1. Scope :

The specification applies for the RLH12 Series of low resistance chip resistors made by TA-I.

2. Features:

- Low Resistance and High Accuracy Resistor for Current Detection
- Large Electrode (All series)
- Good Performance for Heat Dissipation
- High Purity Alumina Substrate for High Power Dissipation
- Pb-free to Meet RoHS Requirements

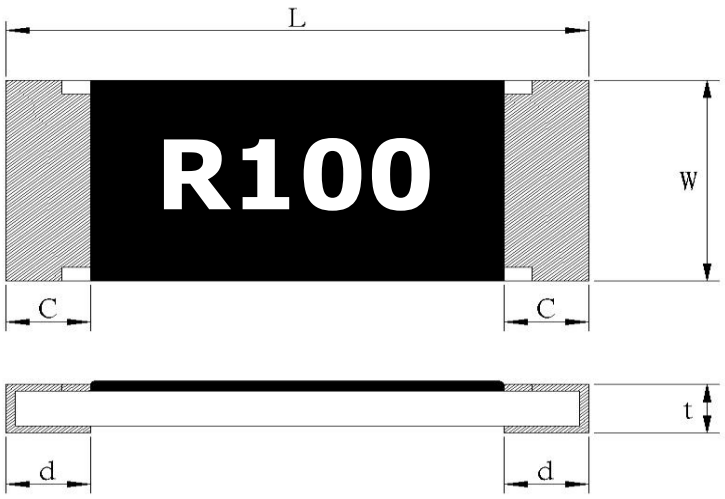
3. Applications:

- Power Management Applications
- Switching Power Supply
- DC-DC Converter, Battery Pack, Charger, Adaptor
- Portable Instruments (PDA and Cell Phone)
- Voltage Regulation Module (VRM)
- Computer

4. Type Designation:

RLH	12	F	T	C	R100
High Power Low Resistance Chip Resistors	Size 12:1206	Tolerance of Resistance at F:±1.0% G:±2.0% J:±5.0%	Packaging T: Paper	Power Rating (70℃) C=1W	Nominal Resistance R100 : 100mΩ

5. Dimensions:



Unit: mm

Item	L	w	c	d	t
RLH12	3.10±0.20	1.55±0.20	0.50±0.30	0.40±0.20	0.55±0.10

6. Derating Curve :

For resistors operated at ambient temperature over 70℃, power rating shall be derated in accordance with figure 1.

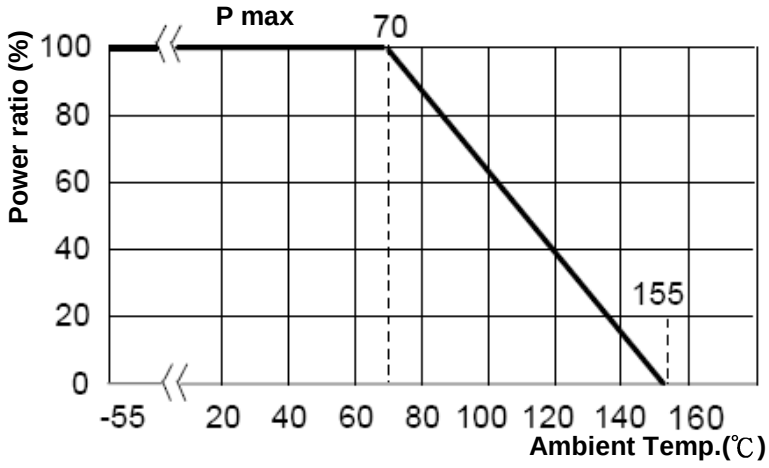


Figure 1

7. Electrical Characteristics

Type	RLH 12
Power Rating	1W
Resistance Value	100mΩ~910mΩ
Operation Temperature Range	-55℃~ +155℃
Temperature Coefficient of Resistance	100ppm/℃
Tolerance	±1% , ±2% , ±5%
Insulation Resistance	Over 100MΩ
Maximum Working Voltage(V)	$(P*R)^{1/2}$

8. Reliability Tests:

Test Item	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1-4.8 JIS-C5201-1-4.8	25℃ ~ 125℃	Refer to paragraph 6
Short Time Overload	IEC60115-1-4.13 JIS-C5201-1-4.13	5 X rated power, 5s	±(1.0%+0.5m Ω)
Load Life	IEC60115-1-4.25.1 JIS-C5201-1-4.25.1	1000 hours at rated power, at 70℃	±(5.0%+0.5m Ω)
Load Life with Humidity	IEC60115-1-4.24 JIS-C5201-1-4.24	1000 hours at rated power , 40 ± 2℃, 90~95% RH	±(5.0%+0.5m Ω)
Thermal Shock	IEC60115-1-4.19 JIS-C5201-1-4.19	-55℃ (15 min.) / +155 ℃(15 min.) 5 cycles	±(1.0%+0.5m Ω)
Resistance to Solder Heat	IEC60115-1-4.18 JIS-C5201-1-4.18	270 ± 5℃ solder , 10 ± 1 sec dwell .	±(1.0%+0.5m Ω)
Solder ability	IEC60115-1-4.17 JIS-C5201-1-4.17	245±5℃ solder, 2±0.5 sec dwell. Solder : Sn96.5 / Ag3.0 / Cu0.5	At least 95% of surface area of electrode shall be covered with new solder.
Bending Test	IEC60115-1-4.33 JIS-C5201-1-4.33	1mm deflection	±(1.0%+0.5m Ω)
Resistance to Dry Heat	IEC60115-1-4.23.2 JIS-C5201-1-4.23.2	155 ± 5℃ for 96 ± 4hrs	±(1.0%+0.5m Ω)

9. Marking:

From 1206:

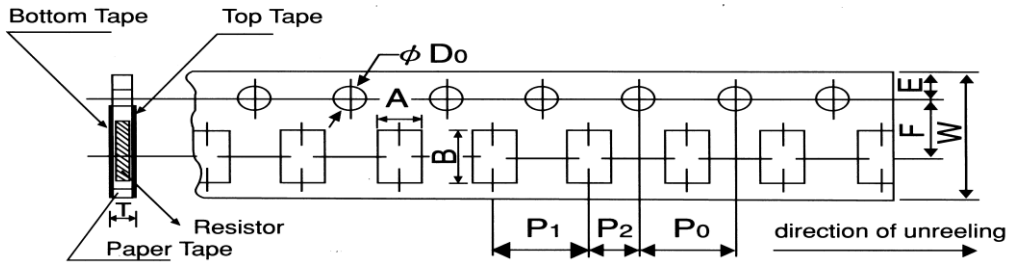
Resistance value is expressed by 4 digits, the first “R” means decimal point and the other digits represent for the normal resistance in Ω.

eg., 100mΩ= R100

10. Taping & Reel

10.1 Taping Dimensions

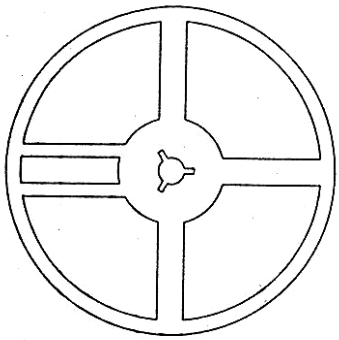
10.1.1 4 mm pitch paper

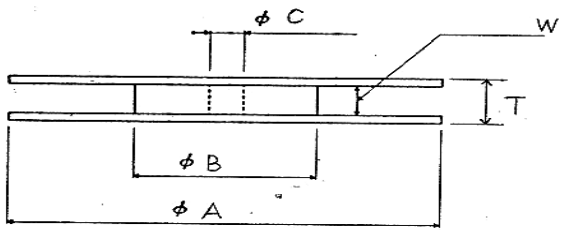


UNIT: mm

Packing	Type	A	B	W	F	E	P_1	P_2	P_0	D_0	T
Paper Tape	RLH12	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±0.1	4.0±0.1	Φ1.5 +0.1 -0.1	0.84±0.1

10.2 Reel Specifications



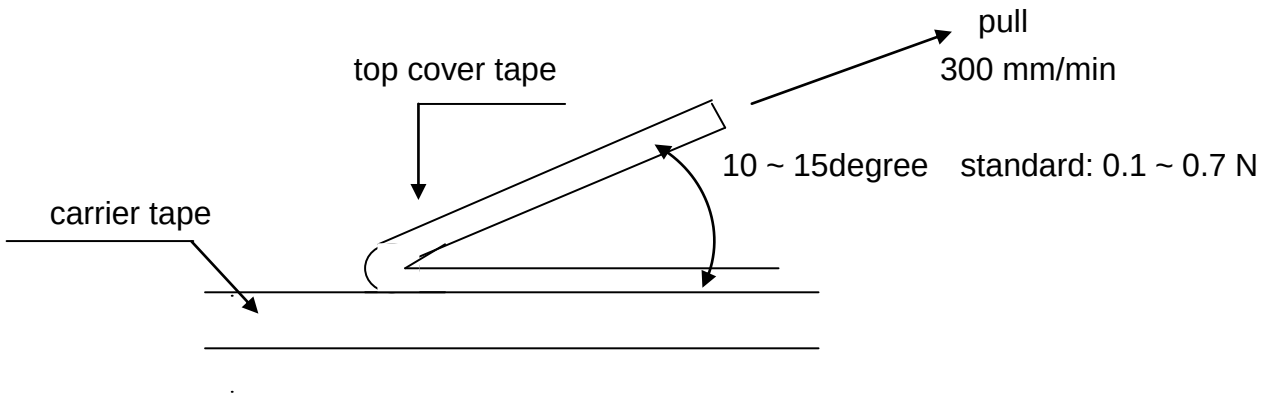


UNIT: mm

Type	ΦA	ΦB	ΦC	W	T
RLH12	178.0 ±2.0	60.0 ±1.0	13.0 ±1.0	9.0 ±1.0	11.4 ±1.0

10.3 Peel – off force :

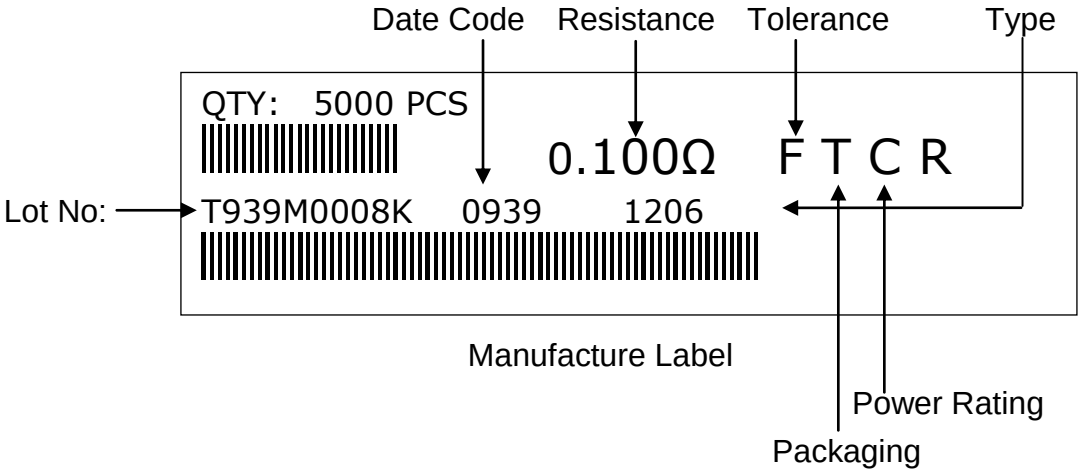
Peel – off force of paper and blister tape is in accordance with “JIS ”
that is , 0.1 to 0.7 N at a peel-off speed of 300 mm / minute.



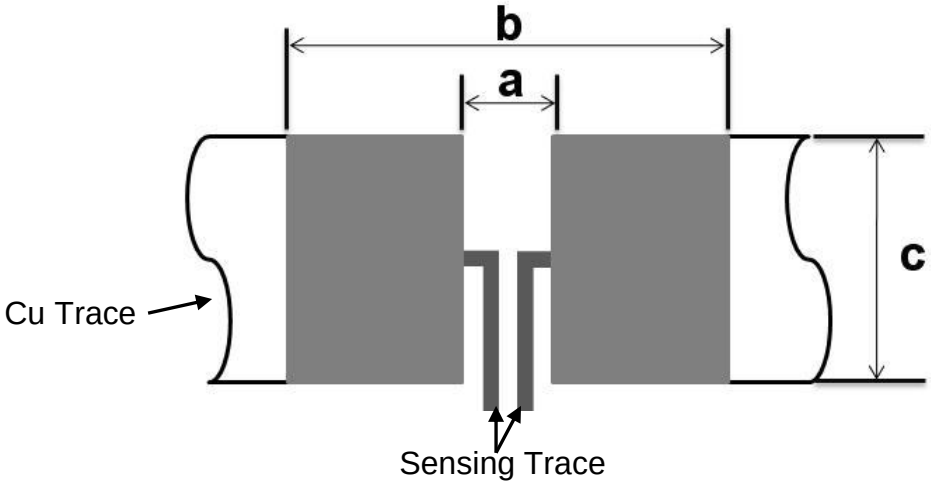
UNIT: mm

11. Label

11.1 Normal Products :



12. Recommended land patterns



Land pattern / Type	Size	Dimension (mm) a	b	c
RLH	12 (1206)	0.70±0.20	5.10±0.20	2.50±0.20

13. 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.

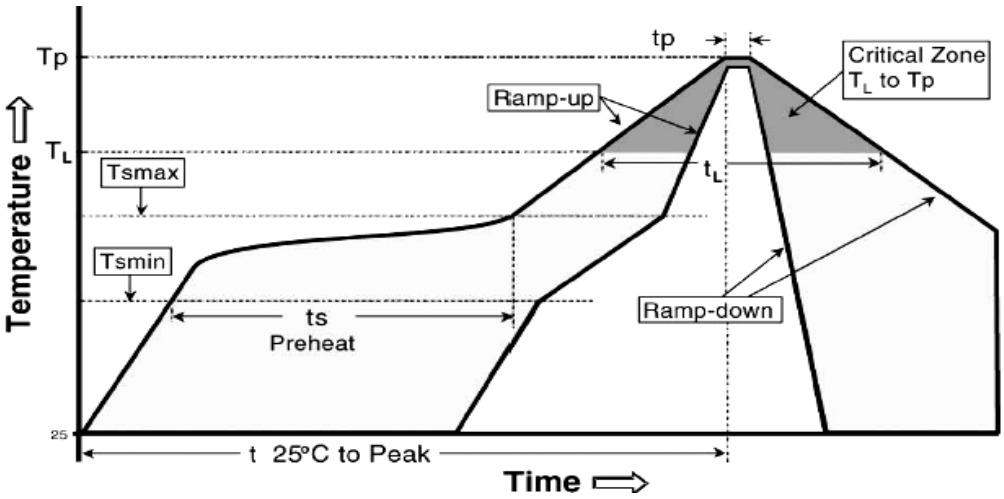
14. Storage Conditions:

Temperature: 5℃~35℃,Humidity:40%~75%

15. Shelf Life:

2 years from manufacturing date.

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



Profile Feature	Lead (Pb)-Free Assembly
Average ramp-up rate (Tsmax to Tp)	3℃ / second max.
Preheat - Temperature Min (Ts_{min}) - Temperature Max (Ts_{max}) - Time (Ts_{min} to Ts_{max}) (ts)	 150℃ 200℃ 60 -150 seconds
Time maintained above : - Temperature (T_L) - Time (T_L)	 217℃ 60-120 seconds
Peak Temperature (Tp)	260℃
Time within $^{+0}_{-5}$ ℃ of actual Peak Temperature (tp)[2]	10 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8mimutes max.

17. Manufacturing Country & City :

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

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Tel :(+60) 4- 3900480 Fax : (+60) 4-3901481

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

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