



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

Document No	TRLM-250S148B
Issued date	2014/03/31
Page	1/6

**1. Scope :**

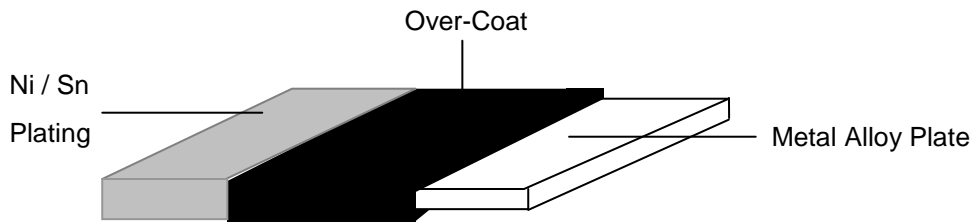
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLM series manufactured by TA-I TECHNOLOGY CO.,LTD.

**2. Type Designation :**

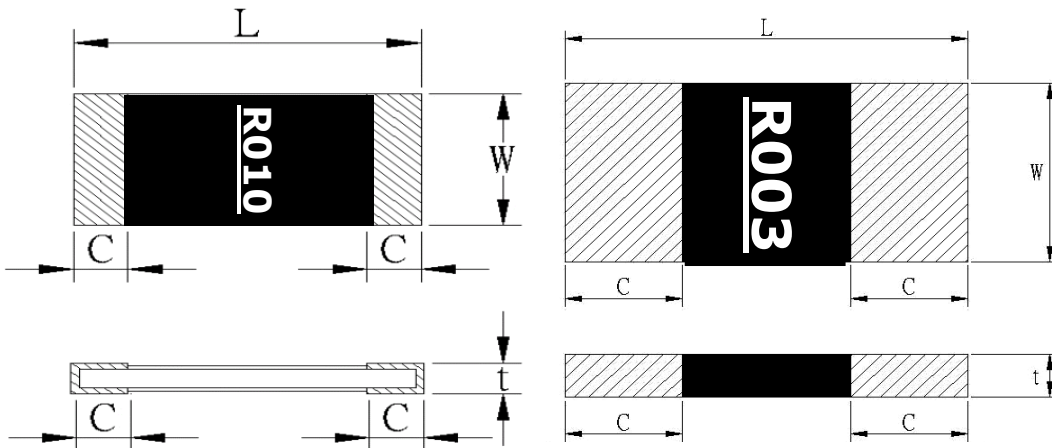
<u>RLM</u> Item	<u>25</u> Series No.	<u>F</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power rating	<u>M</u>	<u>R010</u> Resistance
	25:2512 (6432)	F:±1% G:±2% J:±5%	E: Embossed Tape	C=1W D=1.5W E=2W	M=Mn/Cu	e.g : R003=3mΩ R010=10mΩ

**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	Strip : Alloy Over Coating : molding Compound UL-94 grade
			0.9±0.2(R > 3mΩ)		



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Document No	TRLM-250S148B
Issued date	2014/03/31
Page	2/6

**4. Features:**

Type	RLM	
Power Rating	(1W:R=2mΩ~50mΩ) (1.5W:R≤15 mΩ) (2W:R≤10mΩ)	
Resistance Value	2mΩ~50mΩ	
Operation Temperature Range	-55°C~+170°C	
Temperature Coefficient of Resistance	±100ppm/°C	2mΩ ≤ R ≤ 10mΩ
	±75ppm/°C	R>10mΩ
Tolerance	±1%,±2%,±5%	
Insulation Resistance	Over 100MΩ	
Maximum Working Voltage(V)	(P*R) <sup>1/2</sup>	

**5. Reliability Tests :**

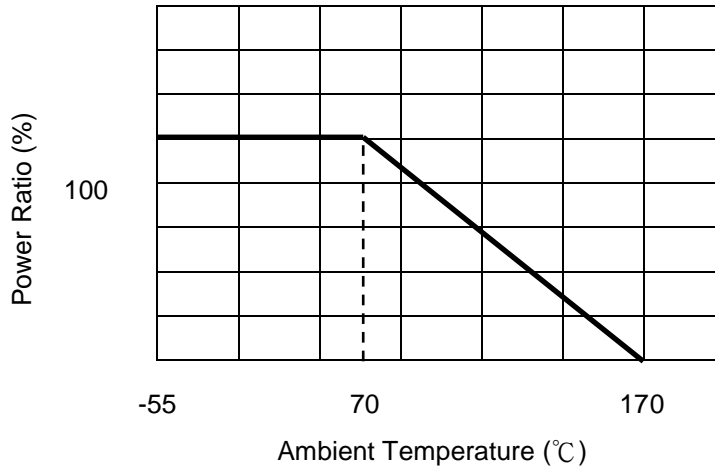
Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8 JIS C 5201-1 4.8	+25°C ~ +125°C	Refer 4.0
Load Life	IEC60115-1 4.25.1 JIS C 5201-1 4.25.1	1000hours at rated power, 70°C, 1.5hours "ON", 0.5hour "OFF"	< ±1%
Short Time Overload	IEC60115-1 4.13 JIS C 5201-1 4.13	5 X rated power for 5s	< ±0.5%
Moisture no Load	IEC60115-1 4.24.2.1a) JIS C 5201-1 4.24.2.1a)	85°C, 85%RH, 1000hrs	< ±1%
Temperature cycle	IEC60115-1 4.19 JIS C 5201-1 4.19	-55°C & +155°C, 300cycle, 15min per extreme condition	< ±0.5%
Resistance to Soldering Heat	IEC60115-1 4.18 JIS C 5201-1 4.18	260±5°C for20±1 sec	< ±0.5%
Solderability	IEC60115-1 4.17 JIS C 5201-1 4.17	245±5°C, 2±0.5sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	IEC60115-1 4.23.2 JIS C 5201-1 4.23.2	170°C, 1000hrs	< ±1%
Low Temperature Storage	EC60115-1 4.23.4 JIS C 5201-1 4.23.4	-55°C, 1000hrs	<±0.5%
Substrate Bending	IEC60115-1 4.33 JIS C 5201-1 4.33	Bending width 2mm	< ±0.5%
Insulation Resistance	IEC60115-1 4.6 JIS C 5201-1 4.6	100V DC for 1 minute	>100 MΩ



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Document No	TRLM-250S148B
Issued date	2014/03/31
Page	3/6

### 5.1 Derating Curve



### 5.2 Rated Voltage

The rated voltage is calculated by the following fomula:

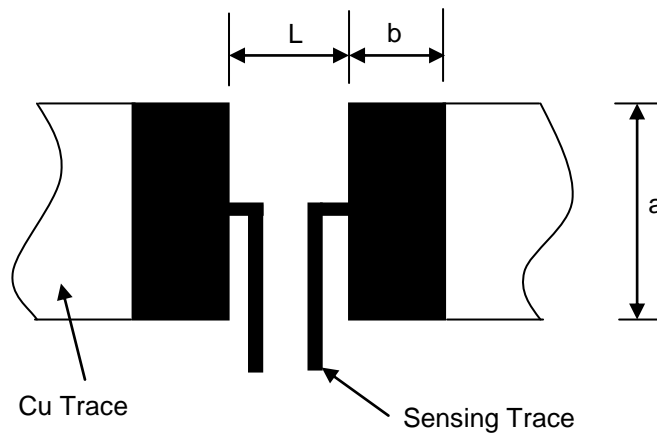
$$V = \sqrt{P \times R}$$

V:Rated Voltage(V)

P:Rated Power(W)

R:Resistance Value( $\Omega$ )

### 6. Recommended Solder Pad Dimension



Resistance Range ( $\Omega$ )	a	b	L
0.002-0.003	4.0	3.1	1.3
0.004-0.050	4.0	2.1	4.1

Unit: mm



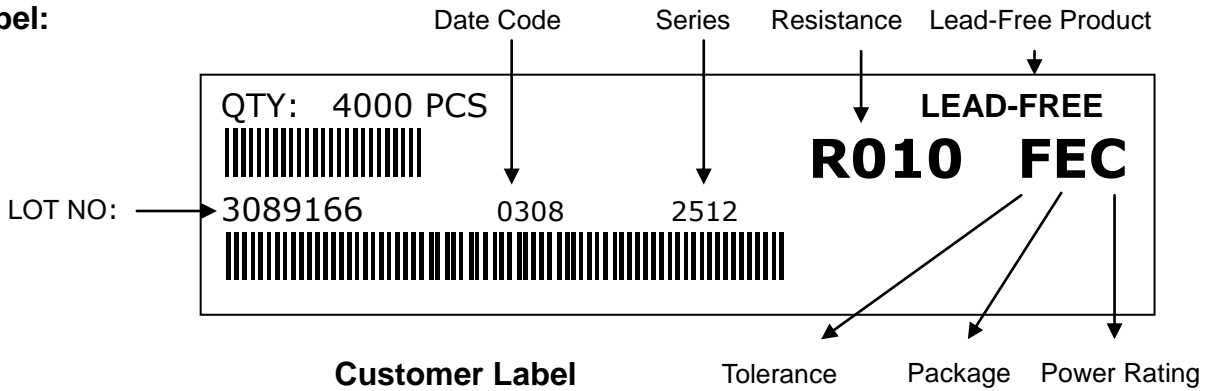
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Document No	TRLM-250S148B
Issued date	2014/03/31
Page	4/6

**7. Number of Package:**

4000 Pieces / package

**8. Label:**



**9. Taping**



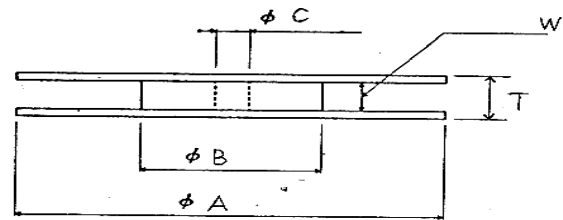
Packing	Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	T
Emboss	RLM25	3.6 <sup>+0.2</sup> <sub>-0.18</sub>	6.9±0.2	12.±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	φ 1.5 (+0.1/-0)	0.85±0.15



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Document No	TRLM-250S148B
Issued date	2014/03/31
Page	5/6

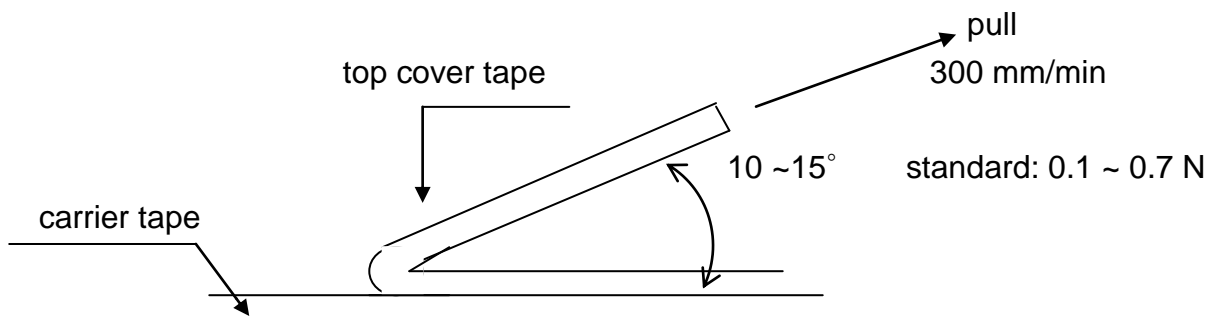
**10. Reel Specification**



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:**

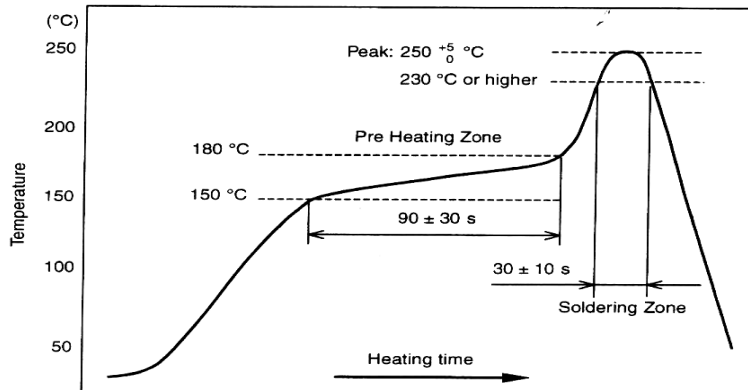
2 years from manufacturing date.



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Document No	TRLM-250S148B
Issued date	2014/03/31
Page	6/6

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



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

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

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

**Iron Solder: 350±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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**TA-I TECHNOLOGY CO., LTD**