



Lead-Free Current Sensing Resistors
RLM Series
AEC-Q 200-Ver D qualified

Document No	TRLM-200S014C
Issued date	2016/09/28
page	1/6

1. Scope :

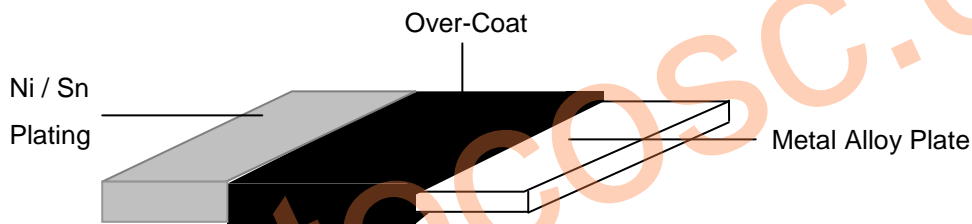
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free RLM series manufactured by TA-I TECHNOLOGY CO., LTD.

2. Type Designation :

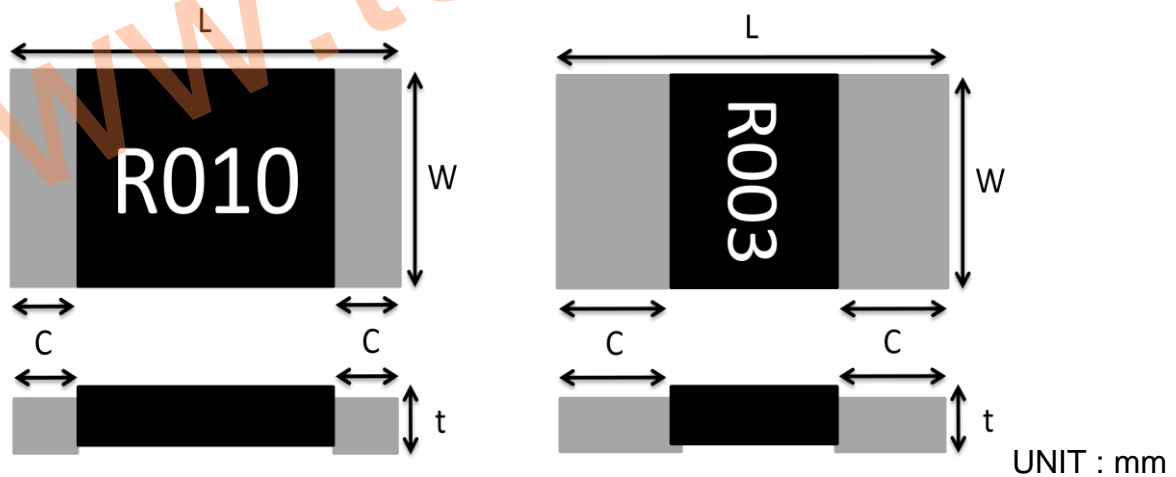
<u>RLM</u> Item	<u>20</u> Series No	<u>F</u> Resistance tolerance	<u>E</u> Packaging	<u>C</u> Power Rating	<u>R010</u> Resistance
	20:2010 (5025)	F:±1% G:±2% J:±5%	E: Embossed Tape	I=3/4W D=3/2W S=1/2W C=1W	e.g : R010=10mΩ

3. Construction and Dimension :

3.1 Construction:



3.2 Dimension:



Style	L	W	C	T	Material
RLM20	5.0±0.2	2.5±0.2	1.5±0.3(≤3mΩ)	0.60 ±0.20	Strip : Alloy Over Coating : Polymer Compound UL-94V-0 grade
			0.6±0.3(R>3mΩ)		



Lead-Free Current Sensing Resistors
RLM Series
AEC-Q 200-Ver D qualified

Document No	TRLM-200S014C
Issued date	2016/09/28
page	2/6

4. Features:

Type	RLM20
Power Rating	3/2W、3/4W、1/2W、1W
Resistance Value	2~50mΩ
Operation Temperature Range	-55℃~+170℃
Temperature Coefficient of Resistance	±50ppm/℃
Tolerance	±1%,±2%,±5%
Insulation Resistance	Over 100MΩ
Maximum Working Voltage(V)	(P*R) ^{1/2}

5. Reliability Tests :

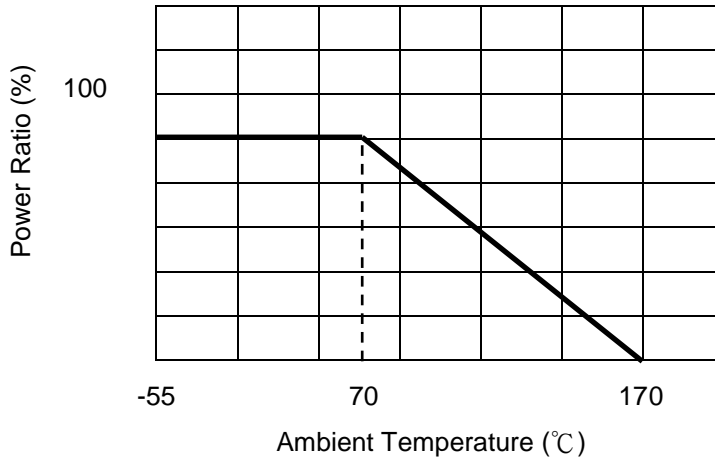
Test Items	Reference	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC60115-1 4.8	+25 ~ 125℃	Refer 4.0
High Temperature Exposure(Storage)	MIL-STD-202 Method 108	T=125℃,1000hrs,Measurement at 24hrs after test conclusion.	< ±1%
Low temperature operation	IEC60115-1 4.23.4	-55 °C for 45 min	< ±0.5%
Temperature Cycling	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%
Biased Humidity	MIL-STD-202 Method 103	10% Rated voltage at 85℃,RH:85% ,1000Hrs, Measurement at 24hrs after test conclusion.	< ±0.5%
Operation life	MIL-STD-202 Method 108	1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	< ±1%
Resistance to Soldering Heat	IEC60115-1 4.18	T=260+/-5℃ solder,10+/-1 sec dwell	< ±0.5%
Mechanical Shock	MIL-STD-202 Method 213	100g's , Normal duration is 6ms , half sine shock pulse	< ±0.5%
Resistance to vibration	MIL-STD-202 Method 204	5g's for 20min.12cycles, 10-2000Hz	<±0.5%
Board Flex	AEC-Q200-005	Min 2mm deflection ,60sec.	< ±0.5%
Flammability	UL-94	V-0 or V-1are acceptable, Electrical test not required	



Lead-Free Current Sensing Resistors
RLM Series
AEC-Q 200-Ver D qualified

Document No	TRLM-200S014C
Issued date	2016/09/28
page	3/6

5.1 Derating Curve



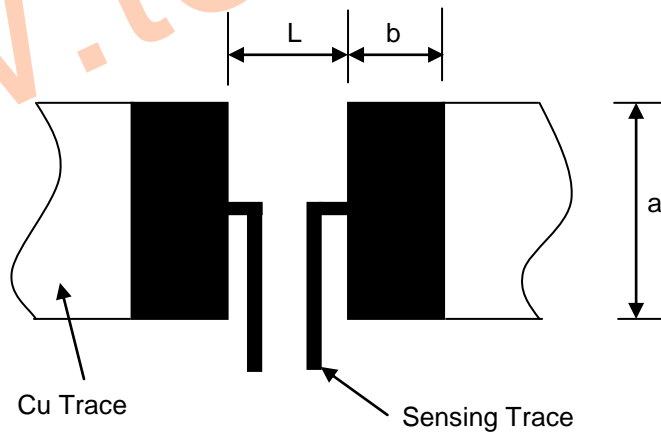
5.2 Rated Voltage

The rated voltage is calculated by the following formula:

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

V: Rated Voltage (V)
P: Rated Power (W)
R: Resistance Value (Ω)

6. Recommended Solder Pad Dimension



Resistance Range (Ω)	a	b	L
0.002-0.003	3.4±0.2	3.5±0.2	2.0±0.2
0.004-0.050	3.4±0.2	1.5±0.2	3.5±0.2

Unit: mm



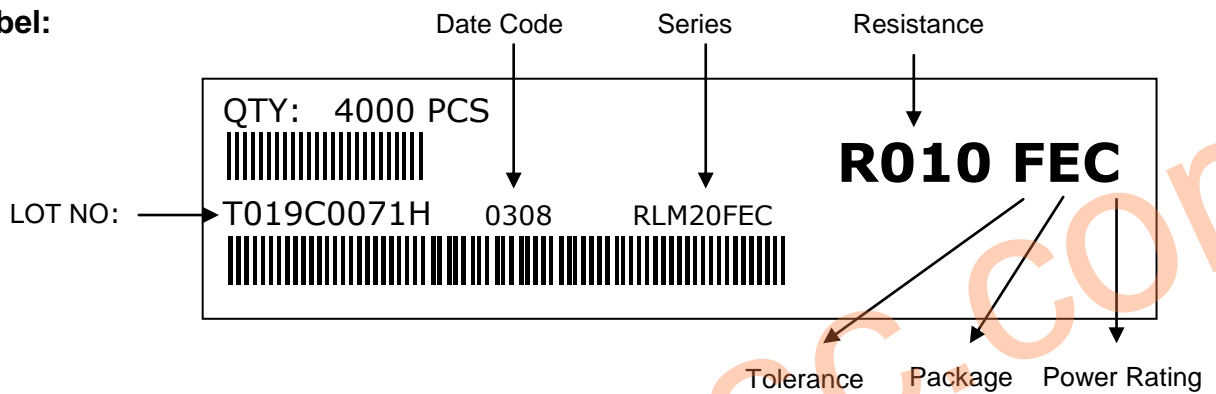
Lead-Free Current Sensing Resistors
RLM Series
AEC-Q 200-Ver D qualified

Document No	TRLM-200S014C
Issued date	2016/09/28
page	4/6

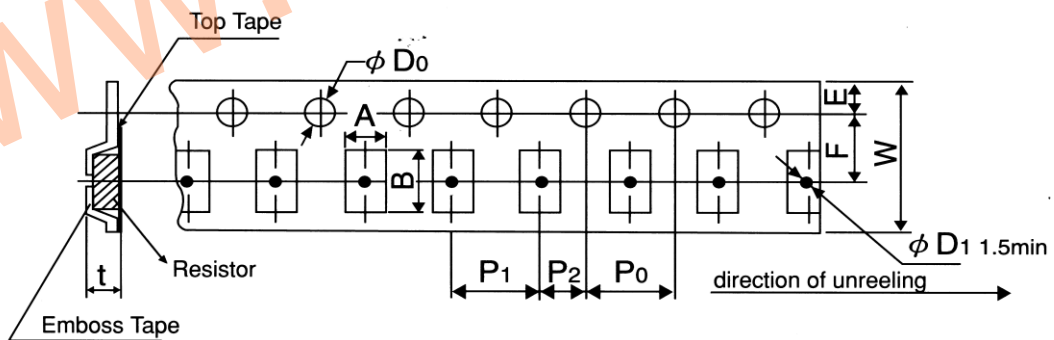
7. Number of Package:

4000 Pieces / package

8. Label:



9. Taping



Packing	Type	A	B	W	F	E	P_1	P_2	P_0	D_0	T
Emboss	RLM20	2.8±0.2	5.3±0.2	12.±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	$\phi 1.5$ (+0.1/-0.1)	0.85±0.15

Unit: mm



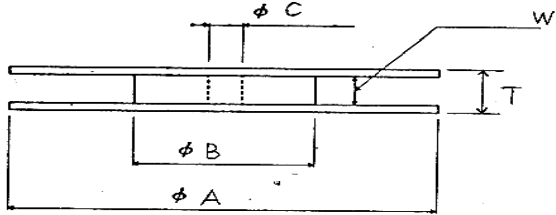
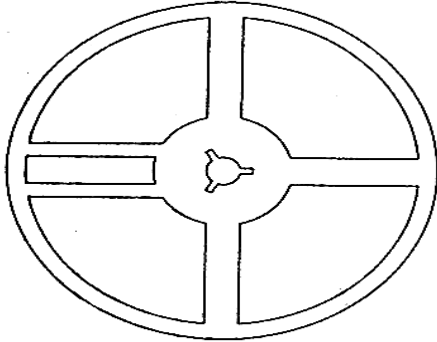
Lead-Free Current Sensing Resistors
RLM Series
AEC-Q 200-Ver D qualified

Document No TRLM-200S014C

Issued date 2016/09/28

page 5/6

10. Reel Specification

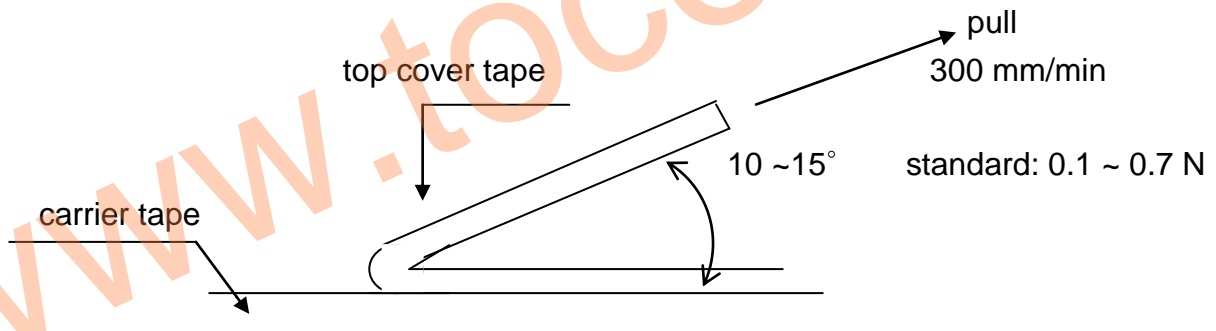


Series	ϕA	ϕB	ϕC	W	T
RLM 20	178.0 \pm 2.0	60.0 \pm 1.0	13.0 \pm 1.0	13.0 \pm 1.0	15.5 \pm 1.0

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°C ~35°C, Humidity: 40% ~75%

13. Shelf Life:

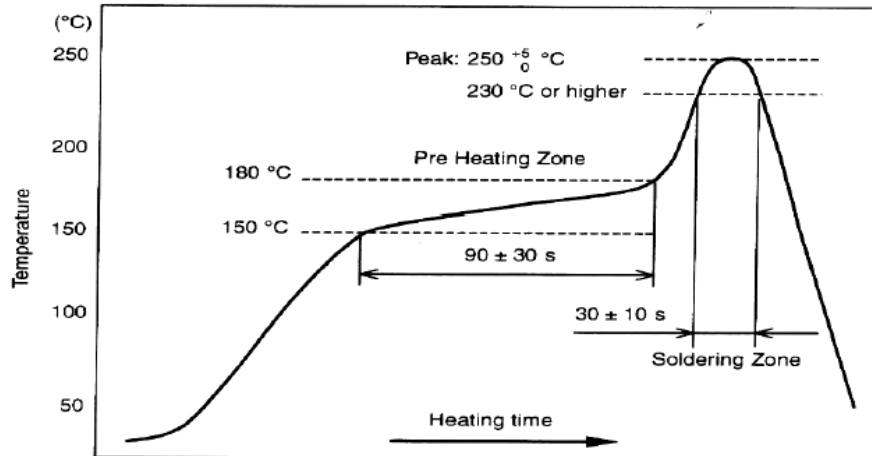
2 years from manufacturing date.



Lead-Free Current Sensing Resistors
RLM Series
AEC-Q 200-Ver D qualified

Document No	TRLM-200S014C
Issued date	2016/09/28
page	6/6

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



Peak : 260 ± 5 °C , 10±1 sec

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

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

Iron Solder: 350 ± 10 °C , 3+1/-0 sec

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) 21-44820254 Fax : (+62) 21-44820256