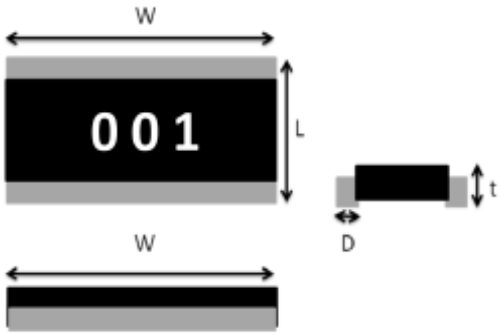
1. Scope

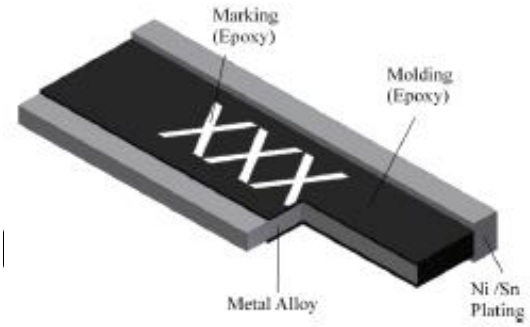
This specification applied to the products of Lead-Free current sensing resistor of metal strip for Lead-Free RLPL series manufactured by TA-I TECHNOLOGY CO.,LTD.

2. Type Designation

RLPL12	F	E	C	M	R001
Series No.	**Tolerance**	**Packaging**	**Power**	**Metal**	**Resistance**
L12：1225	F= ±1% G= ±2% J= ±5%	E= Embossed	C= 1W E= 2W G= 3W	M= MnCu	e.g. R001=1mΩ

3. Construction and Dimension





Series	L	W	D	T
RLPL12	3.20±0.3	6.40±0.30	0.5±0.20	0.9±0.25

UNIT: mm

Marking

For RLPL12

The marking pattern is as follows.

Resistance value is expressed by 3 digits.

E.G.:

001 = 0.001Ω = 1mΩ

010 = 0.010Ω = 10mΩ

*Note: If the marking pattern has underline，it is indicated as a MnCu material

4. Features

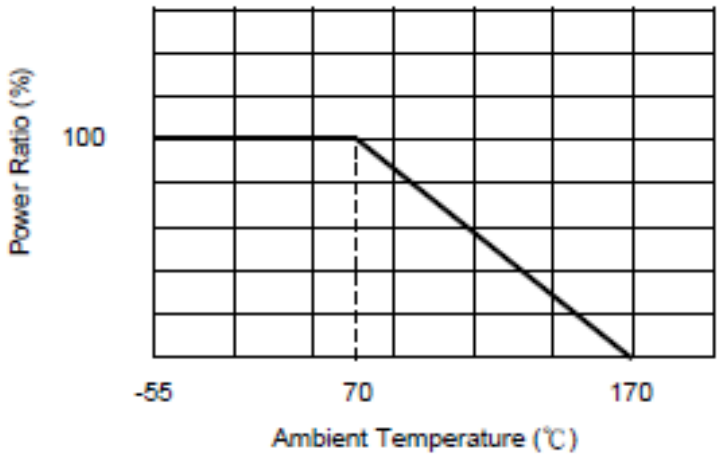
Series	Size	Power (W)	Resistance Value	Operation Temperature Range	TCR	Tolerance
RLPL12	1225	1W 2W 3W	1mΩ	-55℃~+170℃	±75 ppm/℃	±1% ±2% ±5%
			2~55mΩ		±50 ppm/℃	

5. Reliability Tests

Test Items	Reference	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8	+25 ~ 125℃	Refer 4.0
High Temperature Exposure (Storage)	AEC-Q200-REV D-Test 3 MIL-STD202 Method 108	T=170℃,1000hrs, Measurement at 24hrs after test conclusion.	< ±1%
Temperature Cycling	AEC-Q200-REV D-Test 4 JESD22 Method JA-104	1000Cycle (-55℃ to 125℃), Measurement at 24hrs after test conclusion.	< ±0.5%
Short time overload	IEC60115-1 4.13	5 X rated power for 5s.	< ±0.5%
Moisture Resistance	AEC-Q200-REV D-Test 6 MIL-STD-202 Method 106	T=24 hours / Cycle ,10 Cycles. Notes: Steps 7a& 7b not required. Unpowered.	< ±1%
Biased Humidity	AEC-Q200-REV D-Test 7 MIL-STD-202 Method 103	10% Rated power at 85℃, RH:85% ,1000Hrs, Measurement at 24hrs after test conclusion.	< ±0.5%
Operation life	AEC-Q200-REV D-Test 8 MIL-STD-202 Method 108	1000 hours TA=125℃ at 45% rated power. Measurement at 24±4 hours after test conclusion.	< ±1%
External Visual	AEC-Q200-REV D-Test 9 MIL-STD-883 Method 2009	Electrical test not required. Inspect device construction, marking and workmanship.	
Physical Dimension	AEC-Q200-REV D-Test 10 JESD22 Method JB-100	Verify physical dimensions to the applicable device detail specification. Note: User(s) and Suppliers spec. Electrical test not required.	

Resistance to Solvents	AEC-Q200-REV D-Test 12 MIL-STD-202 Method 215	a: Isopropyl Alcohol：Mineral Spirits = 1：3 b: Terpene Defluxer (Bioact EC-7R). c: Deionized water ：Propylene Glycol Monomethyl Ether：monoethanolamine = 42：1：1	Marking and protective layer cannot be detached
Resistance to Soldering Heat	AEC-Q200-REV D-Test 15 MIL-STD-202 Method 210	T=260+/-5℃ solder,10+/-1 sec dwell.	< ±0.5%
Mechanical Shock	AEC-Q200-REV D-Test 13 MIL-STD-202 Method 213	100g's, Normal duration is 6ms, half sine shock pulse.	< ±0.5%
Resistance to vibration	AEC-Q200-REV D-Test 14 MIL-STD-202 Method 204	5g's for 20min.12cycles, 10-2000Hz.	<±0.5%
Board Flex	AEC-Q200-REV D-Test 21 AEC-Q200-005	Min 2mm deflection ,60sec.	< ±0.5%
Flammability	AEC-Q200-REV D-Test 20 UL-94	V-0 or V-1are acceptable, Electrical test not required.	V-0
Thermal Shock	AEC-Q200-REV D-Test 16 MIL-STD-202 Method 107	-55°C/+155°C. Note: Number of cycles required-300, Maximum transfer time-20 seconds, Dwell time-15 minutes. Air-Air.	< ±1.0%
ESD	AEC-Q200-REV D-Test 17 AEC-Q200-002 or ISO/DIS 10605	verify the voltage setting at 500V.	< ±1.0%
Solderability	AEC-Q200-REV D-Test 18 J-STD-002	Method B, aging 4 hours at 155 °C dry heat Lead-free solder bath at 235±3 °C Dipping time: 3±0.5 seconds.	> 95% area covered with tin
Terminal Strength (SMD)	AEC-Q200-REV D-Test 22 AEC-Q200-006	Force of 1.8kg for 60 seconds. Remarks: 0201-NA	< ±1.0%

5.1 Derating Curve



5.2 Rated Current

The rated current is calculated by the following formula:

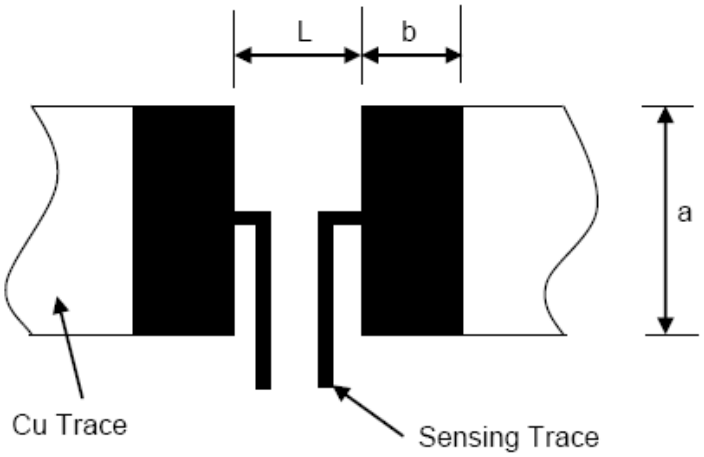
$$I = \sqrt{P \div R}$$

I: Rated Current (A)

P: Rated Power (W)

R: Resistance Value (Ω)

6. Recommended Solder Pad Dimension



Type	Resistance Range (mΩ)	a	b	L
RLPL12	1~55	7.0±0.1	1.0±0.1	2.3±0.1

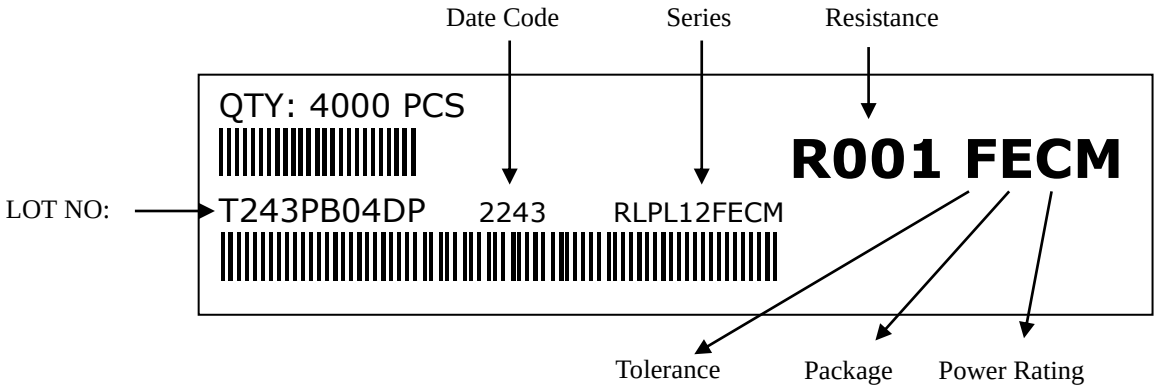
Note: *The copper foil minimum thickness of PCB needs 3 oz

Unit: mm

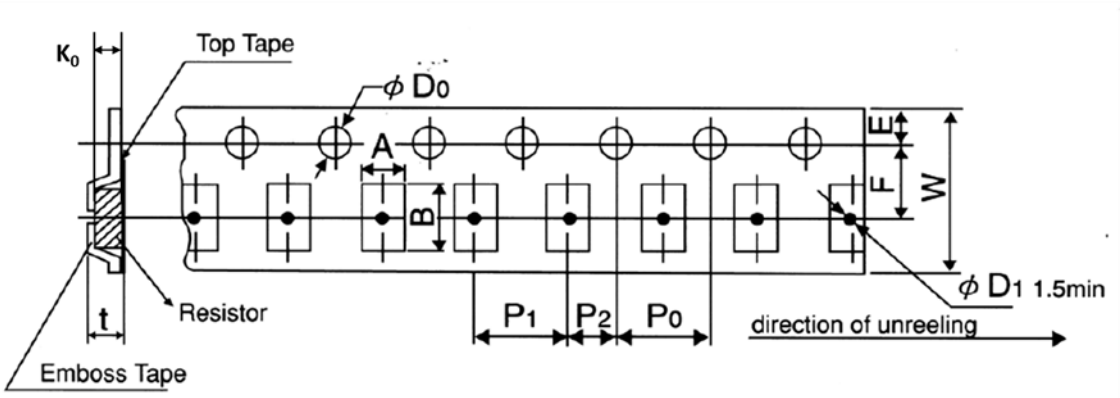
7. Number of Package

Series	RLPL12
Pieces	4000

8. Label



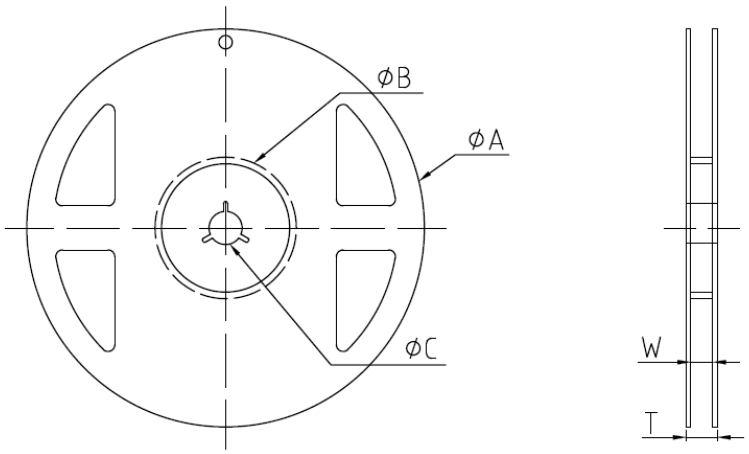
9. Packaging



Packing	Type	A	B	W	E	F	P_1	P_2	P_0	ϕD_0	K_0	t
Emboss	RLPL12	3.60	6.90	12.00	1.75	5.50	4.0	2.0	4.0	ϕ 1.5	1.0	1.2
	Tolerance	±0.20	±0.20	±0.20	±0.10	±0.05	±0.1	±0.05	±0.05	+0.1/-0	±0.15	±0.15

Unit: mm

10. Reel Specification

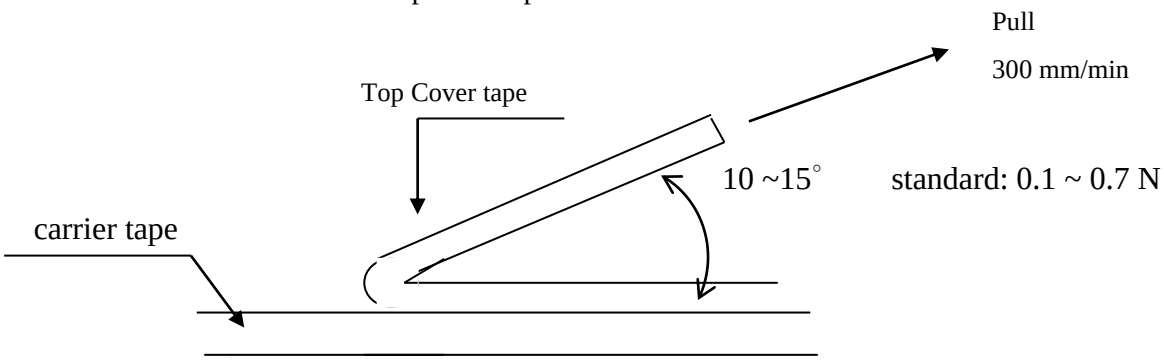


Series	ϕA	ϕB	ϕC	W	T
RLPL12	178 ±2.0	60.0 ±1.0	13.0 ±1.0	13 ±1.0	15.4 ±1.0

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

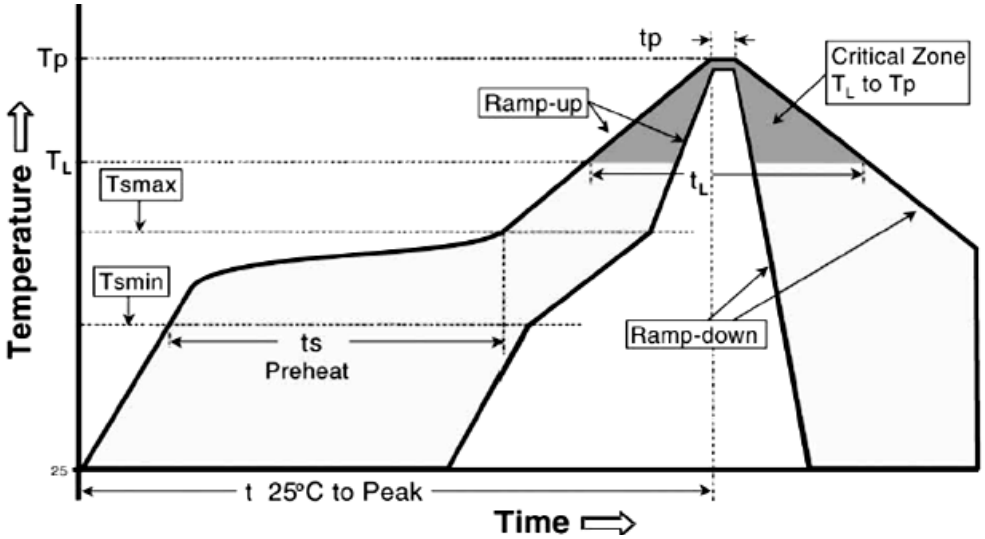
Temperature: 5℃~35℃, Humidity:40%~75%

Humidity storage level: Level 1

13. Shelf Life

2 years from manufacturing date.

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



Alloyed Re-flow times: 3 times

Remark: To avoid discoloration phenomena of chip on terminal electrodes, please use N2 Re-flow furnace.

Iron Solder:350±10℃, 3+1/-0 sec,1 time

Profile Feature	Lead (Pb)-Free Assembly
Average ramp-up rate (Tsmax to Tp)	3℃ / second max
Preheat - Temperature Min (Tsmin) - Temperature Max (Tsmax) - Time (Tsmin to Tsmax) (ts)	 150℃ 200℃ 60 -120 seconds
Time maintained above: - Temperature (TL) - Time (TL)	 217℃ 60-150 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.

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

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

Tel: (+886) 3-3246169 Fax: (+886) 3-3246167

Associated companies

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

Tel :(+86) 512-63457879 Fax: (+86) 512-63457869

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

Tel : (+86) 769-8339-4790～3 Fax : (+86) 769-8339-4794

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

Tel : (+86) 769-8339-4790～3 Fax : (+86) 769-8339-4794

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

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

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

Tel: (+62)-21-89830123 Fax: (+62)-21-89830703

单击下面可查看定价，库存，交付和生命周期等信息

>>TA-I(大毅)