



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

Document No

TRLN-060S004A

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1. Scope

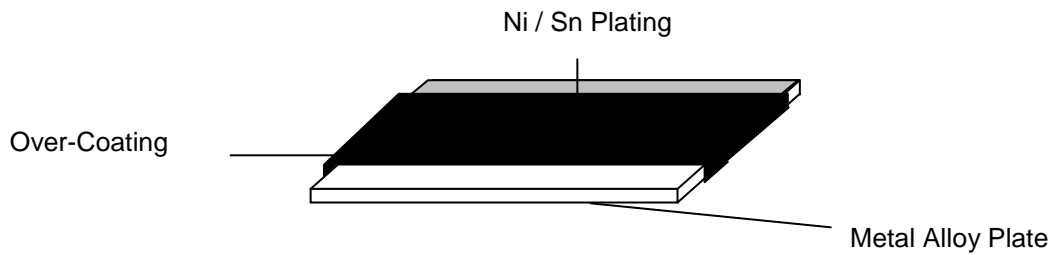
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLN series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation

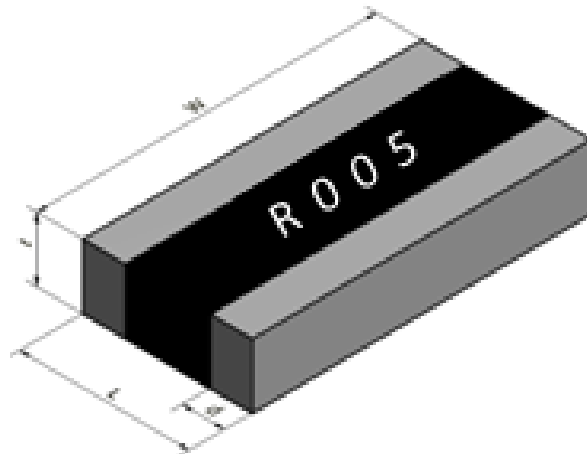
<u>RLN</u> Item	<u>06</u> Series No	<u>F</u> Resistance tolerance	<u>I</u> Packaging	<u>C</u> Power Rating	<u>R005</u> Resistance
	06:0612	F:±1% G:±2% J:±5%	T: Paper Tape	S=1/2W C=1 W	e.g: R005=5mΩ

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 300mm²

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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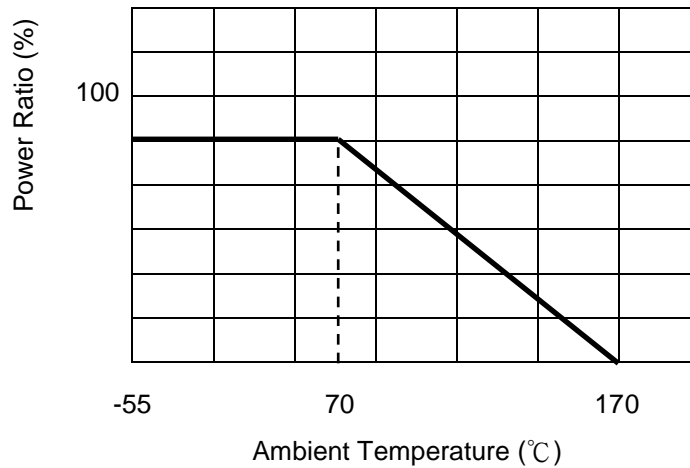
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5.1 Derating Curve



5.2 Rated Voltage

The rated voltage is calculated by the following formula:

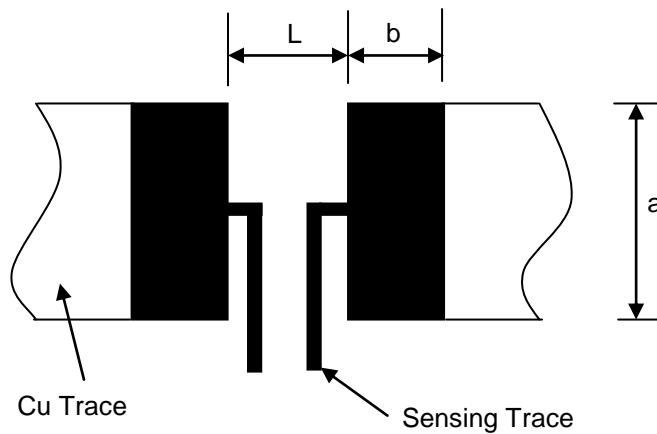
$$V = \sqrt{P \times R}$$

V:Rated Voltage(V)

P:Rated Power(W)

R:Resistance Value(Ω)

6. Recommended Solder Pad Dimension



Resistance Range (Ω)	a	b	L
0.001~0.01	3.8	0.7	0.7

Unit: mm



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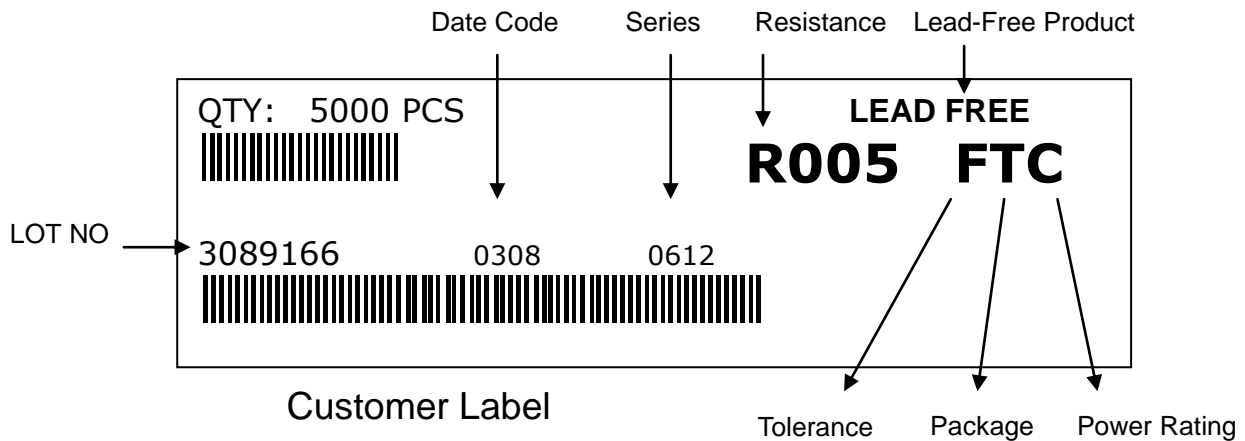
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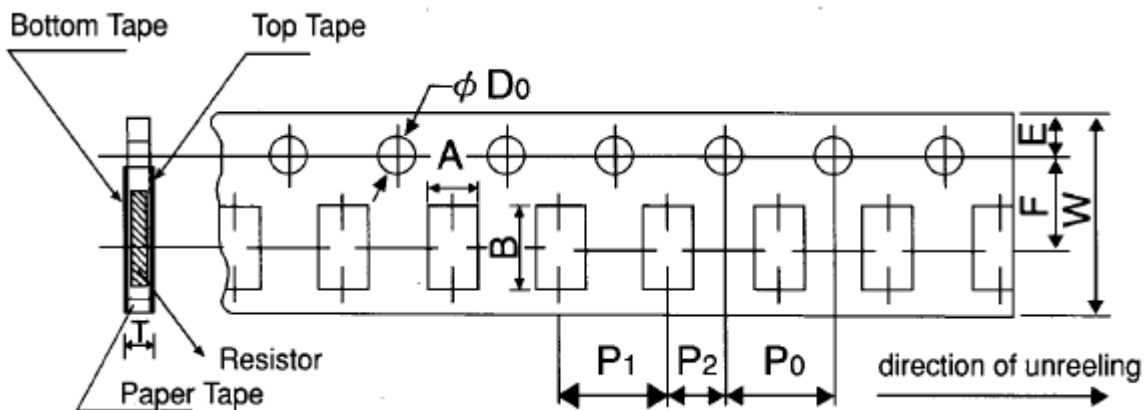
7. Number of Package

5000 Pieces / package

8. Label



9. Taping



Unit: mm

Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	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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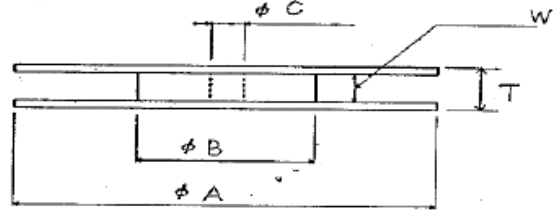
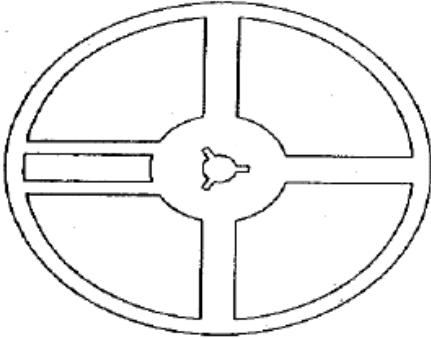
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10. Reel Specification

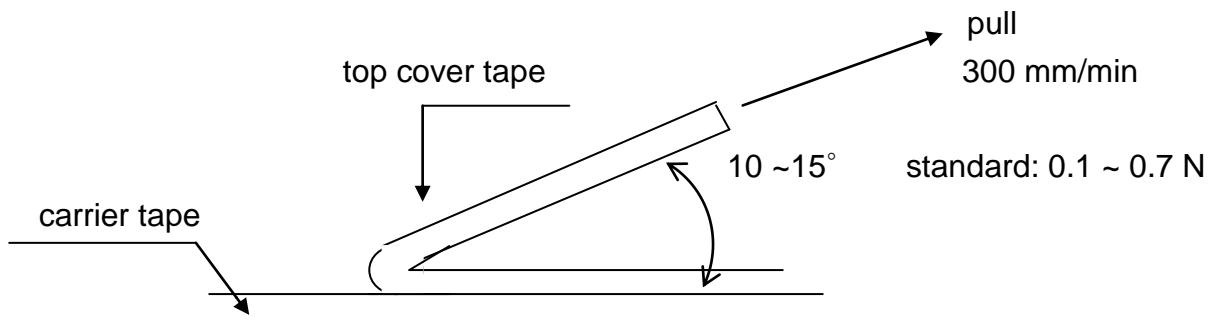


Series	ϕA	ϕB	ϕC	W	T
RLN06	178±2.0	60.0±1.0	13.0±1.0	9.0±1.0	11.5±1.0

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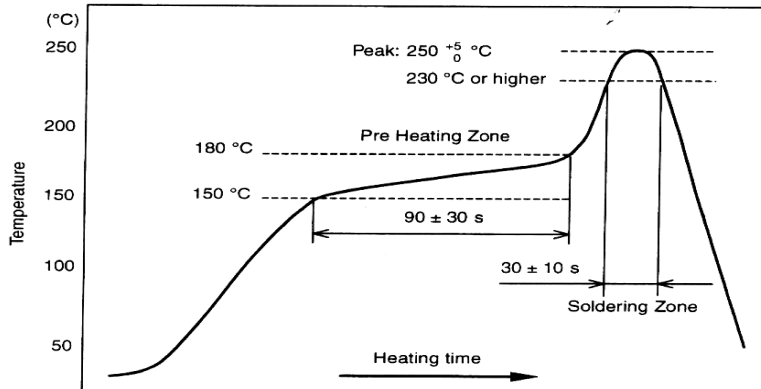
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14. Recommend IR – Reflow profile : (solder : Sn96.5 / Ag3 / Cu0.5)



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

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

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

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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