

# 3/4W, 2010 Low Resistance Chip Resistor

## 1. Scope

This specification applies to 2.5mm x 5.0mm size 3/4W, fixed metal film chip resistors rectangular type for use in electronic equipment.

## 2. Type Designation

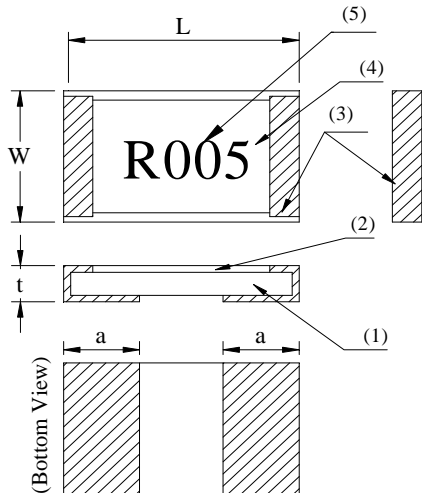
RL2550 L - □□□□ □  
 (1) (2) (3) (4)

Where

- (1) Series No.
- (2) L = L Type
- (3) Resistance value :  
 For example - -  
 R005 = 5mΩ  
 R050 = 50mΩ
- (4) Resistance tolerance  
 F = ± 1%  
 G = ± 2%  
 J = ± 5%

## 3. Outline Designation and Marking

### 3-1 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)
	RL2550
L	5.0 ± 0.20
W	2.5 ± 0.20
a	1.00 ± 0.15
t	(> 3mΩ) 0.80 ± 0.15 (3mΩ) 0.95 ± 0.15

Figure 1. Construction and Dimensions

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### 3-2 Marking

Resistance value is marked on the top surface.

Ex.) 5mΩ → R005

47mΩ → R047

## 4. Ratings

### 4-1 Specification

Power Ratings*	3/4W
Resistance Value	4 ~ 50mΩ
Temperature Coefficient of Resistance	(≤10mΩ) 100ppm/°C (>10mΩ) 50ppm/°C
Resistance Tolerance	±1% , ± 2% , ±5%
Insulation Resistance	Over 100MΩ
Maximum Working Voltage (V)	( P*R ) <sup>1/2</sup>

Note \* :

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

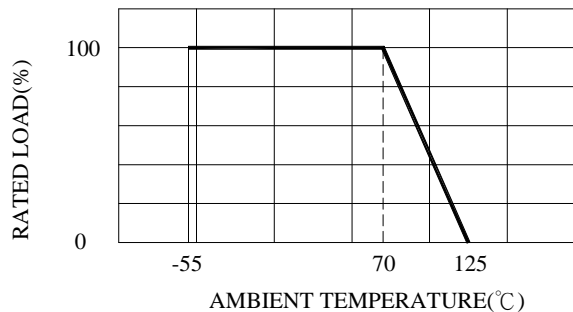


Figure 2. : Power Temperature Derating Curve

### 4-2 Rated Voltage

The rated voltage shall be determined by the following expression.

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

Where V : Rated voltage (V)

R : Nominal resistance value (Ω)

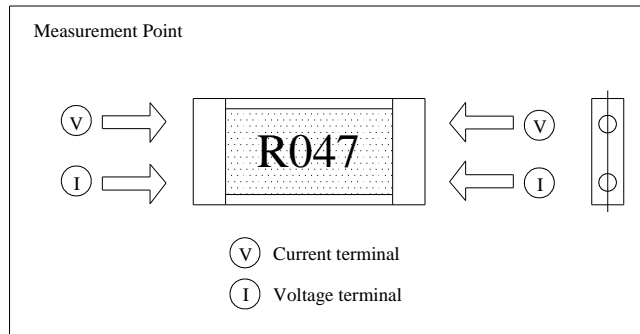
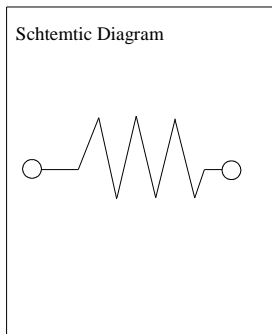
P : Rated dissipation (W)

### 4-3 Operation and Storage Temperature Range

-55°C to +125°C

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### 5. Schematic Diagram. Measurement Point



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## 6. Characteristics

Test Item	Condition of Test	Requirements
Short Time Overload	2.5 * rated voltage for 5 seconds Refer to JIS C 5201-1 4.13	$\Delta R : \pm (0.5\%+0.0005\Omega)$ 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 : $100 \pm 15V_{DC}$ for 1 minute Refer to JIS C 5201-1 4.6 Mounting condition G.	Between Electrode and Protection Film $100M\Omega$ or over Between Electrode and Substrate $1,000M\Omega$ or over
Voltage Proof	The voltage : $100V_{AC}$ (rms.) for 1 minute Refer to JIS C 5201-1 4.7	$\Delta R : \pm (0.5\%+0.0005\Omega)$ Without damage by flashover, fire or breakdown, as shown below.
Thermal Shock	$-55 \sim 125^{\circ}C$ 5 cycles, 15 min at each extreme condition Refer to JIS C 5201-1 4.19	$\Delta R : \pm (1.0\%+0.0005\Omega)$ Without distinct damage in appearance
Low Temperature Storage	Kept at $-55^{\circ}C$ , 1,000 hours Refer to JIS C 5201-1 4.23.4	$\Delta R : \pm (1.0\%+0.0005\Omega)$ Without distinct damage in appearance
High Temperature Exposure	Kept at $125^{\circ}C$ for 1,000 hours Refer to JIS C 5201-1 4.23.2	$\Delta R : \pm (1.0\%+0.0005\Omega)$ Without distinct damage in appearance
Solderability	Temperature of Solder : $245 \pm 5^{\circ}C$ Immersion Duration : $3 \pm 0.5$ 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 $270 \pm 5^{\circ}C$ for $10 \pm 1$ seconds Refer to JIS C 5201-1 4.18	$\Delta R : \pm (0.5\%+0.0005\Omega)$ Without distinct deformation in appearance

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Test Item	Condition of Test	Requirements
Load Life	Rated voltage for 1.5 hours followed by a pause 0.5 hour at $70 \pm 2^{\circ}\text{C}$ . Cycle repeated 1000 hours Refer to JIS C 5201-1 4.25	$\Delta R : \pm (1.0\%+0.0005\Omega)$ Without distinct damage in appearance
Damp Heat with Load	$60 \pm 2^{\circ}\text{C}$ 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	$\Delta R : \pm (1.0\%+0.0005\Omega)$ Without distinct damage in appearance
Mechanical Shock	100 G's for 6milliseconds. 5 pulses Refer to JIS C 5201-1 4.21	$\Delta R : \pm (0.5\%+0.0005\Omega)$ 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	$\Delta R : \pm(0.5\%+0.0005\Omega)$ Without mechanical damage such as break

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X.X =  $\pm$   
X.XX =  $\pm$   
ANGLES  $\pm$  HOLE DIA.  $\pm$

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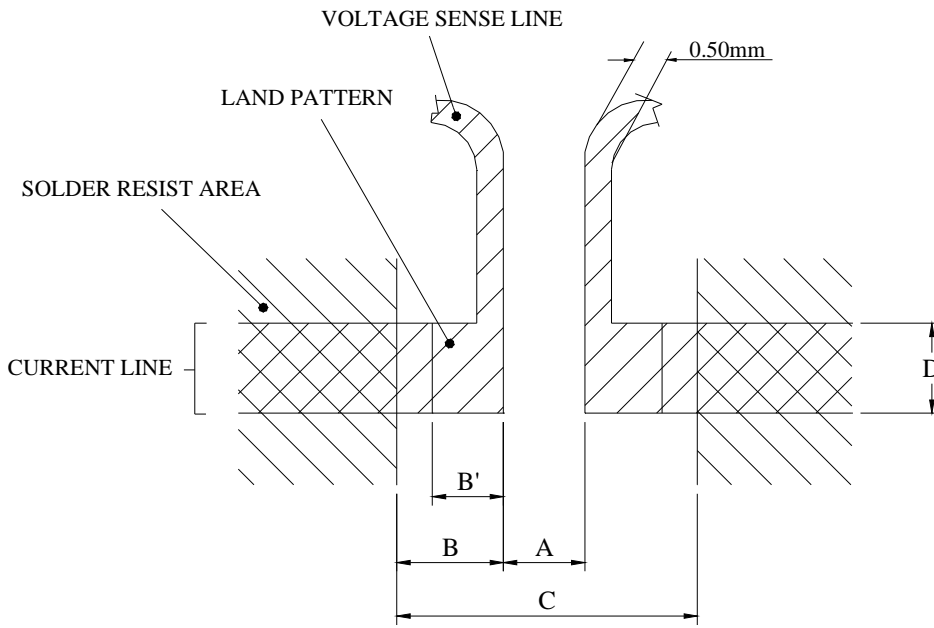
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7. Recommend Land Pattern



A	B	B'	C	D
3.1	2.75	1.4	7.0	3.05

Unit : mm

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X = ±  
X.X = ±  
X.XX = ±  
ANGLES ± HOLE DIA. ±

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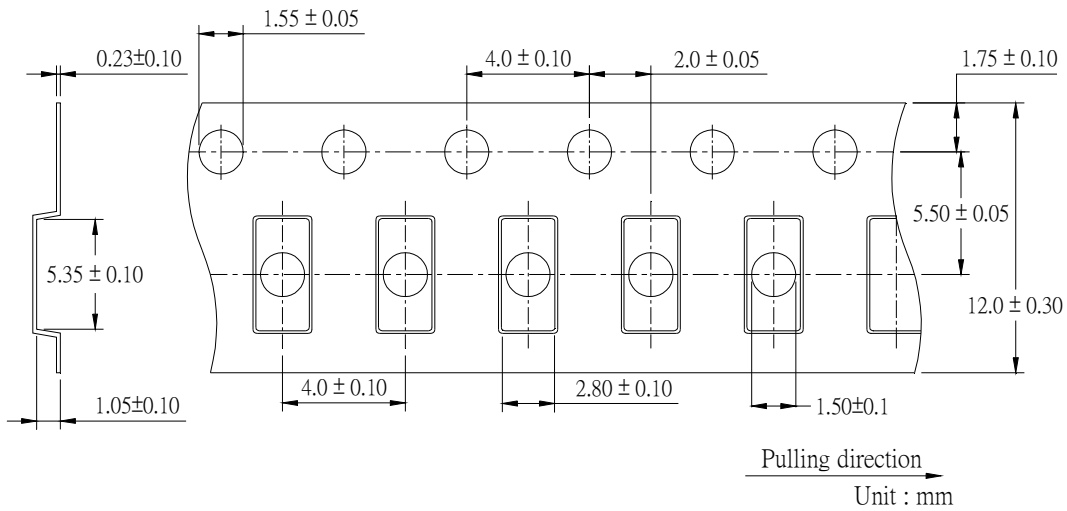
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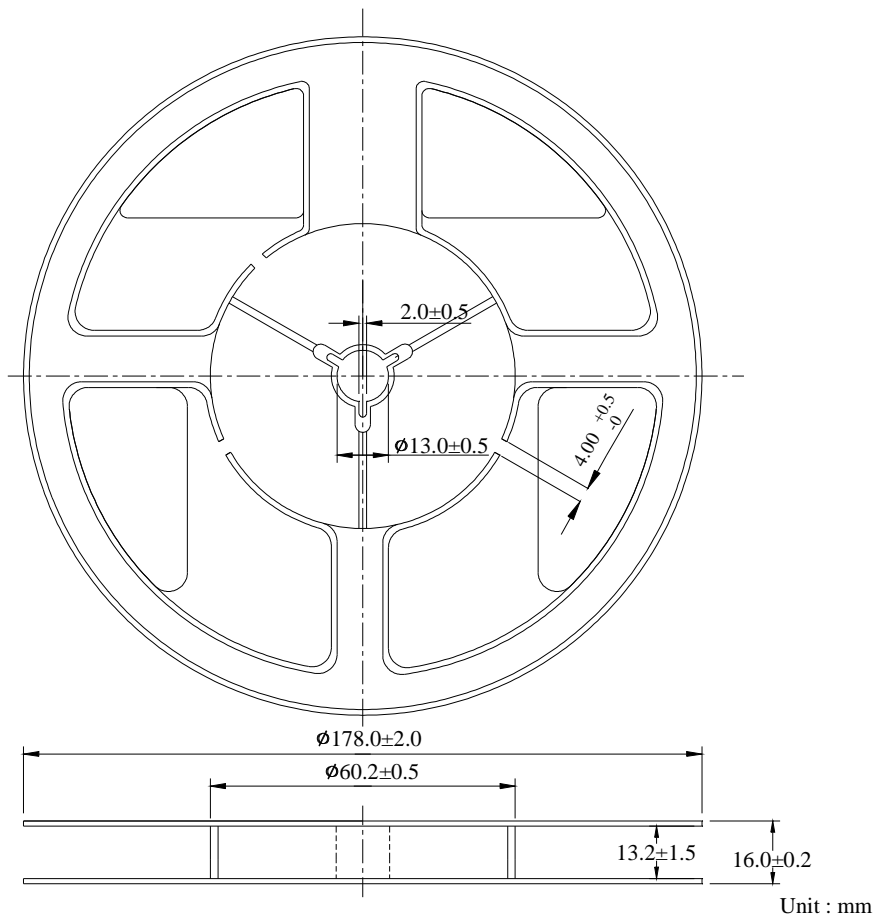
## 8. Packaging

### 8-1 Dimensions

#### 8-1-1 Tape packaging dimensions



#### 8-1-2 Reel dimensions



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X.X = ±  
X.XX = ±  
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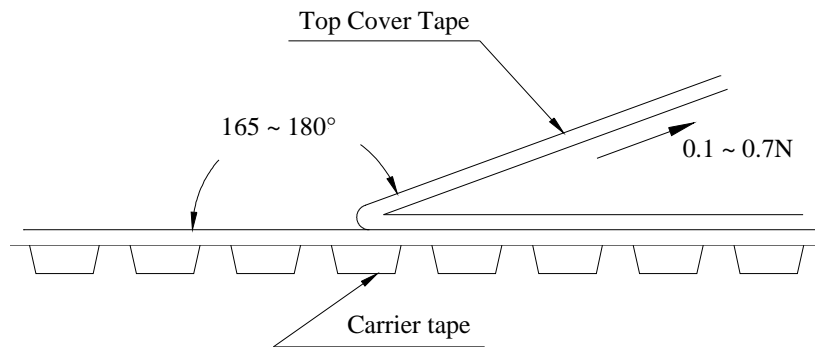
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### 8-2 Peel Strength of Top Cover Tape

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

2,000 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) The country of origin

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