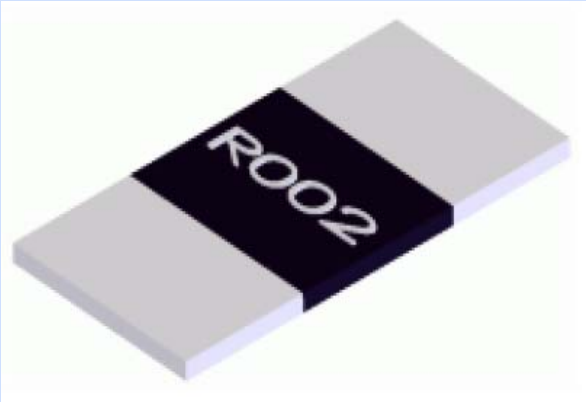
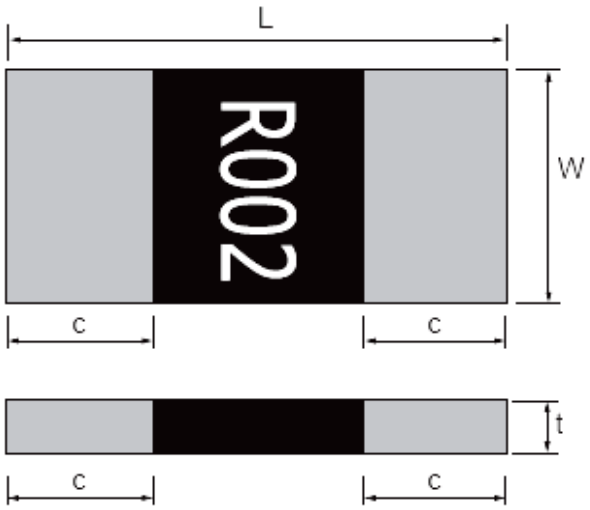
RLM Series

Current Sensing Chip Resistors (Halogen Free)

TRIGON
COMPONENTS

Resistor





FEATURES

- **Ultra low resistance (down to 1mΩ), suitable for large current detecting**
- **Extremely low TCR**
- **Over coating: Molding compound UL-94V-0 grade**
- **RoHS Compliant**

ORDERING CODE

RLM 2512 F R015 T C
(1) (2) (3) (4) (5) (6)

(1) Series Name

(2) Size
2512 (6432) mm
1206 (3216) mm

(3) Resistance tolerance
F: ±1%
G: ±2%
J: ±5%

(4) Resistance
e.g.: R002=2mohm

(5) Packing Style
E: Embossed Tape

(6) Power Rating
A: 1/4W S: 1/2W
C: 1W E: 2W

※Please refer to complete Ordering Code document (RLM-Ord) for more ordering options.

Dimensions Table

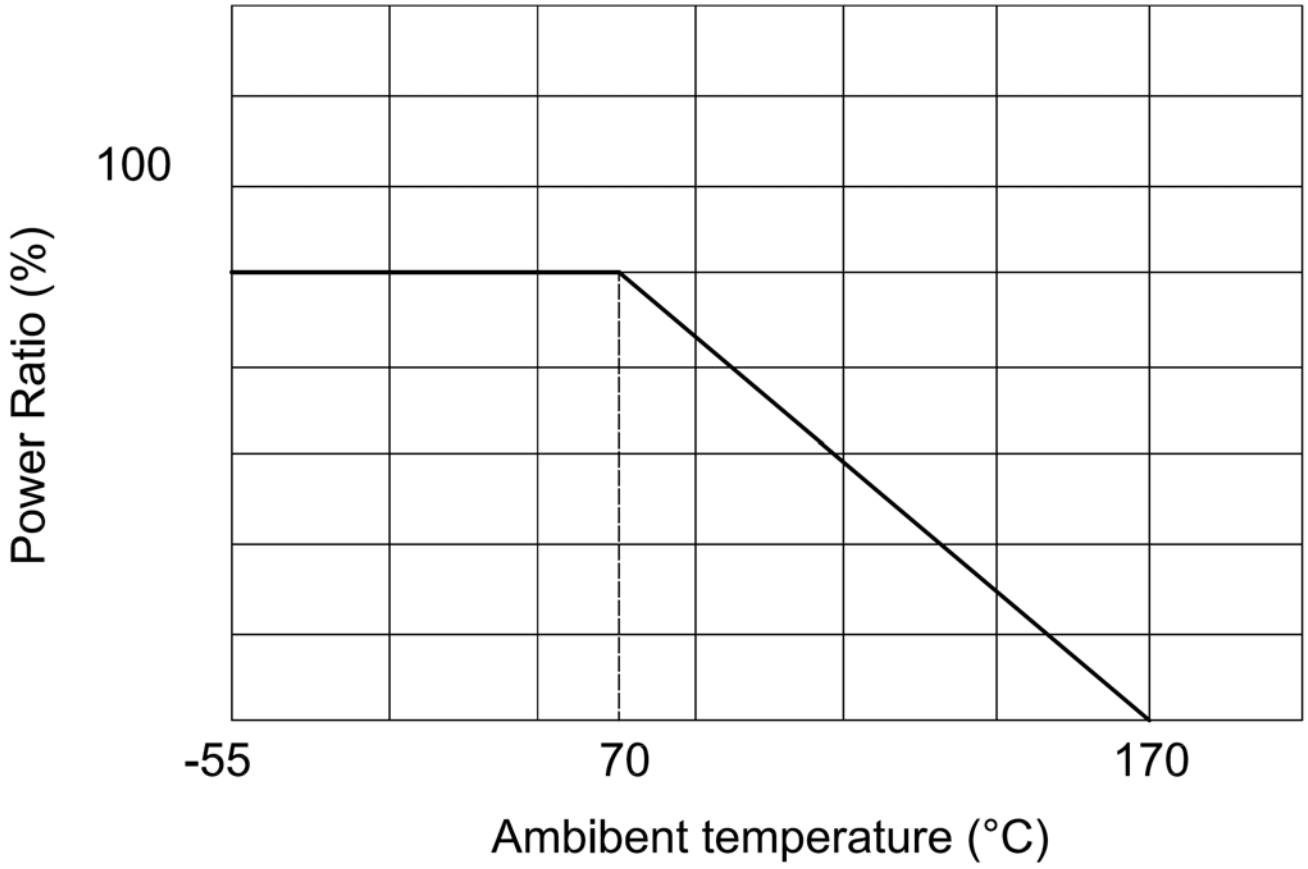
Style	L	W	C	t	Material
RLM2512	6.4±0.2	3.2±0.2	2.0±0.2 (R<=2mΩ) 0.9±0.2 (R>2mΩ)	0.6±0.20	Metal: Copper-Nickel Alloy or Copper-Manganese Alloy Over Coating: molding compound UL-94 grade
RLM1206	3.2±0.2	1.6±0.2	0.5±0.3	0.6±0.20	Metal: Copper-Manganese Alloy Over Coating: molding Compound UL-94 grade

Electrical Characteristics

Type	RLM	
Power Rating	1&2 W (1W: R=1~50mΩ) (2W: R<=10mΩ) 1/2W&1/4W	
Resistance Value	1~50mΩ	
Operation Temperature Range	-55°C~+170°C	
Temperature Coefficient of Resistance	± 275ppm/°C	R<=1mΩ
	± 100ppm/°C	1mΩ<R<=10mΩ
	± 75ppm/°C	R>10mΩ
Tolerance	±1%,±2%,±5%	
Insulation Resistance	Over 100MΩ	
Maximum working Voltage(V)	$(P*R)^{1/2}$	

Note*: 1Watts with total solder pad and trace size of $300mm^2$

Derating Curve



Reliability Tests

Test Items	Test Condition	Test Limits
Temperature Coefficient of Resistance	+25 °C ~ +125°C	Refer Electrical Characteristics
Load Life	1000 hours at rated power, 70°C, 1.5 hours “ON”, 0.5hour ”OFF”	± 1.0 %
Short Time Overload	5X rated power for 5s	± 0.5 %
Moisture no Load	85°C, 85%RH, 1000hrs	± 0.5 %
Temperature Cycle	-40 °C&+125 °C, 1000cycle, 15min per extreme condition	± 0.5 %
Resistance to Soldering Heat	260 ± 5 °C, 10± 1sec	± 0.5%
Solderability	245 ± 5 °C, 2± 0.5 sec	At least 95% of surface area of electrode shall be covered with new solder
High Temperature Exposure	170°C, 1000hrs	± 0.5 %
Low Temperature Storage	-55 °C, 1000hrs	± 0.5 %
Substrate Bending	Bending width 2mm, Epoxy thickness 1.6mm, Fulcrums distance 90mm	± 1.0%
Insulation Resistance	100V DC for 1 minute	>100MΩ

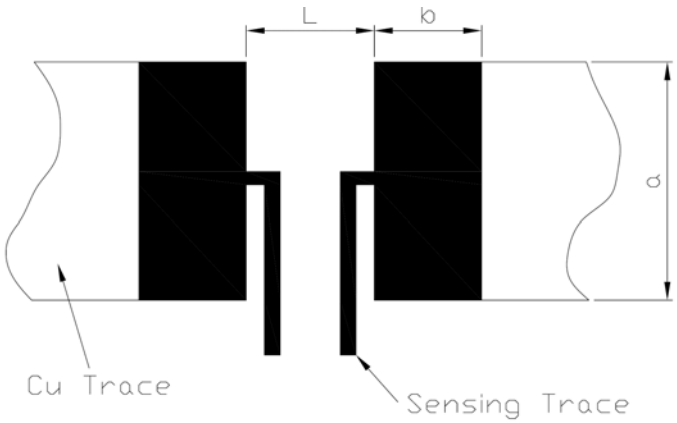
Rated Voltage

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)

Recommended Solder Pad Dimension



Unit: mm

Resistance Range (Ω)	a	b	L
0.005 ~ 0.030	1.8	1.9	1.4

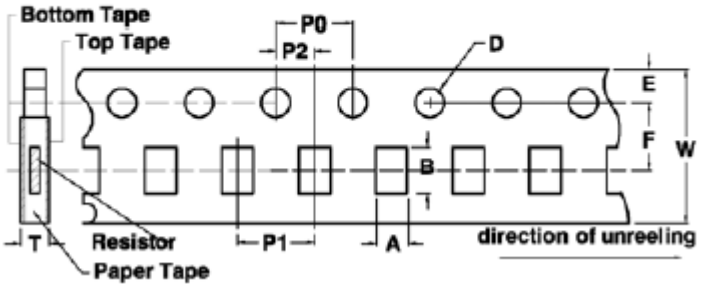
Number of Package: 5000Pieces / package

Marking

Item	Tolerance	Series	Marking
RLM-2512 & 1206	± 1%, ± 2%,,± 5%,	Non-E24/E96 series	4 digits marking

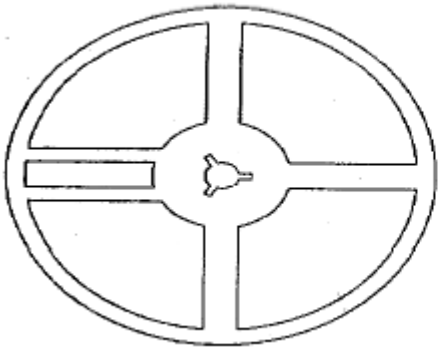
Tape and Reel Package

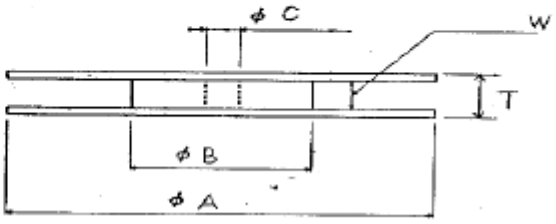
Paper Tape



Paper tape: in mm

Packing	Type	A	B	W	F	E	P1	P2	P0	D0	T
Emboss	RLM2512	3.6+0.2/-0.18	6.9±0.2	12 ±0.2	5.5±0.05	1.75±0.1	4.0 ±0.1	2.0 ±0.5	4.0±0.5	∮ 1.5 (+0.1/-0)	0.85±0.15
Emboss	RLM1206	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±0.05	4..0±0.1	∮ 1.5 (+0.1/-0)	0.84±0.1



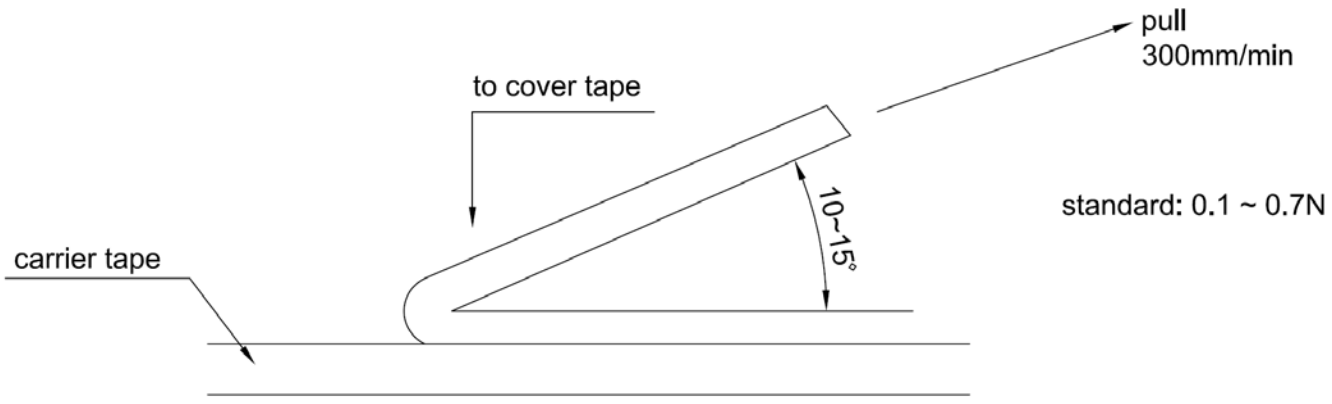


Tape and Reel Size: in mm

Type	A	B	C	W	T
RLM2512	180 +0/-3	60.0mm	13.0 ± 1.0	13.0 ± 1.0	15.4 ± 2.0
RLM1206	178 ± 2.0	60.0 ± 1.0	13.0 ± 1.0	9.0 ± 1.0	11.5 ± 1.0

Peeling Strength of Top Cover Tape:

Test Condition: 0.1 to 0.7N at a peel-off speed of 300mm/min.



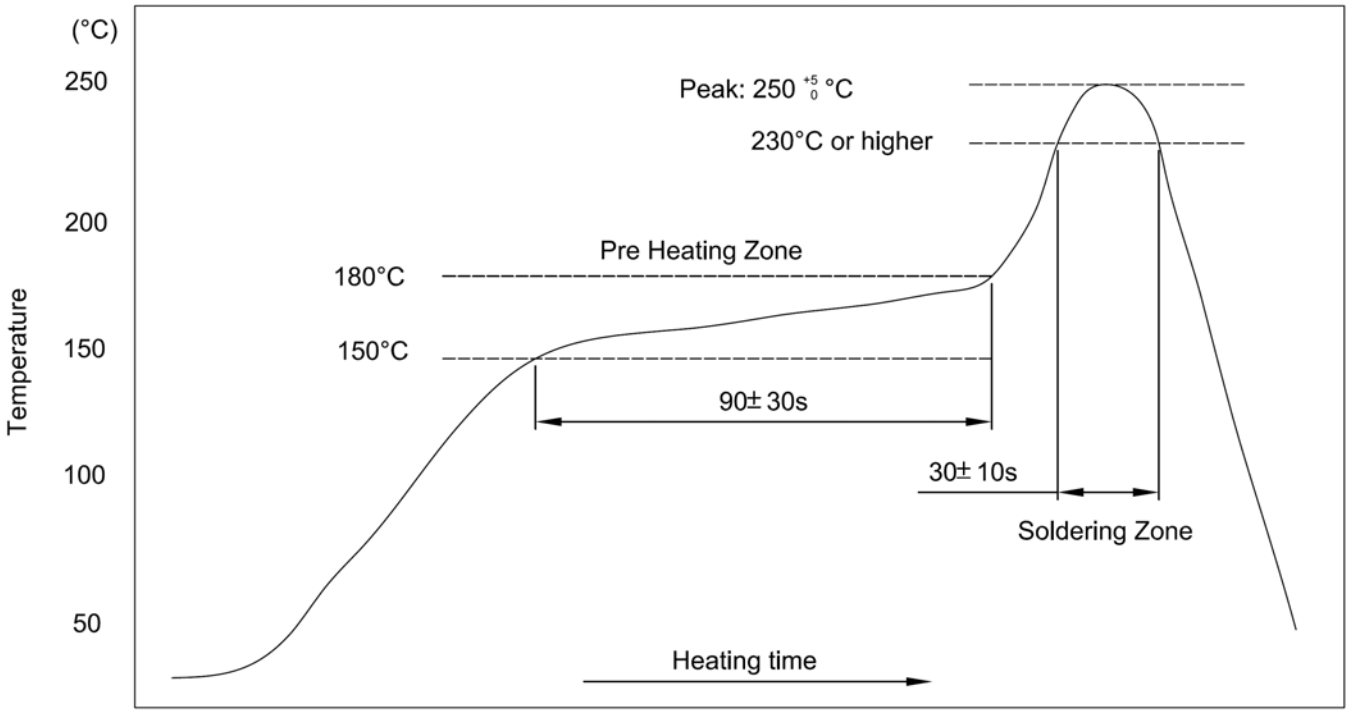
Storage Conditions:

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

Shelf Life:

2 years from manufacturing date.

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



Peak: 250 $^{+5}_{-0}$ ℃, 5sec

Pre – heat zone: 150 to 180℃, 90±30sec
Soldering zone: 230℃ or higher, 30±10sec

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.