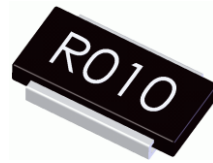




Lead-Free Current Sensing Resistors (RLN Series) (Halogen-Free)



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1. Scope

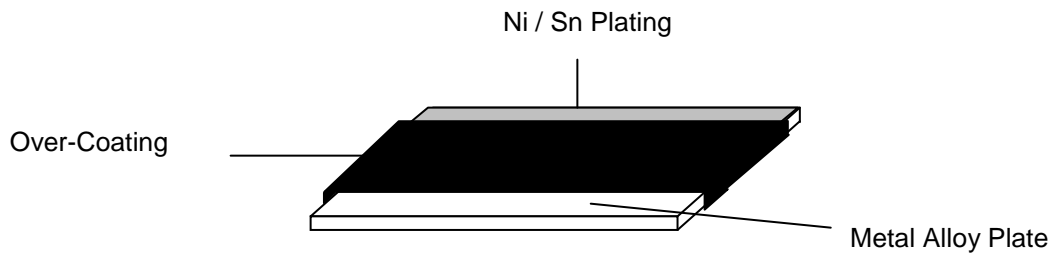
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLN series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation

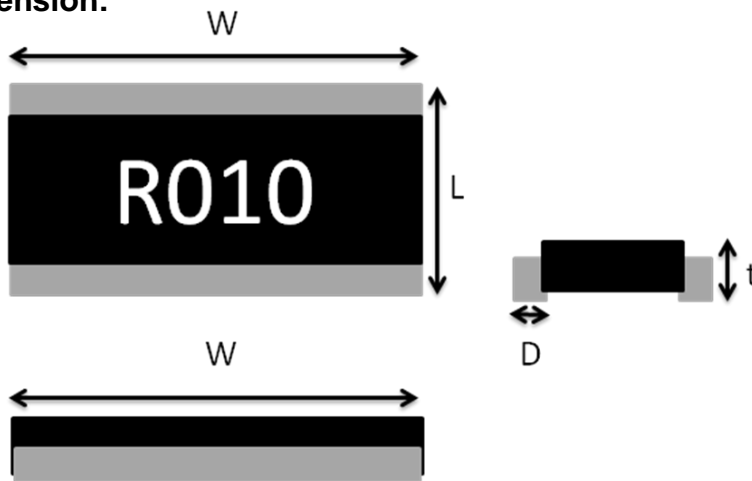
<u>RLN</u> Item	<u>37</u> Series No.	<u>E</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power rating	<u>R010</u> Resistance
	37:3720	F:±1% G:±2% J:±5%	E: Embossed Tape	S=1/2W C= 1 W	e.g: R010=10mΩ

3. Construction and Dimension

3.1 Construction:



3.2 Dimension:



Unit: mm

Style	W	L	D	t	Material
RLN	3.75±0.3	2.3±0.2	0.5±0.2	0.7±0.20	Strip : Alloy Over Coating : molding Compound UL-94V-0 grade



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4. Features

Type	RLN
Power Rating	1/2 W&1W *
Resistance Value	1mΩ ~30mΩ
Operation Temperature Range	-55°C ~+170°C
Temperature Coefficient of Resistance	50ppm/°C
Tolerance	±1% , ±2% , ±5%
Insulation Resistance	Over 100MΩ
Maximum Working Voltage(V)	(P*R) ^{1/2}

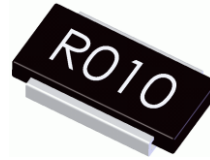
Note*:1 Watts with total solder pad and trace size of 300mm²

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% (For 40-100 mΩ rated power x 2.5 for 5 s)
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 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
HighTemperature Exposure	IEC60115-1 4.23.2 JIS C 5201-1 4.23.2	170°C , 1000hrs	±0.5%
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	±1.0%
Insulation Resistance	IEC60115-1 4.6 JIS C 5201-1 4.6	100V DC for 1 minute	>100 MΩ



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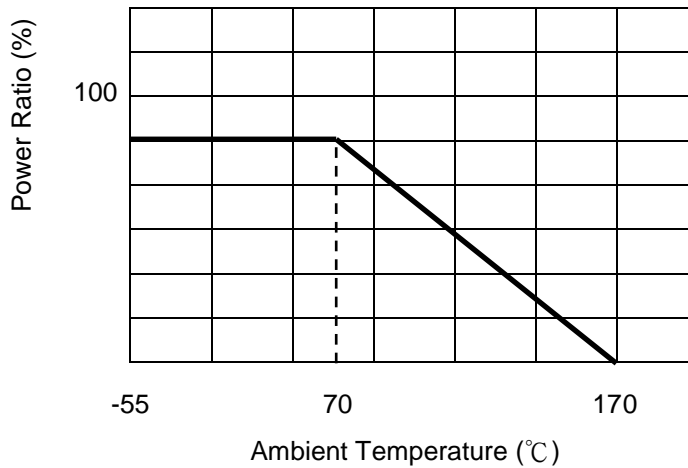
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5.1 Derating Curve



5.2 Rated Voltage

The rated voltage is calculated by the following formula:

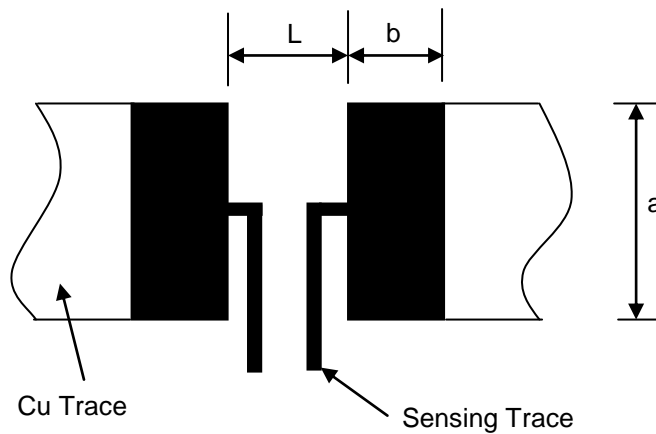
$$V = \sqrt{P \cdot R}$$

V:Rated Voltage(V)

P:Rated Power(W)

R:Resistance Value(Ω)

6. Recommended Solder Pad Dimension

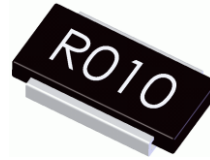


Resistance Range (Ω)	a	b	L
0.001~0.030	4.2	0.8	1.2

Unit: mm



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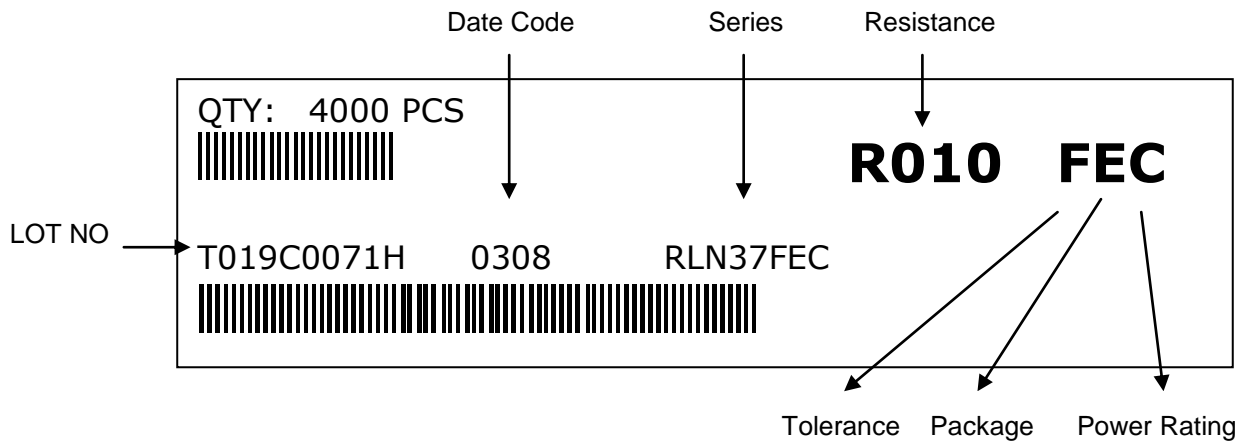
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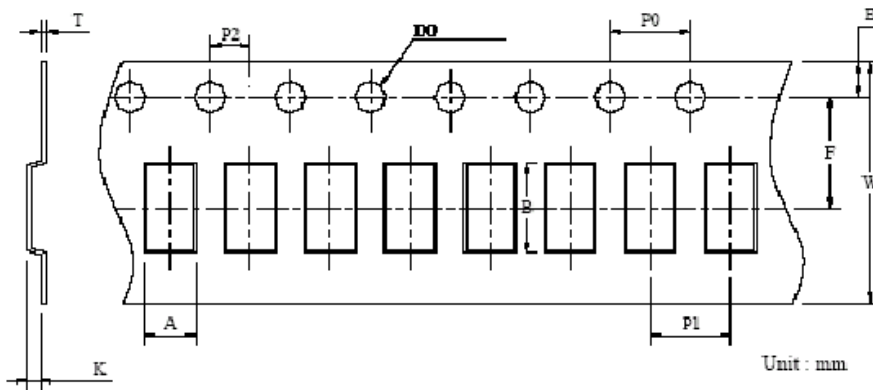
7. Number of Package

4000 Pieces / package

8. Label



9. Taping

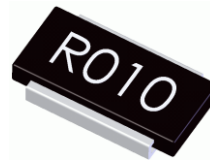


Unit: mm

Packing	A	B	E	F	W	D0	K	T	P0	P1	P2
Emboss	2.6±0.2	4.5±0.2	1.75±0.1	5.5±0.1	12.0±0.2	Φ1.55±0.05	1.1±0.1	0.3±0.05	4.0±0.1	4.0±0.1	2.0±0.2



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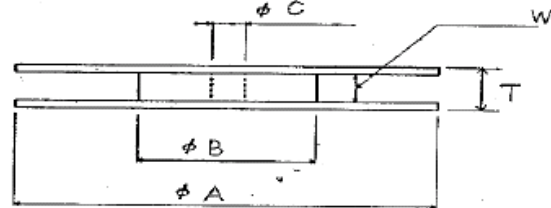
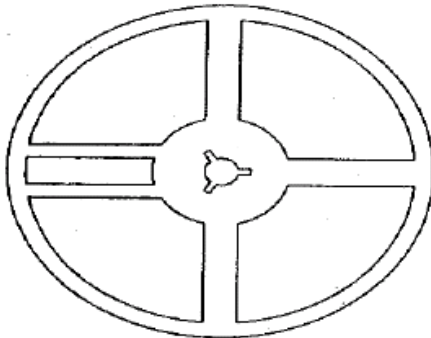
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10. Reel Specification

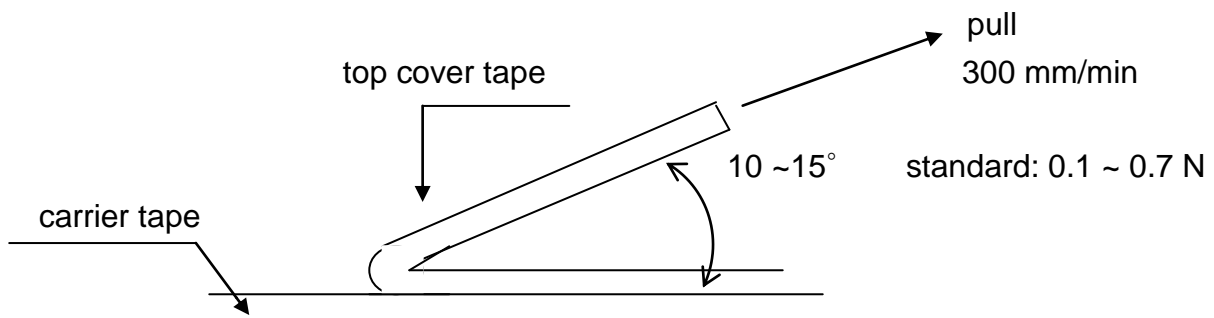


Series	ϕA +0 -3	ϕB	ϕC	W	T
RLN37	180	60 ±1.0	13.0±1.0	13.0±1.0	15.4±2.0

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.

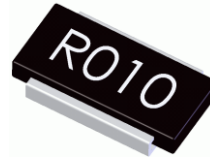


12. Storage Conditions :

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



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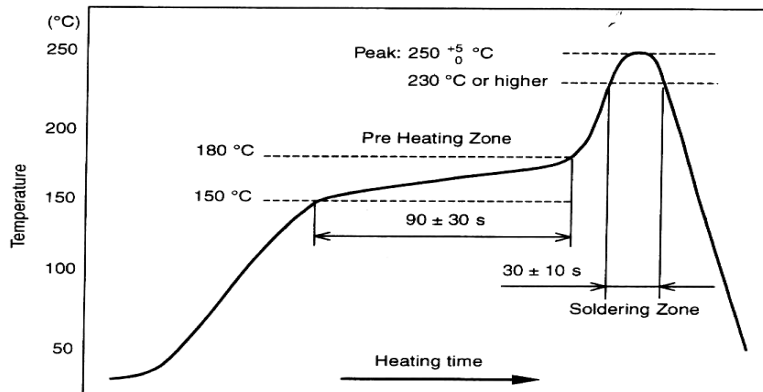
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13. Shelf Life :

2 years from manufacturing date.

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



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

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

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