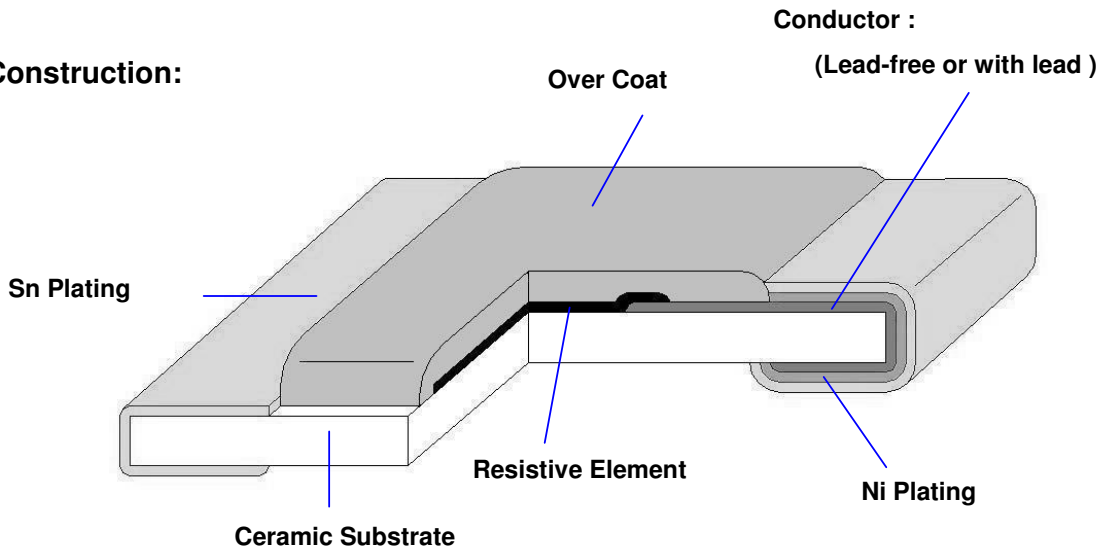


1. Scope :

This specification applies for the RL20(2010) of thick film chip resistors made by TA-I.

2. Construction:

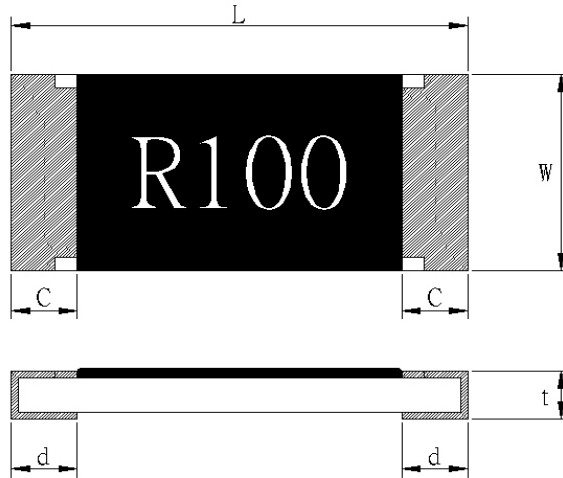


3. Type Designation:

<u>RL</u>	<u>20</u>	<u>F</u>	<u>EN</u>	<u>R100</u>
Product Code	Size	Tolerance	Packaging	Nominal Resistance
RL : Chip Resistor	Power Rating			
20-2010(5025) 3/4W	J- ±5% G- ±2% F- ±1%	E : Embossed Tape +N : Lead-Free	4 Digits e.g.,: (E24) R100=0.1Ω (E96) R255 =0.255Ω	

Remark : E96 series products are customized by customer .

4. Dimensions:



UNIT: mm

Type	L	W	C	d	t
RL20	5.00±0.20	2.50±0.20	0.60±0.30	0.50±0.25	0.55±0.10

5. Ratings & Characteristics :

Characteristics	Feature	Measurement Method
	RL20	
Power Ratings (W)	3/4W	JIS Code 3A / JIS Code 3D
Resistance Value (mΩ)	100~910	Refer to JIS C 5202 5.1
T.C.R (ppm/°C)	±250	Refer to JIS C 5202 5.2
Operation Temperature Range (°C)	-55 ~+125	
Resistance Tolerance (%)	±1, ±2, ±5	JIS C 5201 4.2.5
Insulation Resistance (MΩ)	Over 100	Refer to JIS C 5202 5.6 Mounting condition G
Maximum Working Voltage (V)	$(P \cdot R)^{1/2}$	

Note : Except for the above standardized products, we also provide the customized products.

5.1 Derating Curve :

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

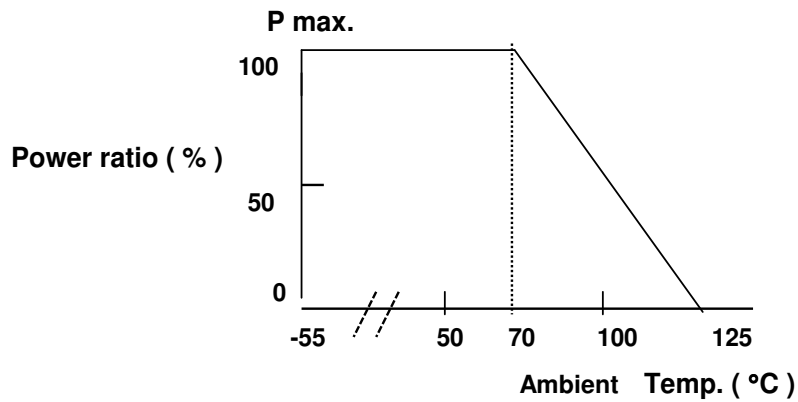


Figure 1

5.2 Rated Voltage:

The rated voltage is calculated by the following formula:

$$E = \sqrt{P * R}$$

E=Rated Voltage(V)

P=Rated Power(W)

R=Resistance Value(Ω)

6. Reliability Tests:(As specified in JIS C 5202)

Test Items	Reference standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	JIS-C5202-5.2	-55 ~ +125 °C	Refer to paragraph 5
Short Time Overload	JIS-C5202-5.5	2.5 X rated voltage, 5s	±2%+0.005 Ω
Load Life	JIS-C5202-7.10	1000 hours at rated power , 70°C , 1.5hours "ON ", 0.5hour "OFF"	±3%+0.001 Ω
Load Life with Humidity	JIS-C5202-7.9	1000 hours at rated power , 40±2°C , 90~95% RH 1.5hours "ON ", 0.5hour "OFF"	±3%+0.001 Ω
Rapid Change of Temperature	JIS-C5202-7.4	-55°C (30 min.) / +125 °C (30 min.) 5 cycles	±1%+0.005 Ω
Resistance to Soldering Heat	JIS-C5202-6.10	270 ±5°C solder , 10 ±1 sec dwell .	±1%+0.005 Ω
Solderability	JIS-C5202-6.11	245±5°C 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.
Robustness of Termination (Bending Strength)	JIS-C5202-6.1	3mm deflection	±1%+0.005 Ω
Resistance to Dry Heat	JIS-C5202-7.2	125±5°C for 96±4hrs	1%: ± (1%+0.005 Ω) 2%,5%:± (2%+0.005 Ω)

Note* :RCWV : Rated continuous working voltage .

7. Marking**7.1 E24 , E96: 1%**

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

e.g., R100 (E24) =100 mΩ , R255 (E96) =255 mΩ

7.2 E24: 2%,5%

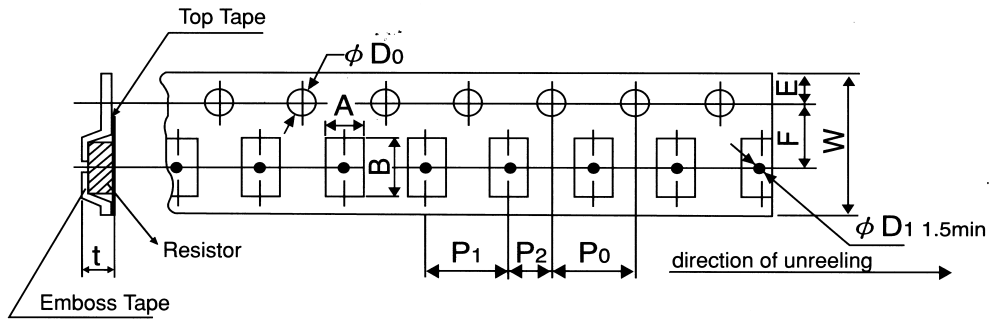
Resistance value is expressed by 3 digits, the first "R" means decimal point and the other digits represent for the normal resistance in Ω .

e.g., R10 =100 mΩ

8. Taping & Reel

8.1 Taping Dimensions

8.1.1 4 mm pitch Emboss

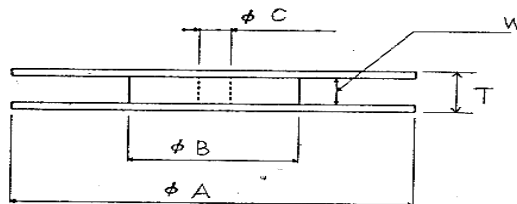
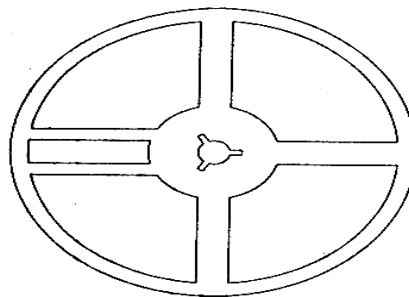


Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Emboss	RL20	2.8±0.2	5.3±0.2	12.0±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	φ 1.5 ^{+0.1} ₋₀	0.85±0.15

UNIT: mm

Type	Size	Emboss Plastic Tape 4 mm pitch
RL	20	4000

8.2 Reel Specifications

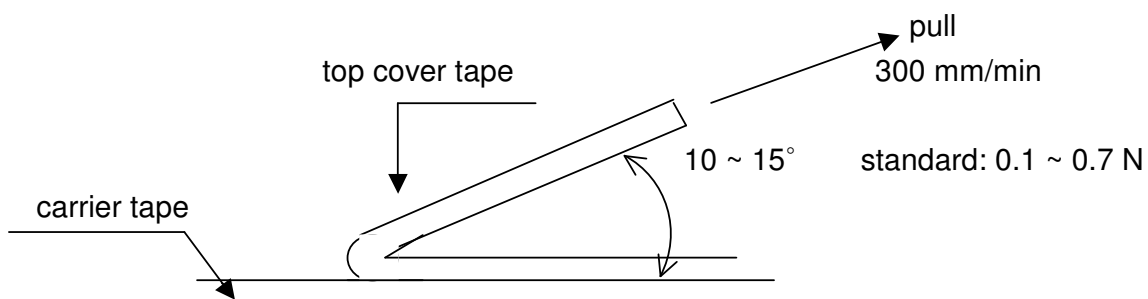


UNIT: mm

Series	ϕA	ϕB	ϕC	W	T
RL 20	178 \pm 2.0	60.0 \pm 1.0	13.0 \pm 1.0	13.0 \pm 1.0	15.5 \pm 1.0

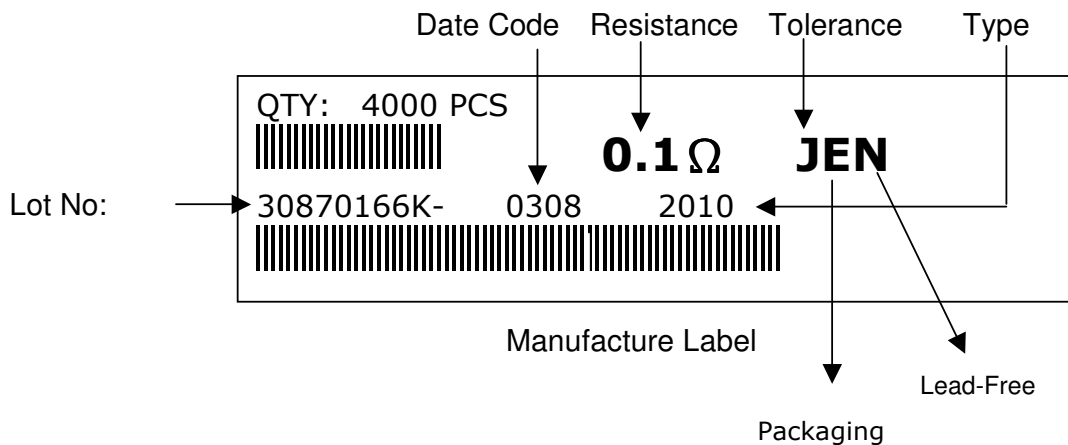
8.3 Peel – off force :

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.

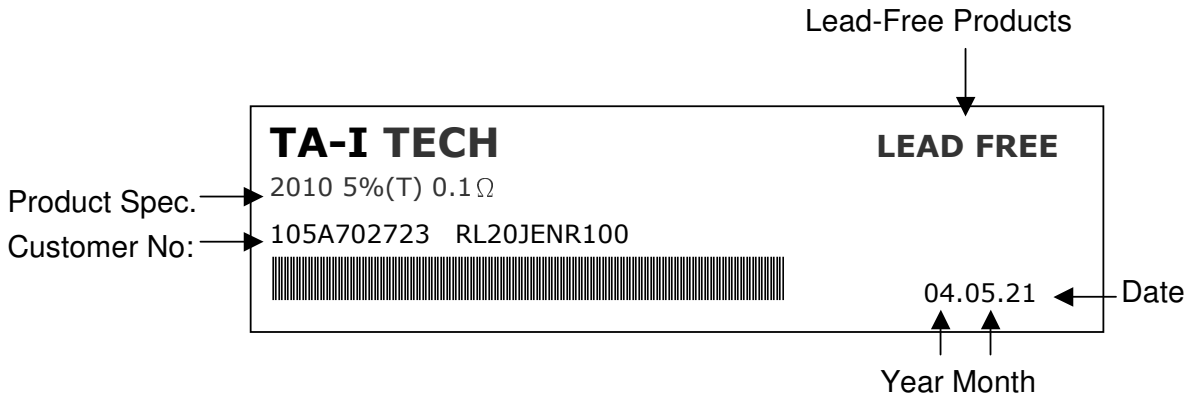


9. Label

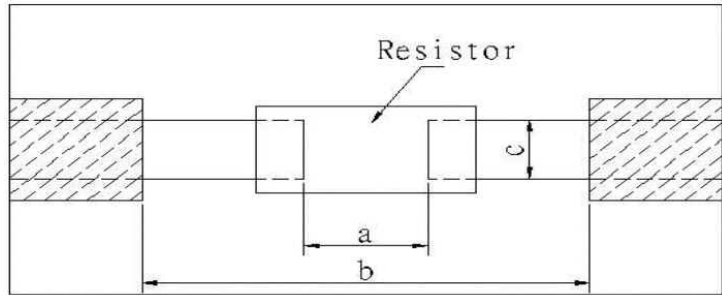
9.1 Manufacture Label :



9.2 Customer Label (By customer request) :

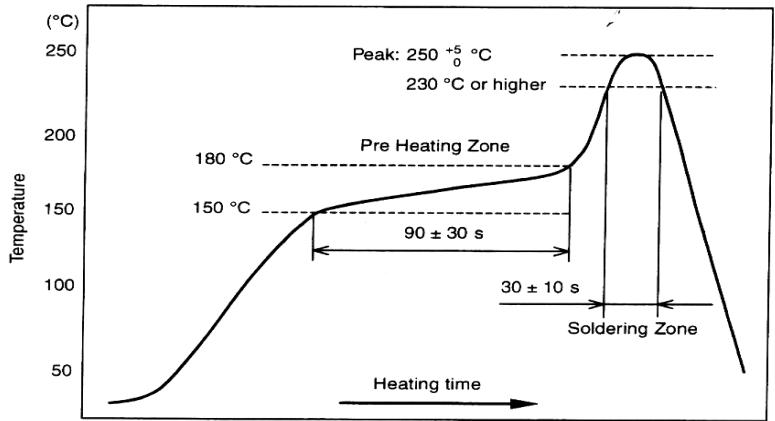


10. Recommended land patterns



Land pattern		Dimension (mm)		
Type	Size	a	b	c
RL	20 (2010)	3.3~3.7	5.7~6.5	2.3~3.5

11. Recommend IR – Reflow profile : (Lead-Free 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±30 sec
 Soldering Zone : 230°C or higher , 30±10 sec

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12. Storage Conditions:

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

13. Shelf Life:

2 years from manufacturing date

14. 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.

15. Manufacturing Country & City :

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

Tel: 886-3-3246169 Fax : 886-3-3246167

Associated companies :

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Tel : 86-769-8339-4790~3 Fax : 86-769-8339-4794

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

Tel : 86-769-8339-4790~3 Fax : 86-769-8339-4794

(3) TA-I TECHNOLOGY (SU ZHOU) CO., LTD. (China – Su Zhou)

Tel :86- 512-63457879 Fax : 86-512-63457869

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

Tel :604- 3900480 Fax : 604-3901481

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

Tel :002-62-21-44820254 Fax : 002-62-21-44820256

TA-I TECHNOLOGY CO., LTD

