1/2W 1632L TYPE Low Resistance Chip Resistor

1. Scope

This specification applies to 1.6mm x 3.2mm size 1/2W, fixed metal film chip resistors rectangular type for use in electronic equipment.

2. Type Designation

RL1632 L - □□□□ - □ N
(1) (2) (3) (4) (5)

Where (1) Series No.

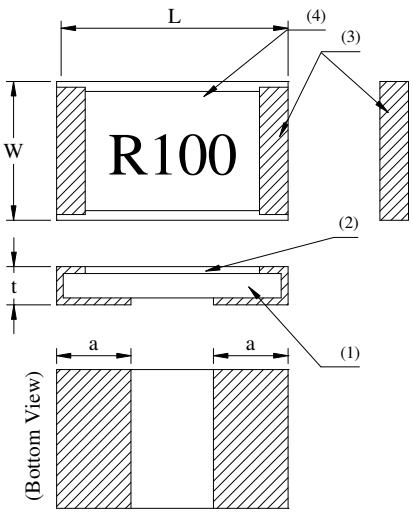
(2) L = L Type

(3) Resistance value :
For example - -
R047 = 47mΩ
R150 = 150mΩ
The " R " shall be used as a decimal point.

(4) Resistance value :
F = ± 1%
G = ± 2%

(5) N = Sn plating (Lead free , RoHS compliant)

3. Outline Designation



(1) Substrate	Alumina 96%
(2) Resistor	Ni-alloy
(3) Terminals	Sn (on Cu)
(4) Protection coat	Heat resistive epoxy resin
(5) Marking	Epoxy resin

Code Letter	Dimensions (mm)
	RL1632L
L	3.2 ± 0.20
W	1.6 ± 0.20
a	1.0 ± 0.15
t	0.5 ± 0.15

Figure 1. Construction and Dimensions

4. Ratings

4-1 Specification

Power Ratings *	1/2 W
Resistance Value	0.15Ω < R ≤ 2.7Ω
Resistance Tolerance	±1% (F)、±2% (G)
Temperature Coefficient of Resistance	± 100ppm/℃

Note *：

Power ratings is based on continuous full load operation at rated ambient temperature of 70℃. For resistors operated at ambient temperature in excess of 70℃, the maximum load shall be derated in accordance with the following curve.

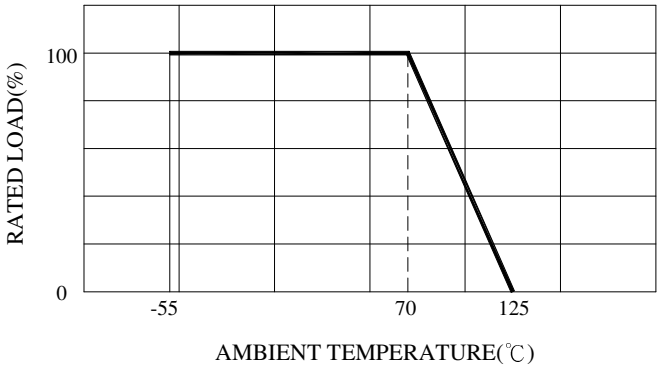


Figure 2.：Power Temperature Derating Cure

4-2 Maximum over current

$I = \sqrt{\langle P/R \rangle}\,[A]/10ms$ Where I : maximum current

P : 32W (10mΩ ~ 470mΩ)
18W (560mΩ ~ 2.7Ω)
R : Nominal resistance value (Ω)
Interval 60 seconds minimum

If maximum current so obtained exceed than 32A , use 32A as maximum current.

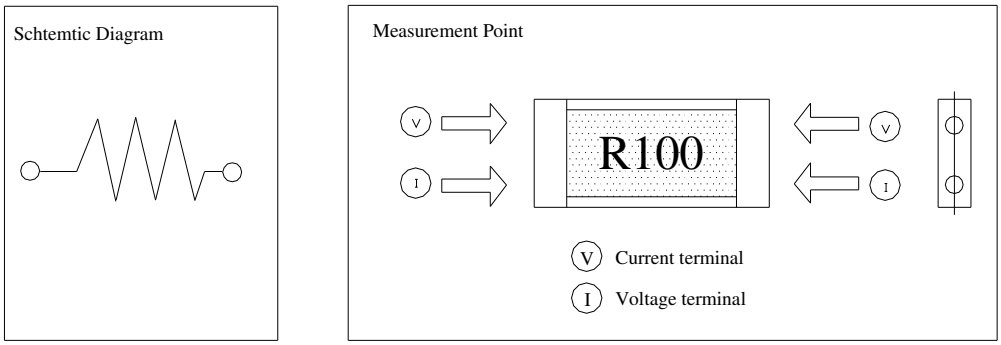
4-3 Operation Temperature

-55℃ to +125℃

5. Marking

Resistance value is marked on the top surface. Ex.) 47mΩ → R047
2.7Ω → 2R70

6. Schematic Diagram. Measurement Point



7. Characteristics

7-1 Electrical

7-1-1 Short Time Overload

Resistance Change : ± (0.5% + 0.0005Ω)

Without significant damage by flashover (spark, arching), burning or breakdown etc.

Test voltage : 2.5 times the rated voltage.

Duration : 5 seconds

7-1-2 Insulation Resistance

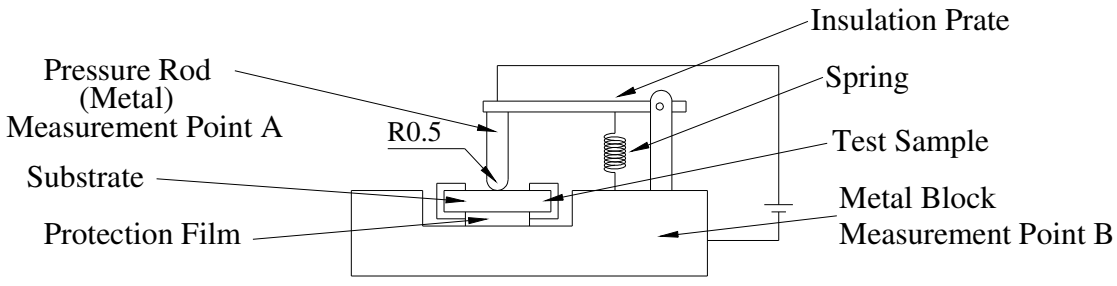
(1) Between Electrode and Protection Film
100MΩ or over

(2) Between Electrode and Substrate
1,000MΩ or over

The resistor shall be cramped in the metal block and tested , as shown below.

Test voltage : 100 ± 15V_{DC} for 1 minute

Refer to JIS C 5202 5.6 Mounting condition G.



7-2 Mechanical

7-2-1 Solderability

A new uniform coating of solder shall cover minimum of 95% of the surface being immersed.

Temperature of solder : 245 ± 5℃

Immersion duration : 3 ± 0.5 seconds

7-2-2 Resistance to Soldering Heat

Resistance change : ± (0.5% + 0.0005Ω)

Electrical characteristics shall be satisfied.

Without distinct deformation in appearance

Dipped into solder for 10 ± 1 seconds at 270 ± 5℃

7-2-3 Substrate bending

Resistance change : ± (0.5% + 0.0005Ω)

Without mechanical damage such as breaks.

Electrical characteristics shall be satisfied.

Glass-Epoxy bard t = 1.6mm

Bending value : 2mm

Between the fulcrums : 90mm

7-3 Endurance

7-3-1 Rapid change of temperature

Resistance change : ± (0.5% + 0.0005Ω)

Without distinct damage.

Perform 5 cycles as follows :

-55℃ for 30minutes → room temperature for 3 minutes

→ +125℃ for 30minutes → room temperature for 3 minutes

7-3-2 Endurance at 70℃

Resistance change : ± (0.5% + 0.0005Ω)

Without distinct damage.

Rated voltage for 1.5 hours followed by a pause 0.5 hour at a temperature of 70 ± 3℃.

Cycle shall be repeated for 1,000 hours.

7-3-3 Dump heat with load

Resistance change : ± (0.5% + 0.0005Ω)

The marking shall be legible.

60 ± 2℃ with relative humidity of 90% to 95%.

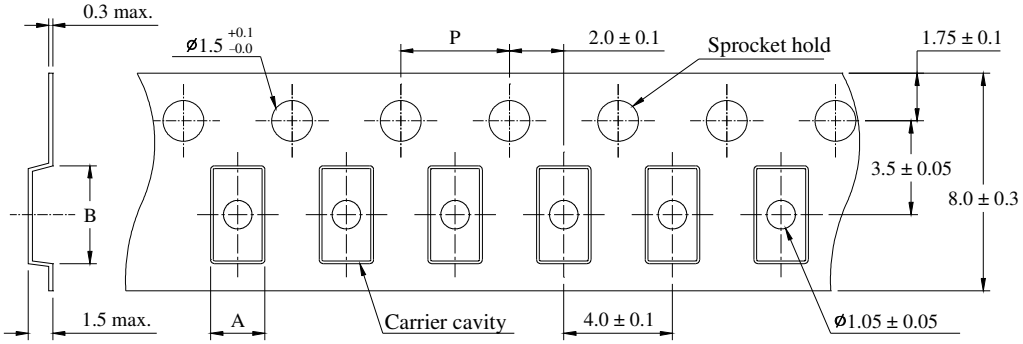
D.C. rated voltage for 1.5 hours ON 30 minutes OFF.

Cycle shall be repeated for 1,000 hours.

8. Packaging

8-1 Dimensions

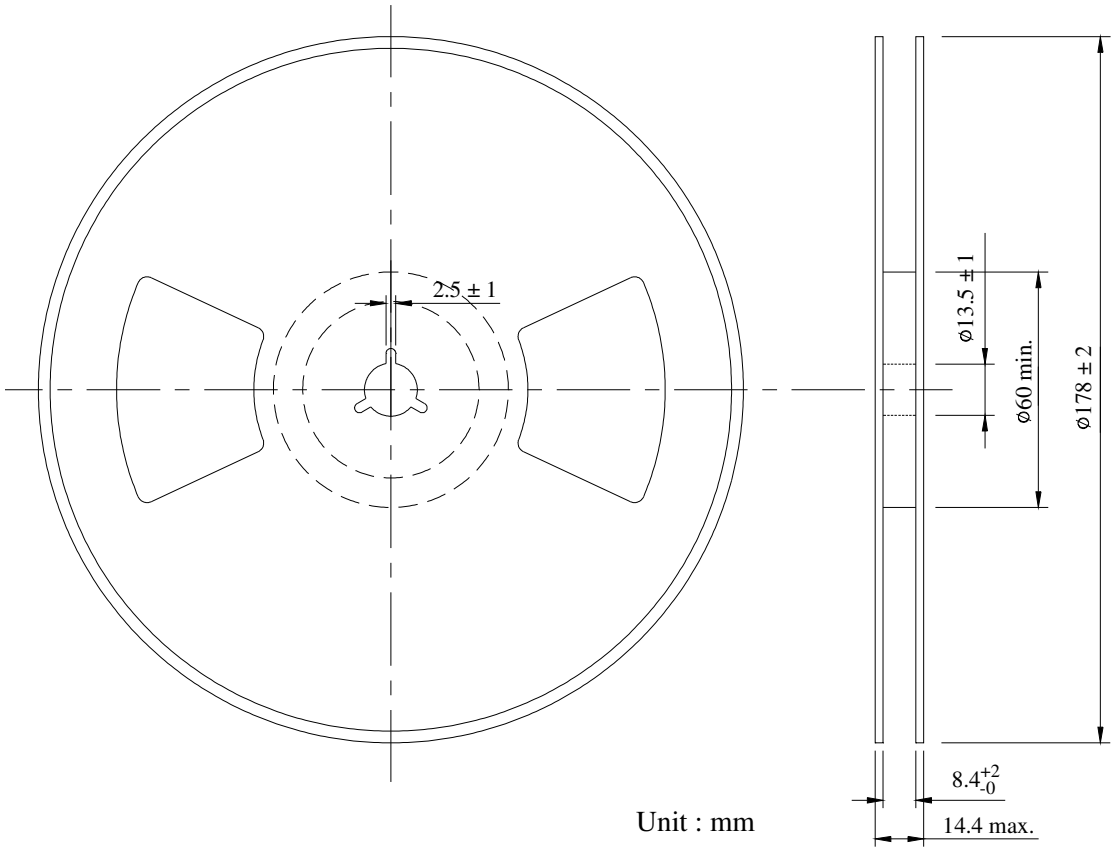
8-1-1 Tape packaging dimensions



A = 2.0 ± 0.2
B = 3.6 ± 0.2
P(PITCH) = 4.0 ± 0.1

Unit : mm

8-1-2 Reel dimensions

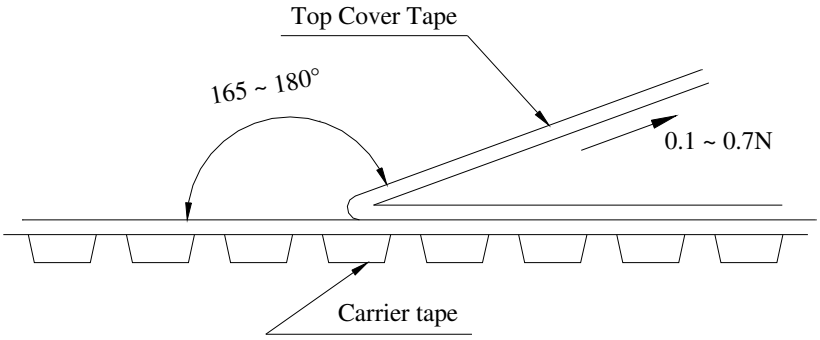


Unit : mm

8-2 Peel Strength of Top Cover Tape

The peel speed shall be about 300mm/minute

The peel force of top cover tape shall between 0.1 to 0.7N



8-3 Number of Taping

5,000 pieces / reel

8-4 Label marking

The following items shall be marked on the reel.

(1) Type designation

(2) Quantity

(3) Manufacturing date code

(4) Manufacturer's name

(5) Inspection number (Lot number)

(6) The country of origin

(7) Double dashed line shows lead free

No mark when finish of terminals is solder