



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

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**1. Scope**

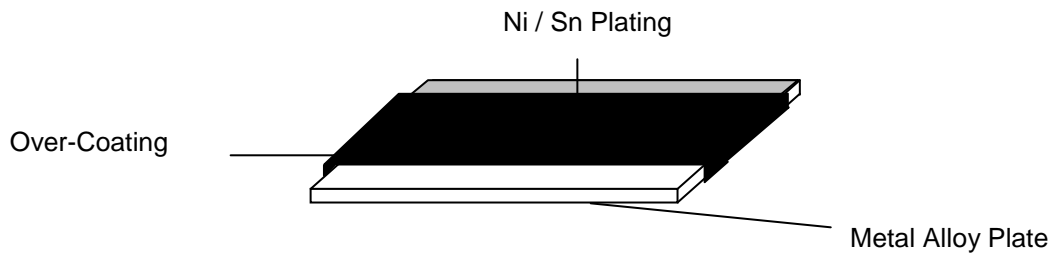
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLN series manufactured by TA-I TECHNOLOGY CO.,LTD.

**2. Type Designation**

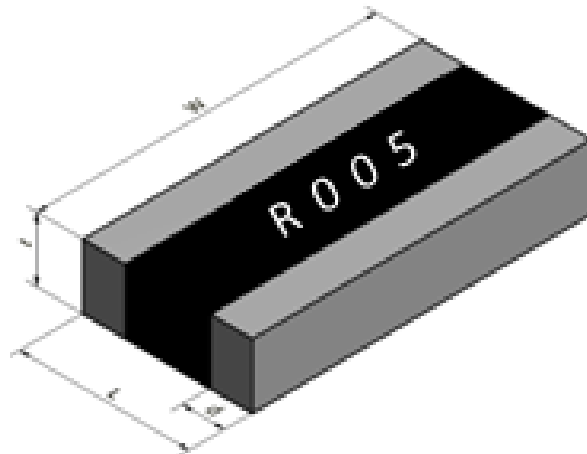
<u>RLN</u>	<u>06</u>	<u>F</u>	<u>I</u>	<u>C</u>	<u>R005</u>
Item	Series No	Resistance tolerance	Packaging	Power Rating	Resistance
	06:0612	F:±1% G:±2% J:±5%	T: Paper Tape	S=1/2W C=1 W	e.g: R005=5mΩ

**3. Construction and Dimension**

**3.1 Construction:**



**3.2 Dimension:**



Unit: mm

Style	W	L	D	t	Material
RLN06	3.2±0.2	1.7±0.2	0.4±0.2	0.6±0.2	Strip : Alloy Over Coating : molding Compound UL-94V-O grade



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#### 4. Features

Type	RLN06
Power Rating	1/2 W&1W
Resistance Value	1~10mΩ
Operation Temperature Range	-55°C ~+170°C
Temperature Coefficient of Resistance	±100ppm/°C
Tolerance	±1% , ±2% , ±5%
Insulation Resistance	Over 100MΩ
Maximum Working Voltage(V)	$(P \cdot R)^{1/2}$

Note\*:1 Watts with total solder pad and trace size of 300mm<sup>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	< ±0.5%
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 for10±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	< ±0.5%
Low Temperature Storage	IEC60115-1 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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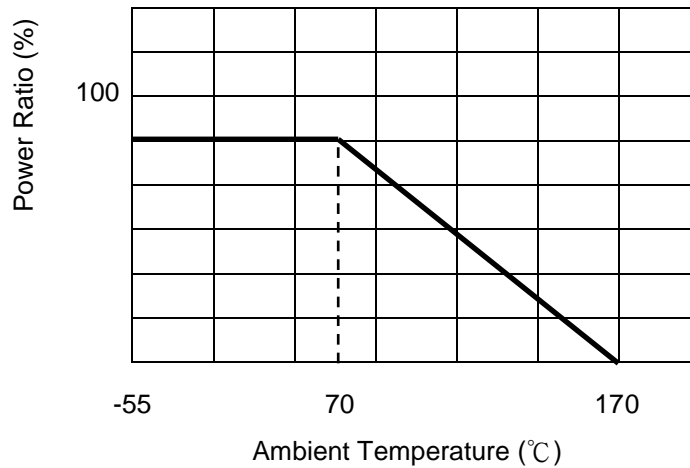
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**5.1 Derating Curve**



**5.2 Rated Voltage**

The rated voltage is calculated by the following formula:

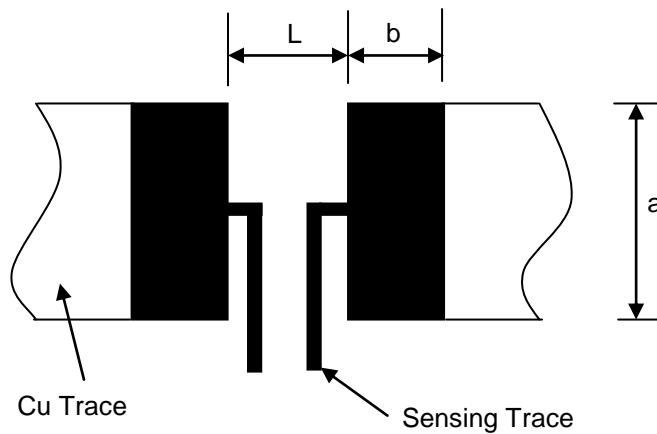
$$V = \sqrt{P \times R}$$

V:Rated Voltage(V)

P:Rated Power(W)

R:Resistance Value( $\Omega$ )

**6. Recommended Solder Pad Dimension**



Resistance Range ( $\Omega$ )	a	b	L
0.001~0.01	3.8	0.7	0.7

Unit: mm



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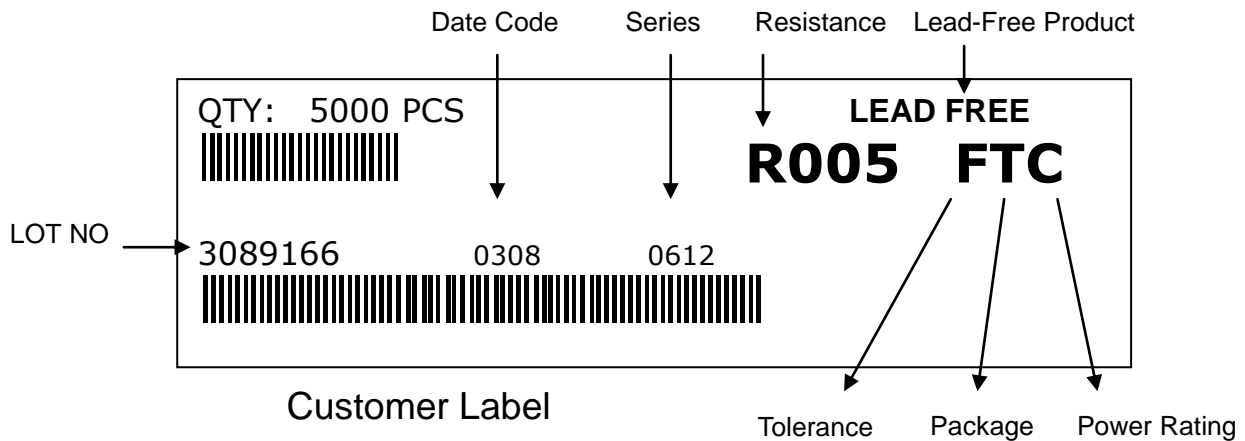
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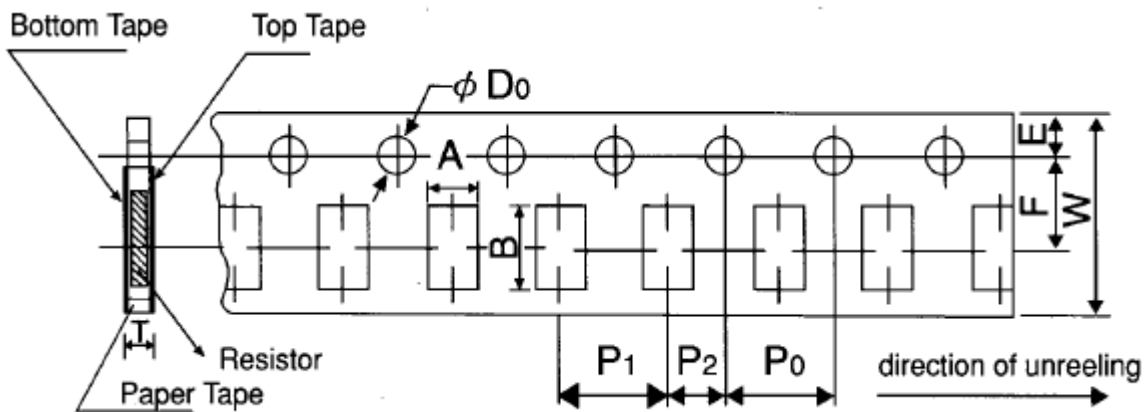
### 7. Number of Package

5000 Pieces / package

### 8. Label



### 9. Taping



Unit: mm

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	RLN06	2.0±0.15	3.6±0.2	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.1	φ 1.5 (+0.1/-0)	0.84±0.1



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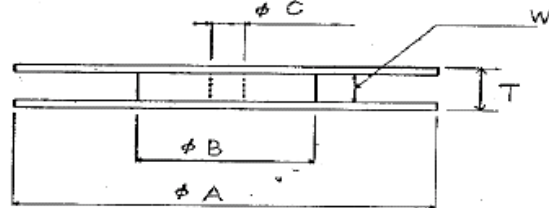
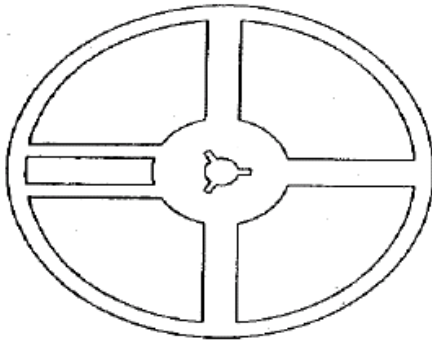
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### 10. Reel Specification

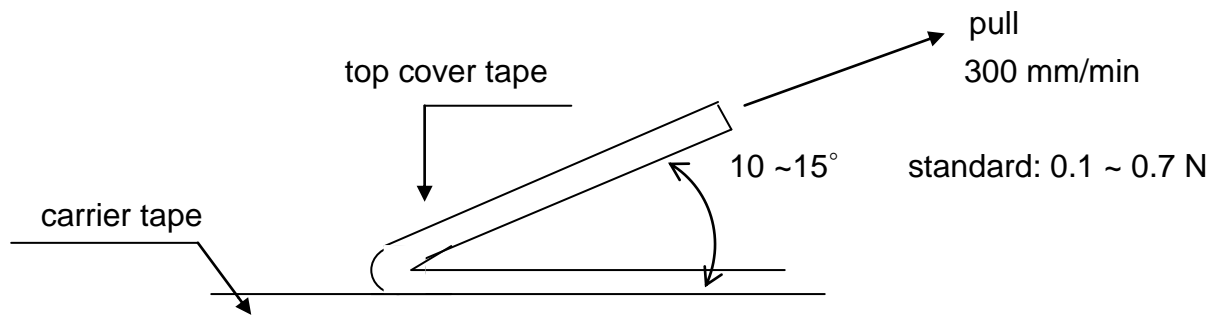


Series	$\phi A$	$\phi B$	$\phi C$	W	T
RLN06	178 $\pm$ 2.0	60.0 $\pm$ 1.0	13.0 $\pm$ 1.0	9.0 $\pm$ 1.0	11.5 $\pm$ 1.0

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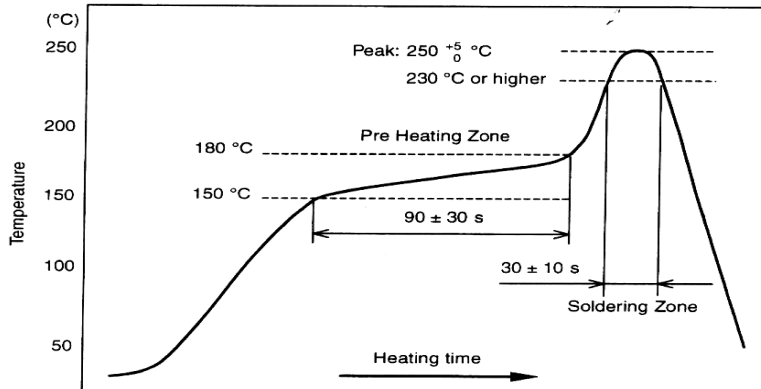
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**14. Recommend IR – Reflow profile :** (solder : Sn96.5 / Ag3 / Cu0.5)



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 )

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**Associated companies :**

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

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

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

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

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