



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

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**1. Scope :**

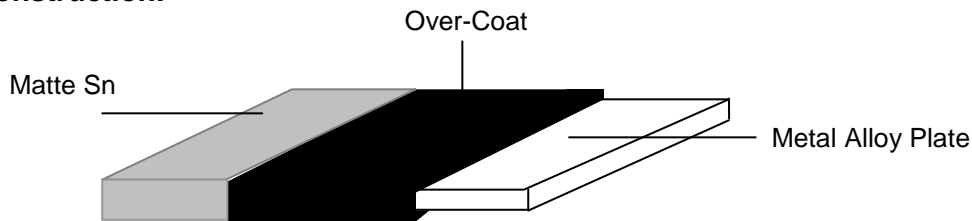
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLM series manufactured by TA-I TECHNOLOGY CO.,LTD.

**2. Type Designation :**

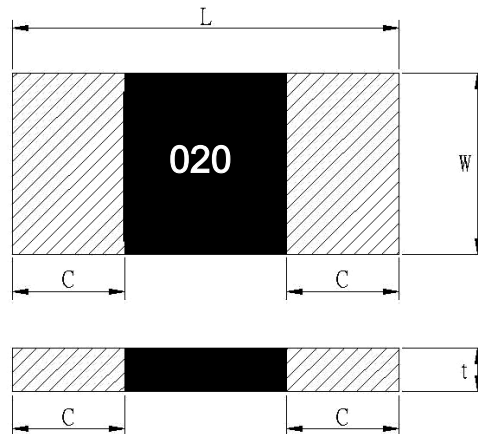
<u>RLM</u> Item	<u>10</u> Series No.	<u>F</u> Resistance tolerance	<u>I</u> Packaging	<u>S</u> Power Rating	<u>M</u> Metal	<u>R020</u> Resistance
10:0805(2012)		F:±1% G:±2% J:±5%	T: Paper	B=1/8W A=1/4W S=1/2W	M=MnCu	e.g : R005=5mΩ R020=20mΩ

**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	0.4±0.2	0.6 ±0.20	Strip : Alloy Over Coating : molding Compound UL-94V-0 grade



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#### 4. Features:

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

#### 5. Reliability Tests :

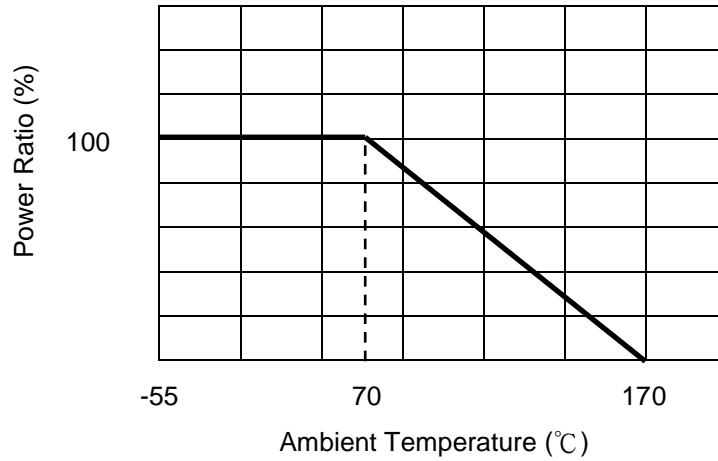
Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8 JIS C 5201-1 4.8	+25℃ ~ +125℃	Refer 4.0
Load Life	IEC60115-1 4.25.1 JIS C 5201-1 4.25.1	1000hours at rated power, 70℃, 1.5hours "ON", 0.5hour "OFF"	< ±1%
Short Time Overload	IEC60115-1 4.13 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 Voltage

The rated voltage is calculated by the following formula:

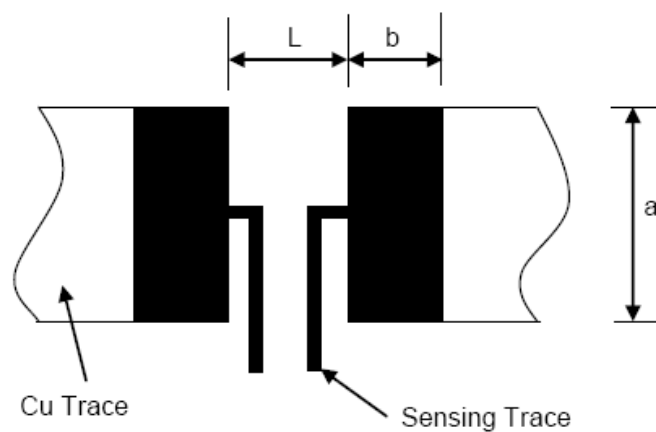
$$V = \sqrt{P \times R}$$

V: Rated Voltage(V)

P: Rated Power(W)

R: Resistance Value( $\Omega$ )

### 6. Recommended Solder Pad Dimension



Resistance Range ( $\Omega$ )	a	b	L
0.005~0.02	1.4	1.15	1.2

Unit: mm



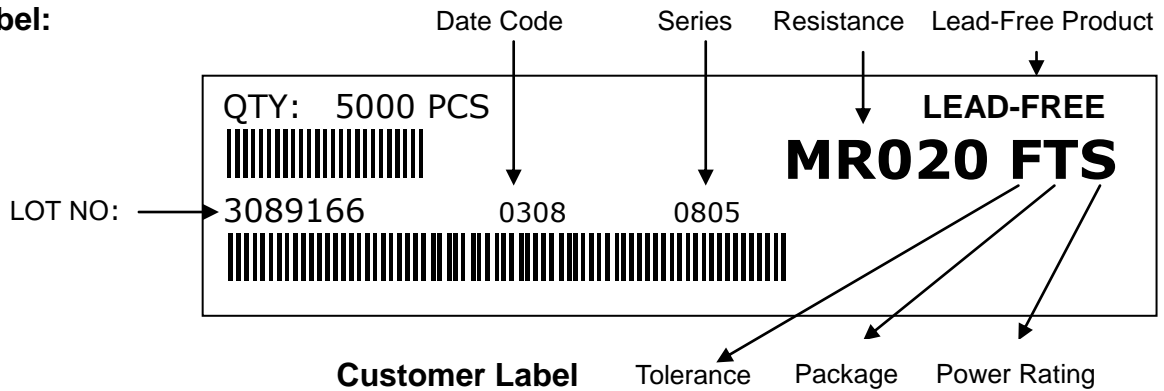
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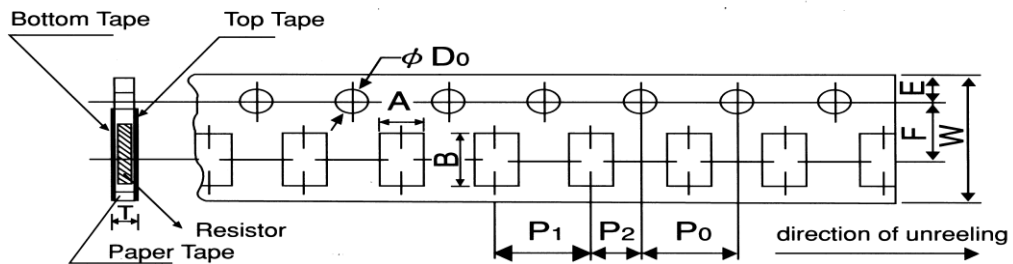
**7. Number of Package:**

5000 Pieces / package

**8. Label:**



**9. Taping**



Packing	Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	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

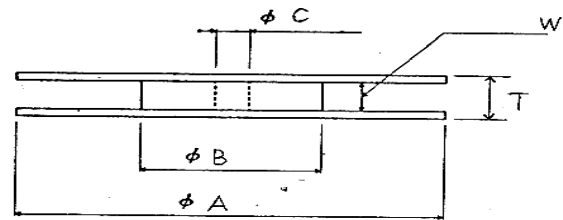
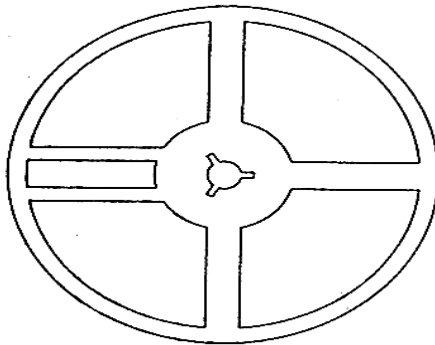
Unit:mm



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**10. Reel Specification**

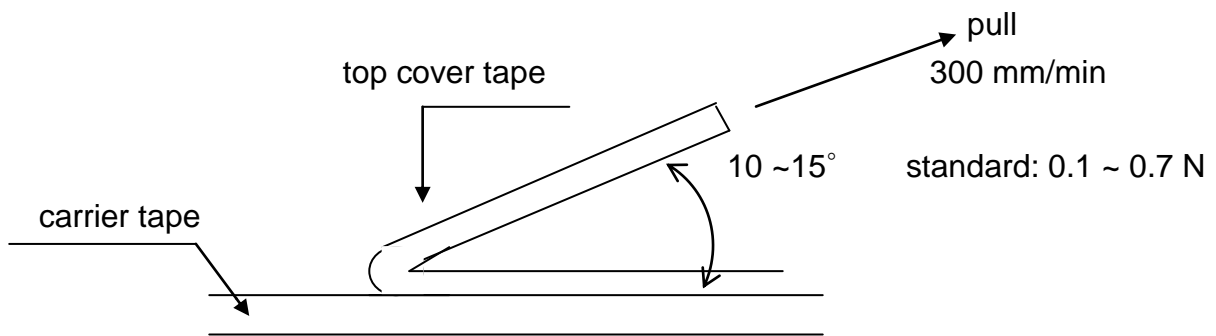


Series	$\phi A$	$\phi B$	$\phi C$	W	T
RLM 10	178.0 $\pm$ 2.0	60.0 $\pm$ 1.0	13.0 $\pm$ 1.0	9.0 $\pm$ 1.0	11.4 $\pm$ 1.0

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:**

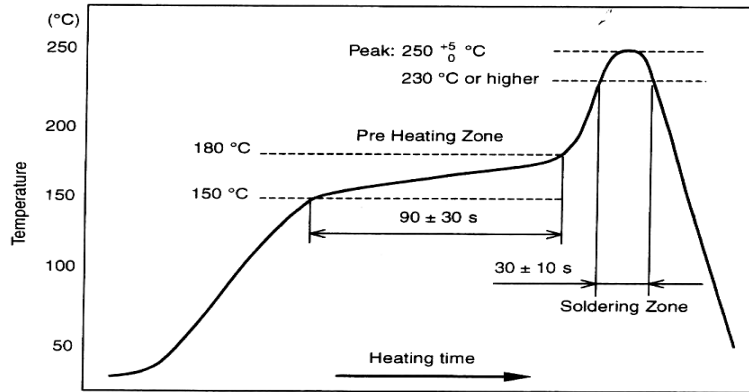
2 years from manufacturing date.



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



**Peak :  $260 \begin{matrix} +5 \\ -5 \end{matrix} \text{ }^{\circ}\text{C}$  ,  $10 \pm 1$  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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**Associated companies :**

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(2) TA-I TECHNOLOGY ELECTRONIC (DONGGUAN ) CO., LTD. ( China –Dongguan )

Tel : (+86) 769-8339-4790~3 Fax : (+86) 769-8339-4794

(3) FORTUNE TASK RESISTOR FACTORY ( China – Dongguan )

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(4) TAI OHM ELECTRONICS ( M ) SDN. BHD. ( Malaysia – Penang )

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(5) P.T.TAI ELECTRONIC Indonesia ( Indonesia – Jakarta )

Tel :(+62) 21-44820254 Fax : (+62) 21-44820256