



High Power Low Resistance Chip Resistors (RLH25 Series)

Document No	TRLH-250S001E
Issued date	2012/10/18
Page	1/8

1. Scope :

The specification applies for the RLH25 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:

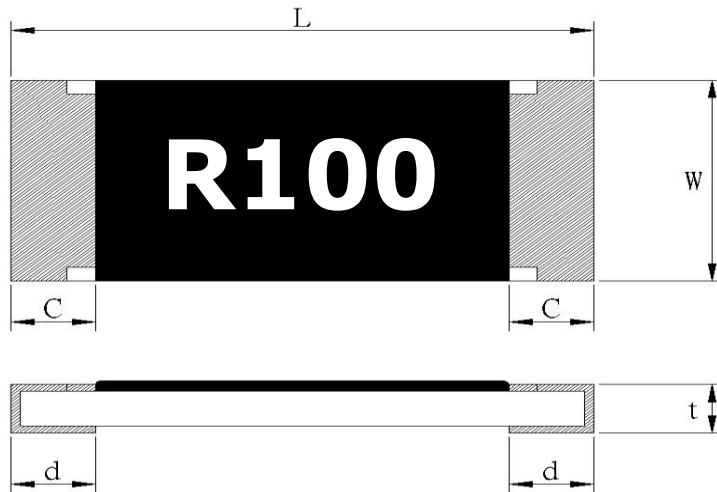
RLH	25	F	E	E	R100
High Power Low Resistance Chip Resistors	Size 25:2512 (6.4x3.2mm)	Tolerance of Resistance at F:±1.0% G:±2.0% J:±5.0%	Packaging E:Embossed Tape	Power Rating (70°C) C=1W D=1.5W E=2W	Nominal Resistance R100 : 100mΩ



High Power Low Resistance Chip Resistors (RLH25 Series)

Document No	TRLH-250S001E
Issued date	2012/10/18
Page	2/8

5. Dimensions:



Unit: mm

Item	L	w	c	d	t
RLH25	6.30±0.2	3.20±0.2	0.6±0.3	0.5±0.25	0.55±0.1

6. Derating Curve :

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

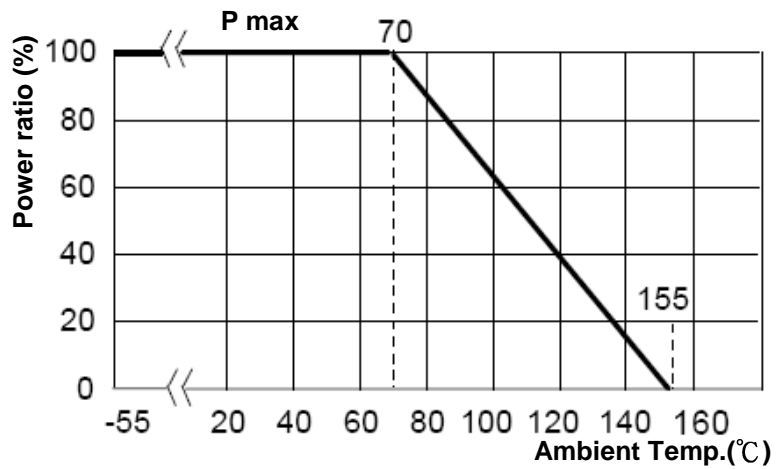


Figure 1



High Power Low Resistance Chip Resistors (RLH25 Series)

Document No	TRLH-250S001E
Issued date	2012/10/18
Page	3/8

7. Electrical Characteristics

Type	RLH 25
Power Rating	1W&1.5W&2W
Resistance Value	100m Ω ~910m Ω
Operation Temperature Range	-55 $^{\circ}$ C ~ +155 $^{\circ}$ C
Temperature Coefficient of Resistance	100ppm/ $^{\circ}$ C
Tolerance	\pm 1% , \pm 2% , \pm 5%
Insulation Resistance	Over 100M Ω
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 $^{\circ}$ C ~ 125 $^{\circ}$ C	Refer to paragraph 6
Short Time Overload	IEC60115-1-4.13 JIS-C5201-1-4.13	5 X rated power, 5s	\pm (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 $^{\circ}$ C	\pm (5.0%+0.5m Ω)
Load Life with Humidity	IEC60115-1-4.24 JIS-C5201-1-4.24	1000 hours at rated power , 40 \pm 2 $^{\circ}$ C , 90~95% RH	\pm (5.0%+0.5m Ω)
Thermal Shock	IEC60115-1-4.19 JIS-C5201-1-4.19	-55 $^{\circ}$ C (15 min.) / +155 $^{\circ}$ C (15 min.) 5 cycles	\pm (1.0%+0.5m Ω)
Resistance to Solder Heat	IEC60115-1-4.18 JIS-C5201-1-4.18	270 \pm 5 $^{\circ}$ C solder , 10 \pm 1 sec dwell .	\pm (1.0%+0.5m Ω)
Solder ability	IEC60115-1-4.17 JIS-C5201-1-4.17	245 \pm 5 $^{\circ}$ C solder, 2 \pm 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	\pm (1.0%+0.5m Ω)
Resistance to Dry Heat	IEC60115-1-4.23.2 JIS-C5201-1-4.23.2	155 \pm 5 $^{\circ}$ C for 96 \pm 4hrs	\pm (1.0%+0.5m Ω)



High Power Low Resistance Chip Resistors (RLH25 Series)

Document No	TRLH-250S001E
Issued date	2012/10/18
Page	4/8

9. Marking:

From 2512:

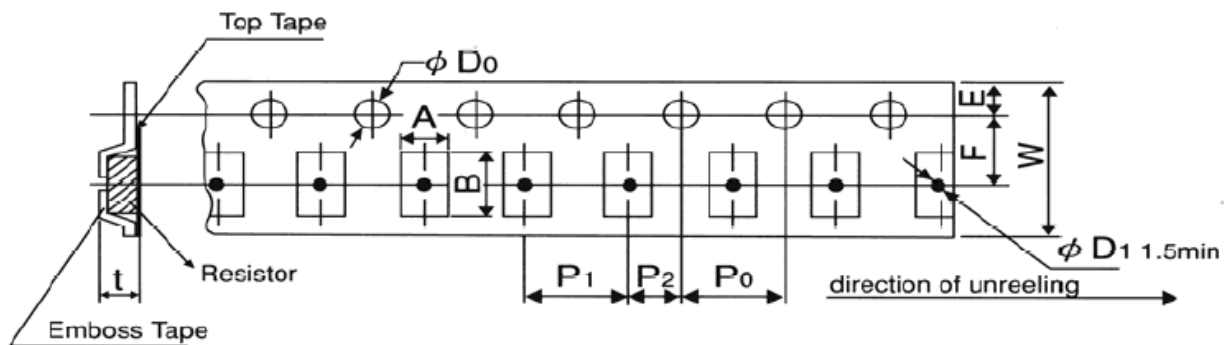
Resistance value is expressed by 4 digits, the first "R" means decimal point and the other digits represent for the normal resistance in Ω .

eg., $100\text{m}\Omega = \text{R}100$

10. Taping & Reel

10.1 Taping Dimensions

10.1.1 4 mm pitch Emboss



Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Emboss	RLH25	3.6 ± 0.2	6.9 ± 0.2	12.0 ± 0.2	5.5 ± 0.05	1.75 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.05	$+0.1$ $\Phi 1.5$ -0.1	0.85 ± 0.15

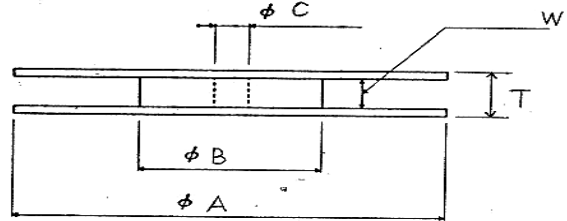
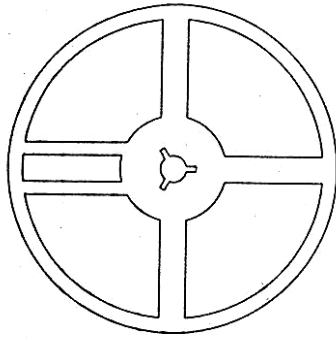
UNIT: mm



High Power Low Resistance Chip Resistors (RLH25 Series)

Document No	TRLH-250S001E
Issued date	2012/10/18
Page	5/8

10.2 Reel Specifications

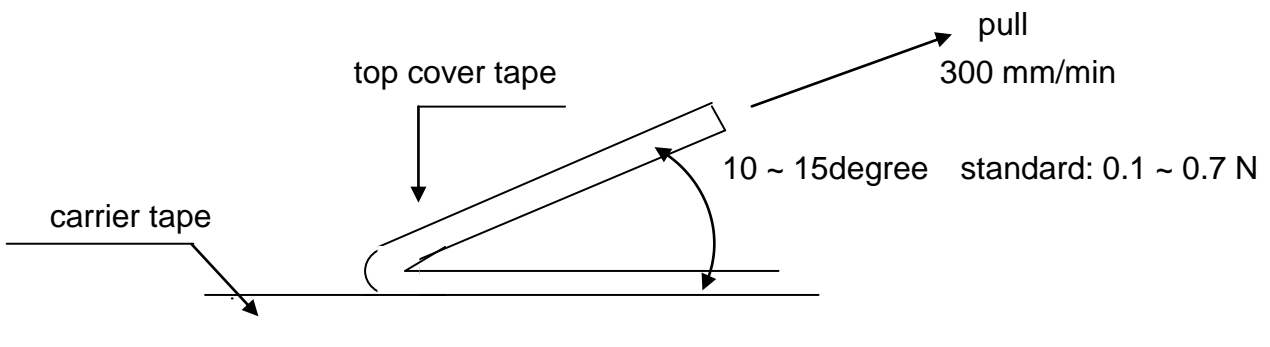


UNIT: mm

Type	ΦA	ΦB	ΦC	W	T
RLH25	178.0±2.0	60.0 ±1.0	13.0 ±1.0	13.0 ±1.0	15.5 ±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

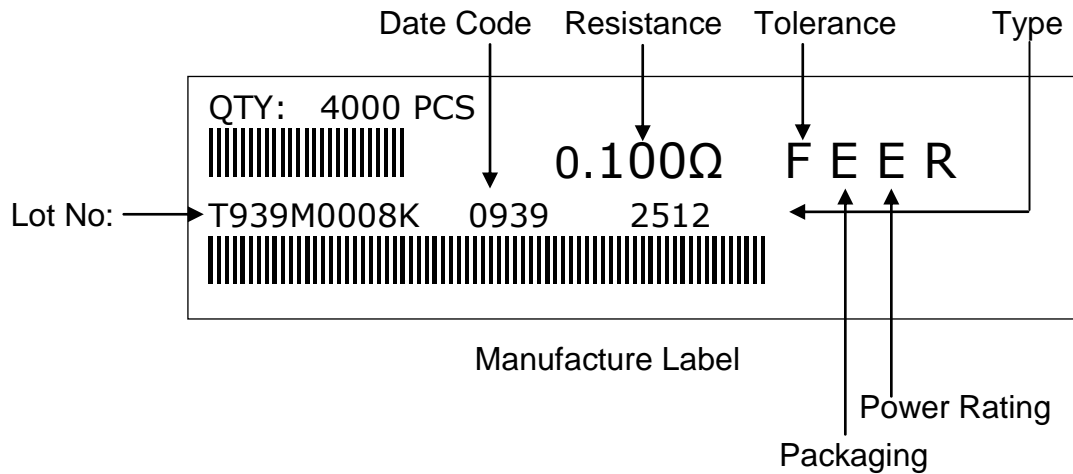


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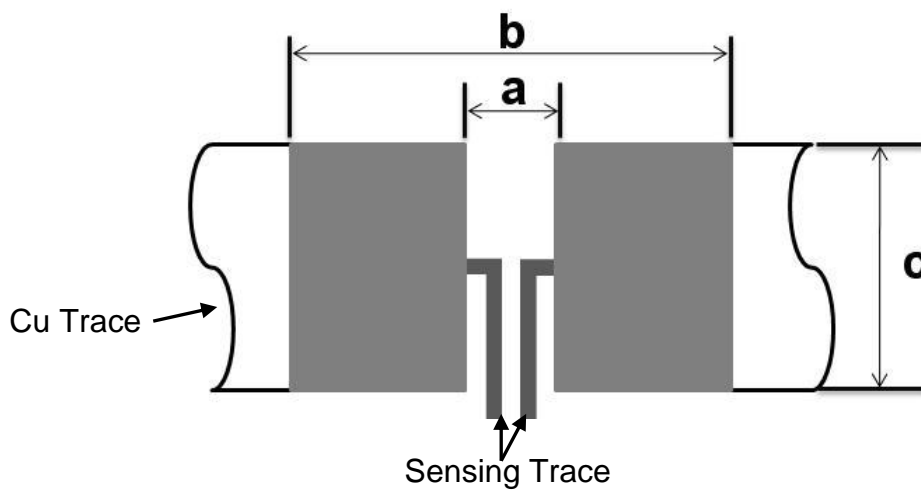
Document No	TRLH-250S001E
Issued date	2012/10/18
Page	6/8

11. Label

11.1 Normal Products :



12. Recommended land patterns



Land pattern		Dimension (mm)		
Type	Size	a	b	c
RLH	25 (2512)	1±0.20	7.5±0.20	4.2±0.20



High Power Low Resistance Chip Resistors (RLH25 Series)

Document No	TRLH-250S001E
Issued date	2012/10/18
Page	7/8

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.

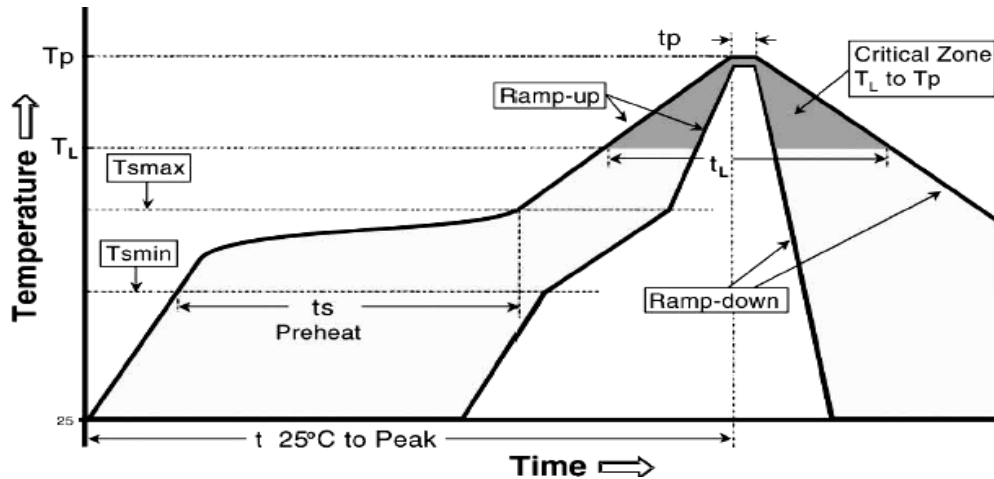
14. Storage Conditions:

Temperature: 5°C~35°C, 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 (T_{smax} to T_p)	3°C / second max.
Preheat <ul style="list-style-type: none"> - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (T_{smin} to T_{smax}) (t_s) 	150°C 200°C 60 -150 seconds
Time maintained above : <ul style="list-style-type: none"> - Temperature (T_L) - Time (T_L) 	217°C 60-120 seconds
Peak Temperature (T_p)	260°C
Time within $+0$ °C of actual Peak -5	10 seconds
Temperature (t_p) ²	
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8minutes max.



High Power Low Resistance Chip Resistors (RLH25 Series)

Document No	TRLH-250S001E
Issued date	2012/10/18
Page	8/8

17. Manufacturing Country & City :

TA-I TECHNOLOGY CO., LTD. (Taiwan– Tao Yuan)

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(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 ELECTRONICS Indonesia (Indonesia – Jakarta)

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[NCSR250F4M50DTRGF](#) [2176089-1](#) [2176090-4](#) [2176091-3](#) [CMB02070X3000GB200](#) [CPA2512Q6R80FS-T10](#) [4-1625868-7](#) [5-1625868-9](#) [5-18022-5](#) [ERA-3EEB2671V](#) [CFR0W4J0220A2P](#) [P1206Y1804FNTA](#) [CPA2512E68R0FS-T10](#) [CPA2512Q4R70FS-T10](#) [8-2176091-9](#) [2-2176091-0](#) [NCSR150FR003DTRT3F](#) [NTR06B5832CTRF](#) [NCSR200JR002DTRF](#) [RSJ372NL](#) [NRC-S12F4751TRF](#) [8-1625868-1](#) [1-2176092-4](#) [4-2176093-9](#) [2176091-9](#) [RT1220P-101-M](#) [PLTU0805U1003LST5](#) [PLTU0603U2001LST5](#) [PLTU0805U1001LST5](#) [PLTU0603U4702LST5](#)
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