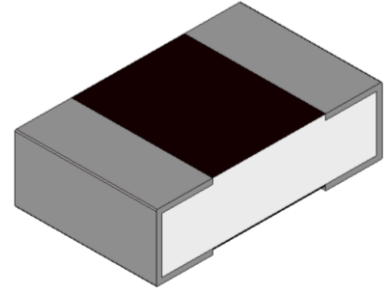


RLT1220-F Series Current Sensing Resistor (Lead / Halogen Free)

Features / Applications :

- High power rating is up to 1/3W
- Low TCR (0~+300 ppm/°C)
- Current sensing resistor for power supplies, motor circuits, etc.
- Suitable for reflow soldering

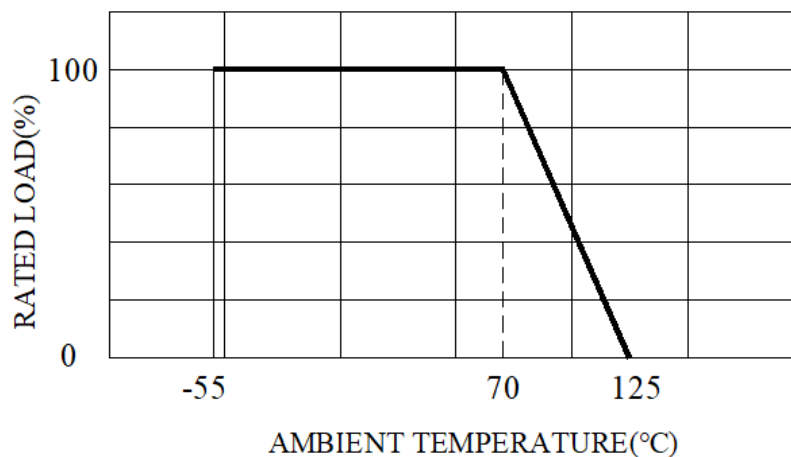


Electrical Specifications :

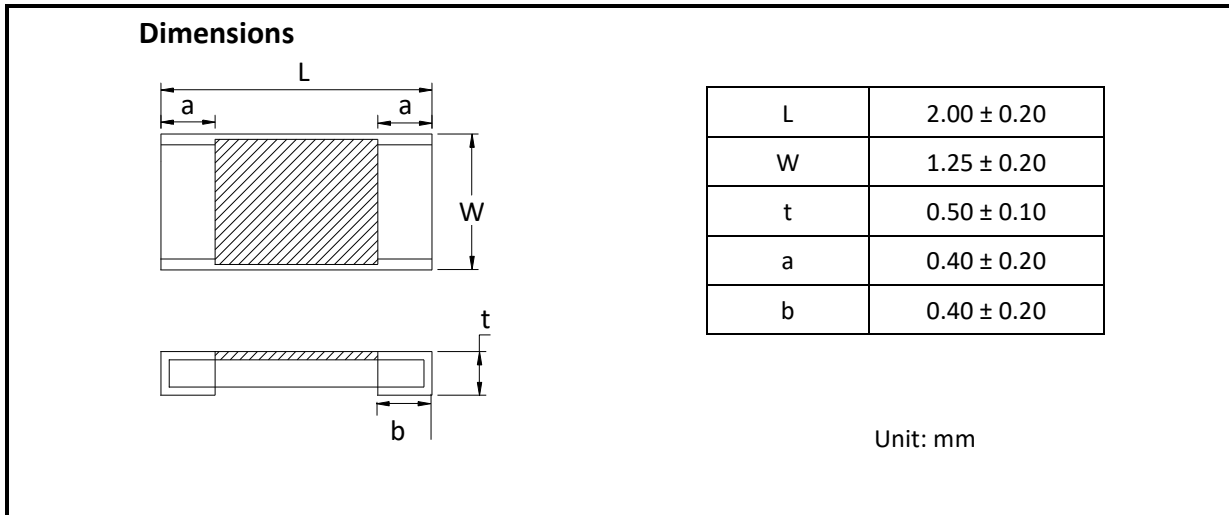
Characteristics	Feature	
Power Rating*	1/3 W	
Resistance Range	0.05Ω ~ < 0.1Ω	0.1Ω ~ < 10Ω
Temperature Coefficient of Resistance(ppm/°C)	0 ~ +300	0 ~ +200
Resistance Tolerance	±1%(F), ±2%(G), ±5%(J)	
Operation Temperature Range	-55°C ~ +125°C	

***Note :**

For sensor operated at ambient temperature in excess of 70°C, the maximum load shall be derated in accordance with the following curve.



Outline Drawing :



Type Designation :

RLT1220 - F - □□□□ - □ NH
 (1) (2) (3) - (4) (5)

Note :

(1) Series No.

(2) Power Rating:

$$F = 1/3W$$

(3) Resistance value: Refer to paragraph 4-1

For example –

Four digits of number

$$R100 = 0.1\Omega$$

$$1R00 = 1.0\Omega$$

The “R” shall be used as a decimal point, For example –

$$R010 = 0.01\Omega;$$

(4) Tolerance (%)

$$F = \pm 1\%, G = \pm 2\%, J = \pm 5\%$$

(5) NH= Sn plating (Lead free / Halogen free)

Characteristics :

Electrical

Item	Specification and Requirement	Test Method (JIS 5201)
Temperature Coefficient of Resistance(ppm/°C)	As electrical specifications	Room temperature Room temperature +100°C
Short Time Overload	$\Delta R: \pm 1.0\%$ Without damage by flashover, spark, arcing, burning or breakdown	2.5 x rated voltage for 5 seconds
Insulation Resistance	Over 100 M Ω on Overcoat layer face up Over 1,000 M Ω on Substrate side face up	(1) Setup as figure 1 (2) Test voltage: 100VDC \pm 15VDC (3) Test time: 60 + 10 / - 0 seconds
Voltage Proof	Resistance range: $\pm 1.0\%$ Without damage by flashover, spark, arcing, burning or breakdown	(1) Setup as figure 1 (2) Test voltage: 400VAC(rms.) (3) Test time: 60 + 10 / - 0 seconds

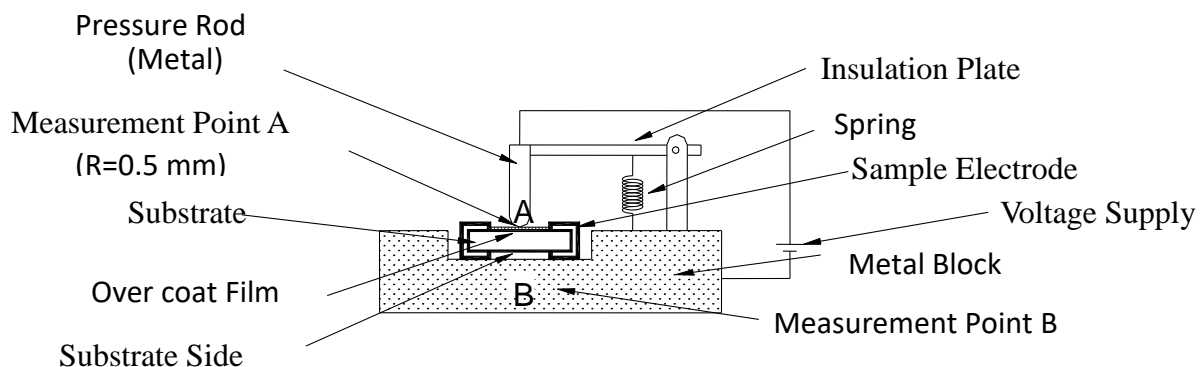


Figure 1 : Measurement Setup

Mechanical

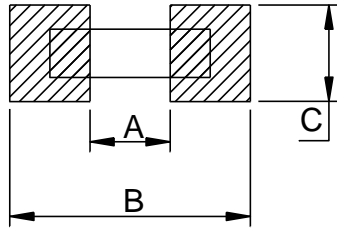
Item	Specification and Requirement	Test Method (JIS 5201)
Solderability	The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder	Solder bath: After immersing in flux, dip in 245 \pm 5°C molten solder bath for 2 \pm 0.5 seconds

Item	Specification and Requirement	Test Method (JIS 5201)
Resistance to Solder Heat	$\Delta R: \pm 1.0\%$ Without distinct deformation in appearance	(1) Pre-heat: 100~110°C for 30 seconds (2) Immersed at solder bath of 270 ± 5°C for 10 ± 1 seconds
Bending Test	$\Delta R: \pm 1.0\%$ Without mechanical damage such as break	Bending value: 3 mm for 30 ± 1 seconds
Solvent Resistance	Without mechanical and distinct damage in appearance	(1) Solvent: Trichloroethane or Isopropyl alcohol (2) Immersed in solvent at room temperature for 300 seconds

Endurance

Item	Specification and Requirement	Test Method (JIS 5201)
Rapid Change of Temperature	$\Delta R: \pm 1.0\%$ Without distinct damage in appearance	-55 ~125°C 5 cycles, 15 min at each extreme condition
Moisture with Load	$\Delta R: \pm 5.0\%$ Without distinct damage in appearance	40 ± 2°C with relative humidity 90% to 95%. D.C. rated voltage for 1.5 hours ON and 0.5 hours OFF. Cycle repeated 1,000 hours
Load Life	$\Delta R: \pm 5.0\%$ Without distinct damage in appearance	Rated voltage for 1.5 hours followed by a pause 0.5 hour at 70 ± 3°C. Cycle repeated 1000 hours
Low Temperature Store	$\Delta R: \pm 5.0\%$ Without distinct damage in appearance	Store temperature: -55 ± 3°C for total 1,000 hours
High Temperature Store	$\Delta R: \pm 5.0\%$ Without distinct damage in appearance	Store temperature: 125 ± 2°C for total 1,000 hours

Recommend Land Pattern Dimensions :

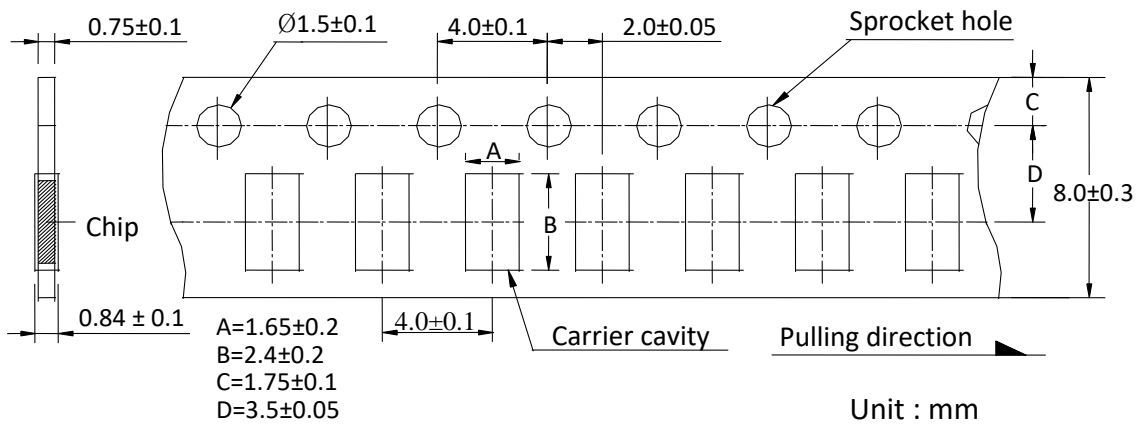


A	1.2~1.8
B	3.6~4.2
C	1.4~1.8

Unit : mm

Packaging :

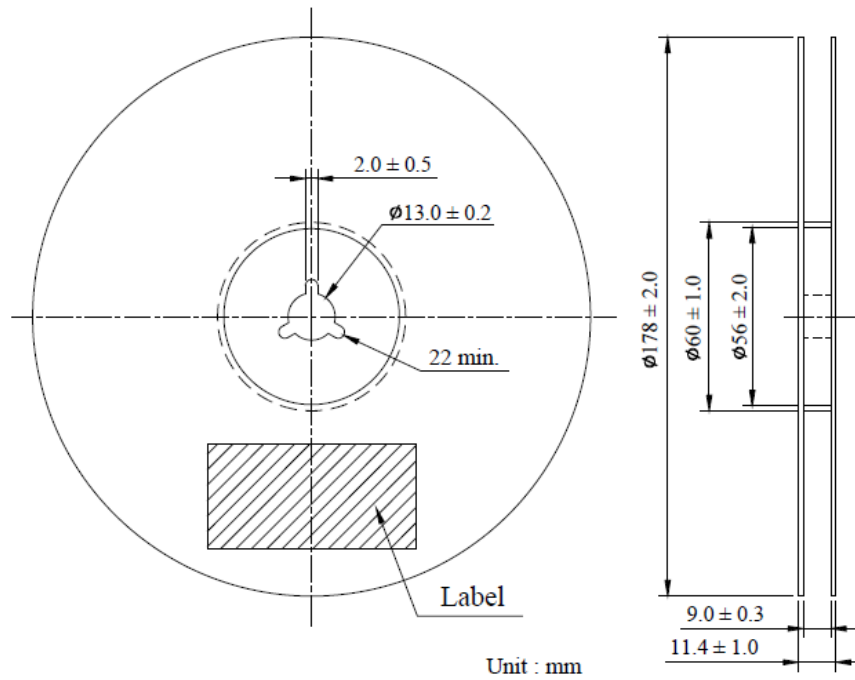
Tape packaging dimensions



Unit : mm

Remark: Leader tape length ≥ 30 cm (150 Hollow carrier cavity)

Reel dimensions



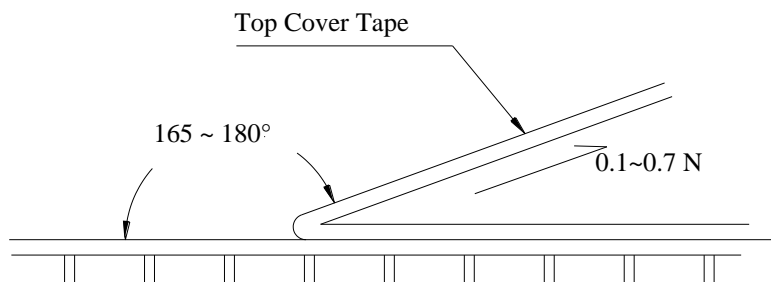
Numbers of Taping : 5,000 pieces /reel

The following items shall be marked on the reel.

- (1) Type designation.
- (2) Quantity
- (3) Manufacturing date code
- (4) Manufacturer's name

Peel force of top cover tape

The peel speed shall be about 300 mm/min. The peel force of top cover tape shall be between 0.1 to 0.7 N.



Care Note :

Care note for storage

- (1) Chip resistor shall be stored in a room where temperature and humidity must be controlled.
(temperature 5 to 35 °C, humidity 45 to 85% RH) However, a humidity keep it low, as it is possible.
- (2) Chip resistor shall be stored as direct sunshine doesn't hit on it.
- (3) Chip resistor shall be stored with no moisture, dust, a material that will make solderability inferior, and a harmful gas (Chloridation hydrogen, sulfurous acid gas, and sulfuration hydrogen).

Care note for operating and handling

- (1) It is necessary to protect the edge and protection coat of resistors from mechanical stress.
- (2) Handle with care when printing circuit board (PCB) is divided or fixed on support body, because bending of printing circuit board (PCB) mounting will make mechanical stress for resistors.
- (3) Resistors shall be used with in rated range shown in specification. Especially, if voltage more than specified value will be loaded to resistor, there is a case it will make damage for machine because of temperature rise depending on generating of heat, and increase resistance value or breaks.
- (4) In case that resistor is loaded a rated voltage, it is necessary to confirms temperature of a resistor and to reduce a load power according to load reduction curve, because a temperature rise of a resistor depends on influence of heat from mounting density and neighboring element.
- (5) Observe Limiting element voltage and maximum overload voltage specified in each specification
- (6) If there is possibility that a large voltage (pulse voltage, shock voltage) charge to resistor, it is necessary that operating condition shall be set up before use.