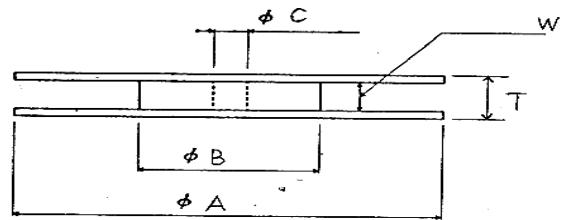
Unit: mm



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### 10. Reel Specification

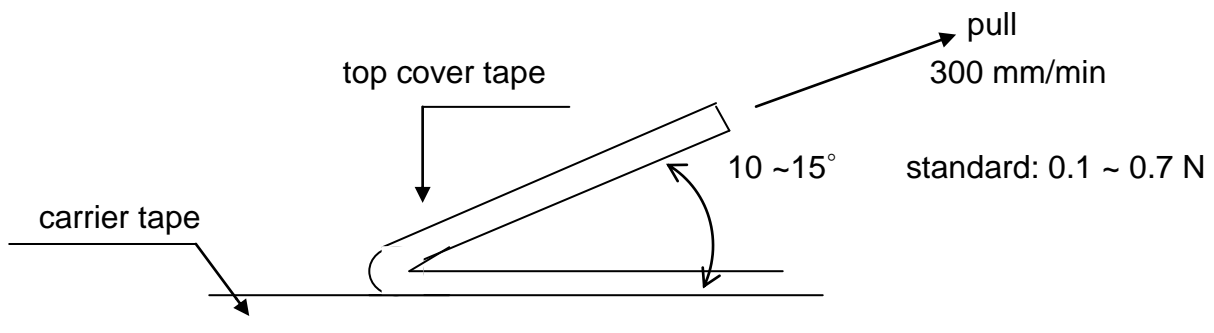


Series	$\phi A$	$\phi B$	$\phi C$	W	T
RLM 25	180 <sup>+0</sup> <sub>-3</sub>	60 ±1.0	13.0±1.0	13.0±1.0	15.4±2.0

Unit: mm

### 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:

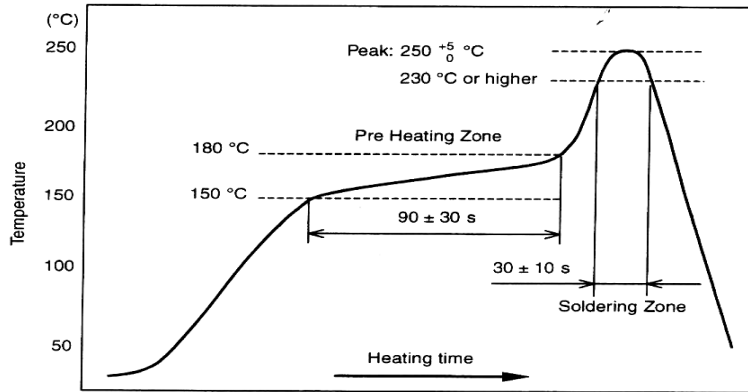
2 years from manufacturing date.



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



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

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