1W, 1206, Low Resistance Chip Resistor (Lead free / Halogen Free)

1. Scope

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

2. Type Designation

   RL1632 - 6C - □□□□ □

   (1) (2) (3) (4)

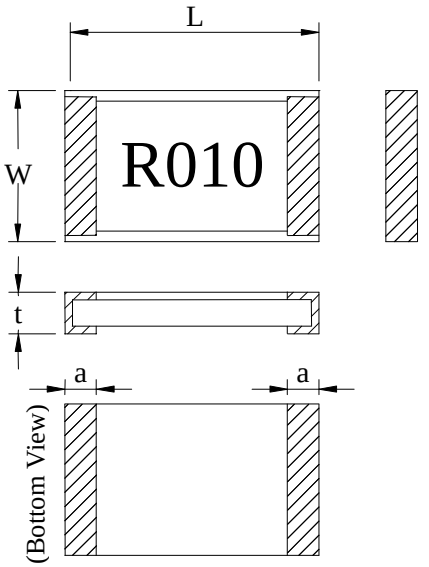
   Where (1) Series No.

   (2) 6C = 1W

   (3) Resistance value :
   For example - -
   Four digits of number
   R005 = 5mΩ
   R020 = 20mΩ

   (4) Resistance tolerance
   F = ± 1%
   G = ± 2%
   J = ± 5%

3. Outline Dimensions and Marking



Code Letter	Dimensions (mm)
	1632
L	3.2 ± 0.20
W	1.6 ± 0.20
a	0.50 ± 0.15
t	5mΩ: 1.05 ± 0.20 10~40mΩ: 0.90 ± 0.20

Four digits :

R010 = 10mΩ

R020 = 20mΩ

Figure 1. Construction Dimensions

4. Ratings

Power Ratings*	1W
Resistance Value	5~40mΩ
Resistance Tolerance	± 1%(F) , ± 2%(G) , ± 5%(J)
Temperature Coefficient of Resistance	(5mΩ) 0~300ppm/℃ (10~40mΩ) ± 100ppm/℃
Operation Temperature Range	-55℃ ~ +170℃
Insulation Resistance	Over 100MΩ
Maximum Working Voltage (V)	$(P*R)^{1/2}$

Note * :

Power rating 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.

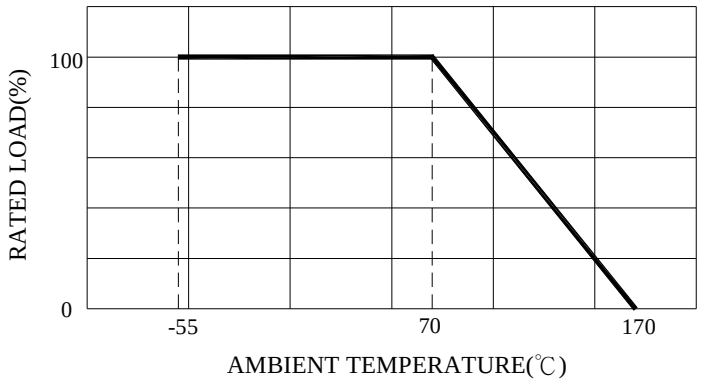


Figure 2.：Power Temperature Derating Curve

5. Characteristics

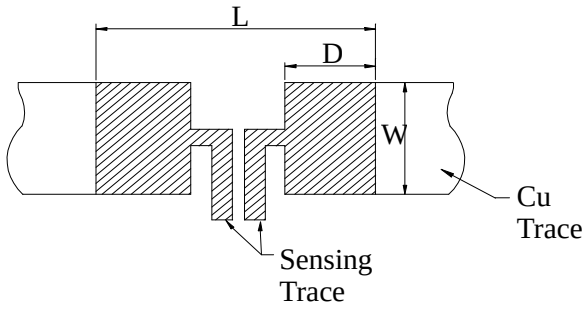
Test Item	Condition of Test	Requirements
Short Time Overload	2.5 * rated power for 5 seconds Refer to JIS C 5201-1 4.13	ΔR : ± 0.5% Without significant damage by flashover (spark, arching), burning or breakdown etc.
Insulation Resistance	The resistor shall be cramped in the metal block and tested , as shown below. Test voltage : 100 ± 15V_{DC} for 1 minute Refer to JIS C 5201-1 4.6 Mounting condition G.	Between Electrode and Protection Film 100MΩ or over Between Electrode and Substrate 1,000MΩ or over
Voltage Proof	The voltage : 100V_{AC} (rms.) for 1 minute Refer to JIS C 5201-1 4.7	ΔR : ± 0.5% Without damage by flashover, fire or breakdown, as shown below.
Thermal Shock	-55 ~155℃ 100 cycles, 15 min at each extreme condition Refer to JIS C 5201-1 4.19	ΔR : ± 1.0% Without distinct damage in appearance
Low Temperature Storage	Kept at -55℃, 1,000 hours Refer to JIS C 5201-1 4.23.4	ΔR : ± 1.0% Without distinct damage in appearance
High Temperature Exposure	Kept at 170℃ for 1,000 hours Refer to JIS C 5201-1 4.23.2	ΔR : ± 1.0% Without distinct damage in appearance
Solderability	Temperature of Solder : 245 ± 5℃ Immersion Duration : 3 ± 0.5 second Refer to JIS C 5201-1 4.17	Uniform coating of solder cover minimum of 95% surface being immersed
Resistance to Soldering Heat	Dipped into solder at 270 ± 5℃ for 10 ± 1 seconds Refer to JIS C 5201-1 4.18	ΔR : ± 0.5% Without distinct deformation in appearance

Test Item	Condition of Test	Requirements
Load Life	Rated voltage for 1.5 hours followed by a pause 0.5 hour at 70 ± 2℃. Cycle repeated 1000 hours Refer to JIS C 5201-1 4.25	ΔR : ± 1.0% Without distinct damage in appearance
Damp Heat with Load	40 ± 2℃ with relative humidity 90% to 95%. D.C. rated voltage for 1.5 hours ON and 30 minutes OFF. Cycle repeated 1,000 hours Refer to JIS C 5201-1 4.24	ΔR : ± 0.5% Without distinct damage in appearance
Mechanical Shock	100 G's for 6milliseconds. 5 pulses Refer to JIS C 5201-1 4.21	ΔR : ± 0.5% Without mechanical damage such as break
Bending Test	Glass-Epoxy board thickness : 1.6mm Bending width : 2mm Between the fulcrums : 90mm Refer to JIS C 5201-1 4.33	ΔR : ± 0.5% Without mechanical damage such as break

6. Recommend Land Pattern

	W (mm)	L (mm)	D (mm)	t (μ m)
1632	1.78	4.14	1.37	105

t: Copper foil minimum thickness of PCB

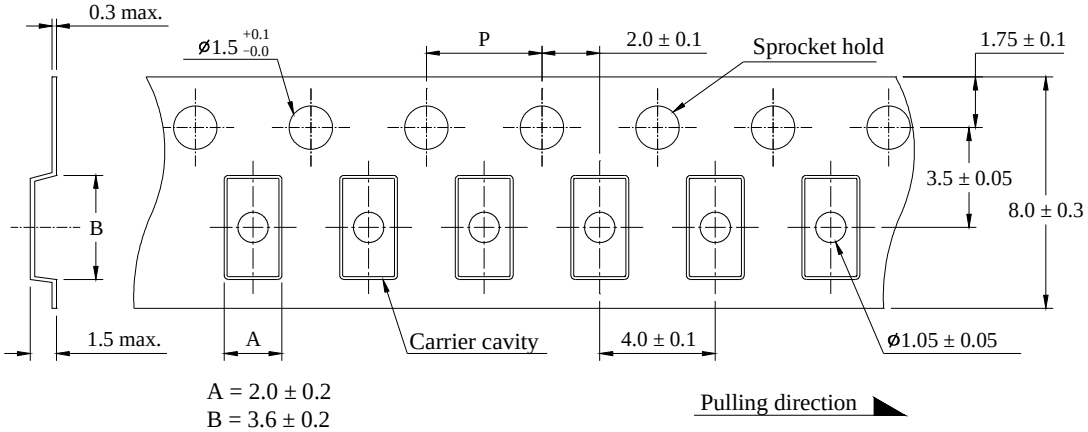


Note : We recommend there is no circuit design between pads to avoid circuit short.

7. Packaging

7-1 Dimensions

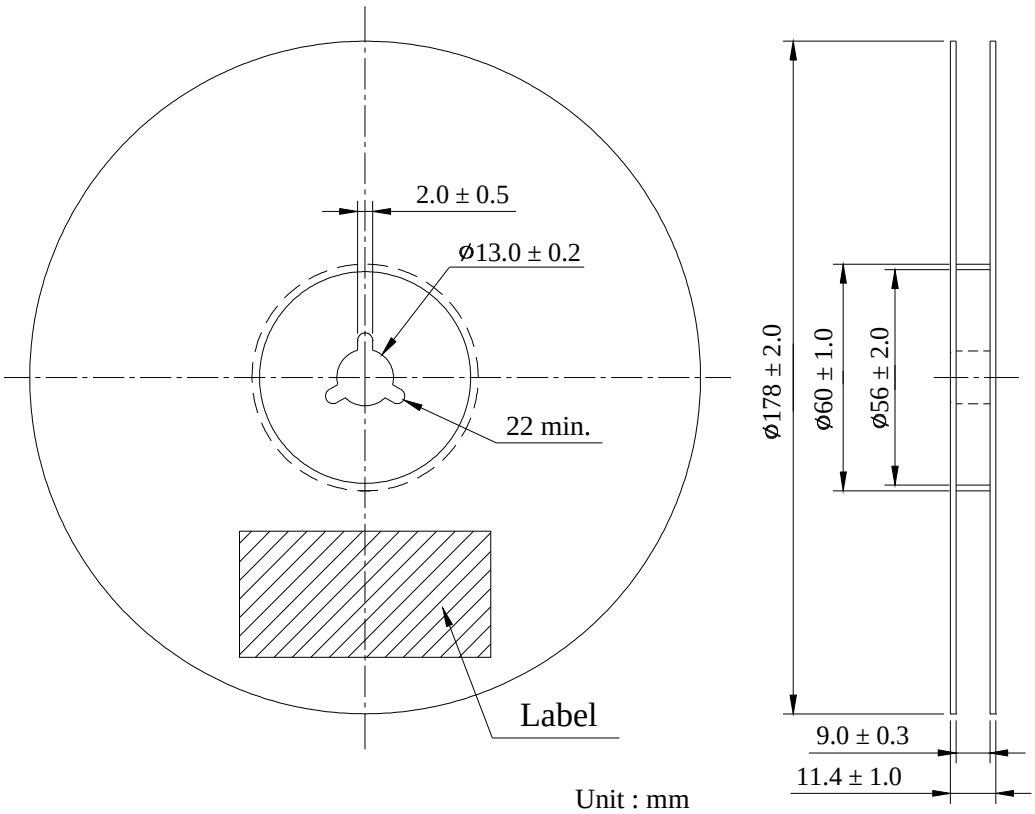
7-1-1 Tape packaging dimensions



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

Unit : mm

7-1-2 Reel dimensions



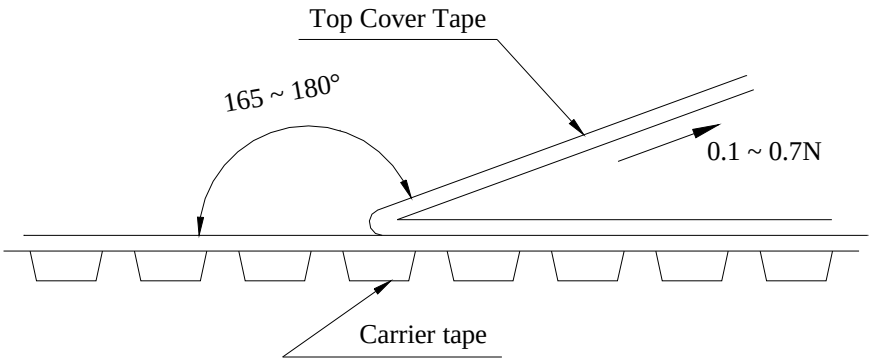
Unit : mm

UNLESS OTHERWISE SPECIFIED TOLERANCES ON : X = ± X.X = ± X.XX = ± ANGLES ± HOLE DIA. ± SCALE : UNIT :	台達電子工業股份有限公司 *Delta Electronics, Inc.*		
THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF Delta Electronics, Inc. AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION			
TITLE : The Engineering Spec. For 1W 1206 Low Resistance Chip Resistor	DOCUMENT NO.	**SMJ60000NH**	PAGE REV. A2

7-2 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



7-3 Number of Taping

4,000 pieces / reel

7-4 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) The country of origin