



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

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1. Scope :

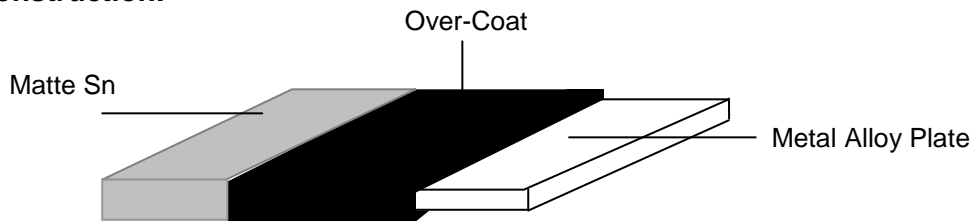
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLM series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation :

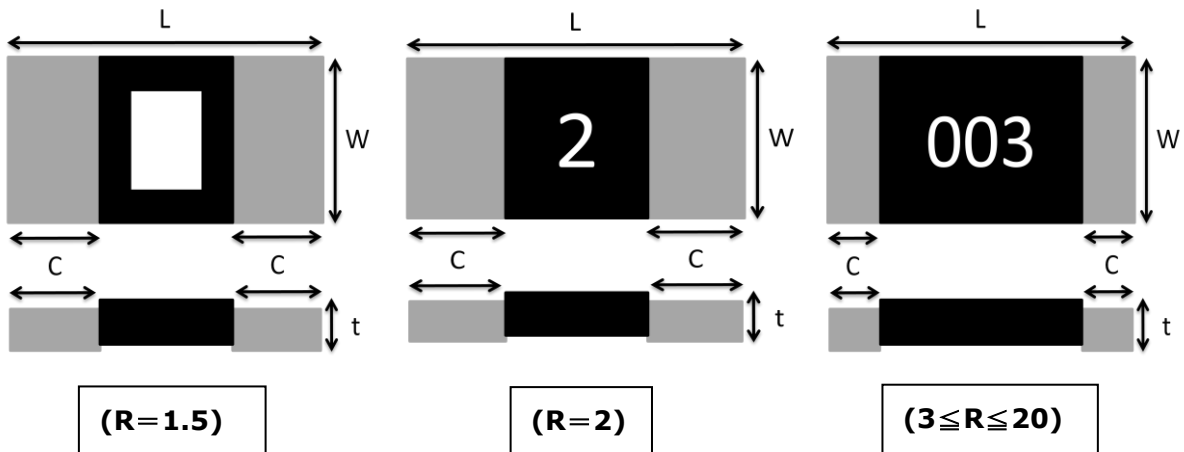
<u>RLM</u> Item	<u>10</u> Series No.	<u>F</u> Resistance tolerance	<u>I</u> Packaging	<u>S</u> Power Rating	<u>M</u> Metal	<u>R003</u> Resistance
10:0805(2012)		F:±1% G:±2% J:±5%	T: Paper	B=1/8W A=1/4W S=1/2W	M=MnCu	e.g : R003=3mΩ R020=20mΩ

3. Construction and Dimension :

3.1 Construction:



3.2 Dimension:



unit: mm

Style	L	W	C	t	Material
RLM10	2.0±0.1	1.25±0.1	0.65±0.2 (1 < R ≤ 2)	0.6 ±0.20	Strip : Alloy Over Coating : molding Compound UL-94V-0 grade
			0.4±0.2 (3 ≤ R ≤ 20)		



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4. Features:

Type	RLM10
Power Rating	1/8W 、 1/4W 、 1/2W
Resistance Value	1.5~20 mΩ
Operation Temperature Range	-55℃ ~+170℃
Temperature Coefficient of Resistance	±50ppm/℃
Tolerance	±1% 、 ±2% 、 ±5%
Insulation Resistance	Over 100MΩ
Maximum Working Voltage(V)	(P*R) ^{1/2}

5. Reliability Tests :

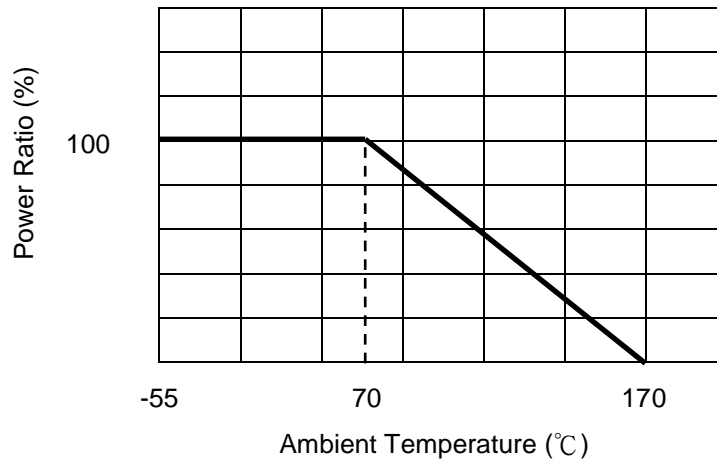
Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8 JIS C 5201-1 4.8	+25℃ ~ +125℃	Refer 4.0
Load Life	IEC60115-1 4.25.1 JIS C 5201-1 4.25.1	1000hours at rated power, 70℃, 1.5hours "ON", 0.5hour "OFF"	< ±1%
Short Time Overload	IEC60115-1 4.13 JIS 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℃, 85%RH, 1000hrs	< ±1%
Temperature cycle	IEC60115-1 4.19 JIS C 5201-1 4.19	-55℃ & +155℃, 300cycle, 15min per extreme condition	< ±1%
Resistance to Soldering Heat	IEC60115-1 4.18 JIS C 5201-1 4.18	260±5℃ for10±1 sec	< ±0.5%
Solderability	IEC60115-1 4.17 JIS C 5201-1 4.17	245±5℃, 2±0.5sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	IEC60115-1 4.23.2 JIS C 5201-1 4.23.2	170℃, 1000hrs	< ±1%
Low Temperature Storage	IEC60115-1 4.23.4 JIS C 5201-1 4.23.4	-55℃, 1000hrs	<±0.5%
Substrate Bending	IEC60115-1 4.33 JIS C 5201-1 4.33	Bending width 2mm	< ±1%
Insulation Resistance	IEC60115-1 4.6 JIS C 5201-1 4.6	100V DC for 1 minute	>100 MΩ



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5.1 Derating Curve



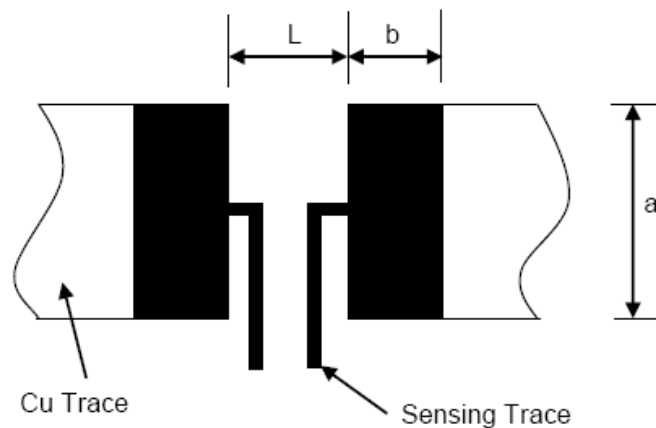
5.2 Rated Current

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(Ω)

6. Recommended Solder Pad Dimension



Resistance Range (Ω)	a	b	L
0.0015~0.002	1.4	1.15	0.7
0.003~0.020	1.4	1.15	1.

Unit: mm



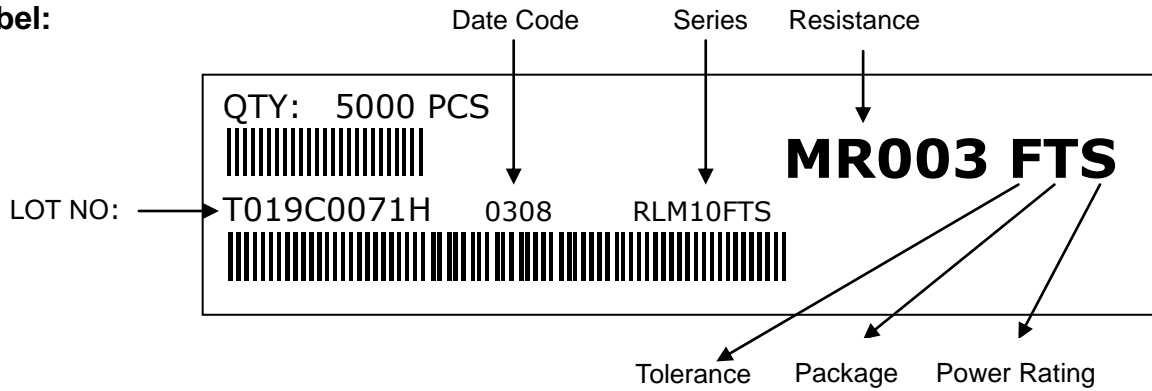
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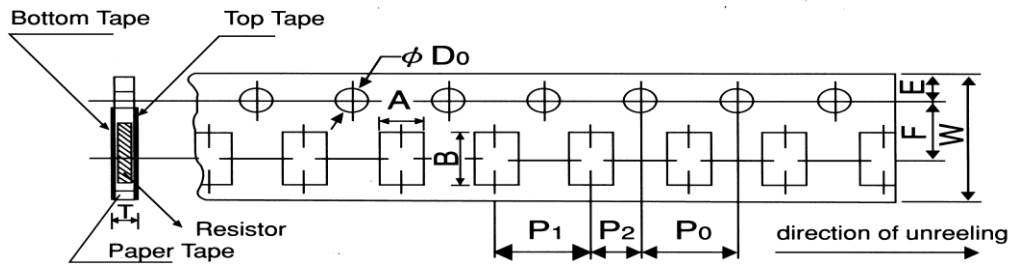
7. Number of Package:

5000 Pieces / package

8. Label:



9. Taping



Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Paper Tape	RLM10	1.6±0.15	2.4±0.2	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.1	4.0±0.1	+0.1 Φ 1.5 -0	0.84±0.1

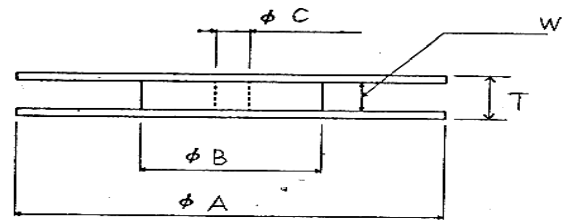
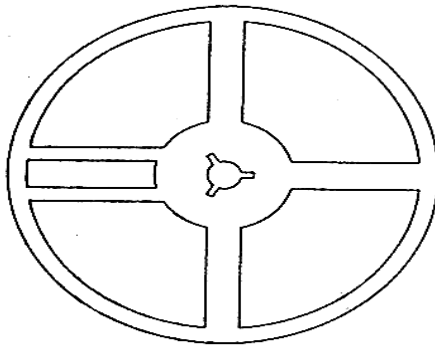
Unit:mm



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10. Reel Specification

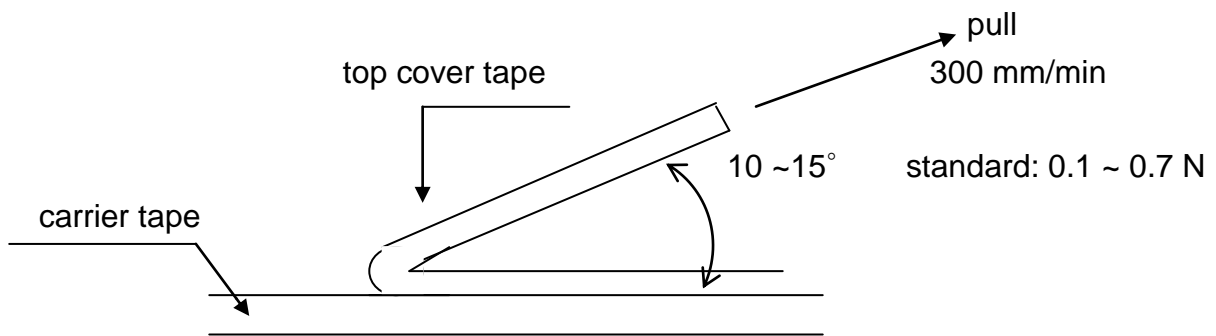


Series	ϕA	ϕB	ϕC	W	T
RLM 10	178.0 \pm 2.0	60.0 \pm 1.0	13.0 \pm 1.0	9.0 \pm 1.0	11.4 \pm 1.0

Unit: mm

11. Peeling Strength of Top Cover Tape

Peel – off force of paper and blister tape is in accordance with “JIS ”
that is , 0.1 to 0.7 N at a peel-off speed of 300 mm / minute.



12. Storage Conditions:

Temperature: 5°C ~35°C, Humidity:40%~75%

13. Shelf Life:

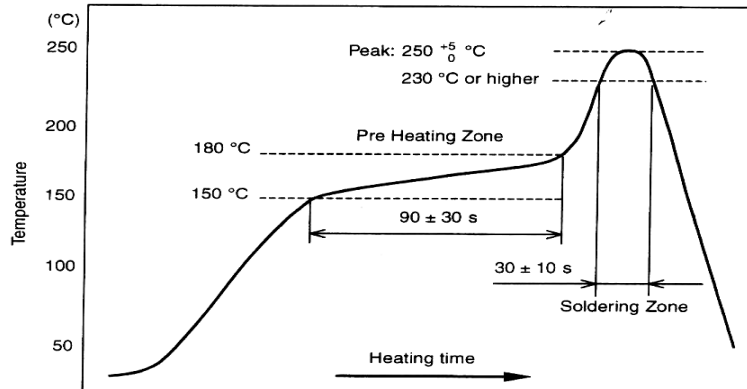
2 years from manufacturing date.



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



Peak : 260 $\begin{matrix} +5 \\ -5 \end{matrix}$ °C , 10±1 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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(3) TAI OHM ELECTRONICS (M) SDN. BHD. (Malaysia –Penang)

Tel : 604- 3900480 Fax : 604-3901481

(4) P.T.TAI ELECTRONICS Indonesia (Indonesia – Jakarta)

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