3/4W, 2010, Low Resistance Chip Resistor (Lead / Halogen Free)

1. Scope

This specification applies to 2.5mm x 5.0mm size 1W, fixed metal film chip resistors rectangular type for use in electronic equipment.

2. Type Designation

RL2550 L - □□□□ - □ NH

(1) (2) (3) (4) (5)

Where (1) Series No.

(2) L = L Type

(3) Resistance value :

For example - -

R005 = 5mΩ

R050 = 50mΩ

(4) Resistance tolerance

F = ± 1%

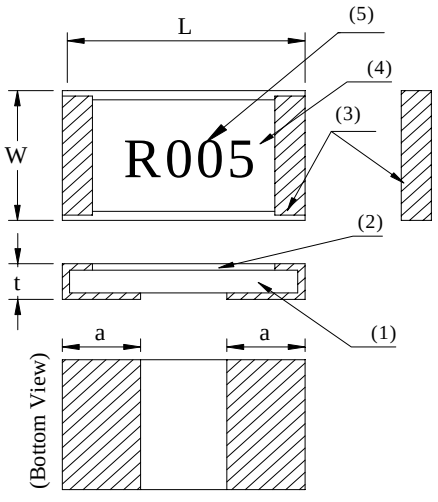
G = ± 2%

J = ± 5%

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

3. Outline Construction and Marking

3-1 Outline Construction



(1)	Substrate	Alumina 96%
(2)	Resistor	Cu 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	0.005~0.05Ω: 1.00 ± 0.15 0.051~0.47Ω: 1.70 ± 0.15
t	0.005~0.05Ω: 0.80 ± 0.15 0.051~0.47Ω: 0.50 ± 0.15

Figure 1. Construction and Dimensions

3-2 Marking

Resistance value is marked on the top surface. Ex.) 5mΩ → R005
50mΩ → R050

4. Ratings

4-1 Specification

Power Rating*	3/4W
Resistance Value	0.005 ~ 0.47Ω
Temperature Coefficient of Resistance	(0.005~0.01Ω) ±100ppm/℃ (0.011~0.05Ω) ± 50ppm/℃ (0.051~0.47Ω) ± 100ppm/℃
Resistance Tolerance	±1% , ± 2% , ±5%
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.

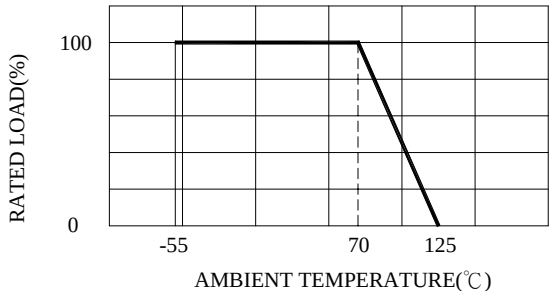


Figure 2.：Power Temperature Derating Curve

4-2 Rated Voltage

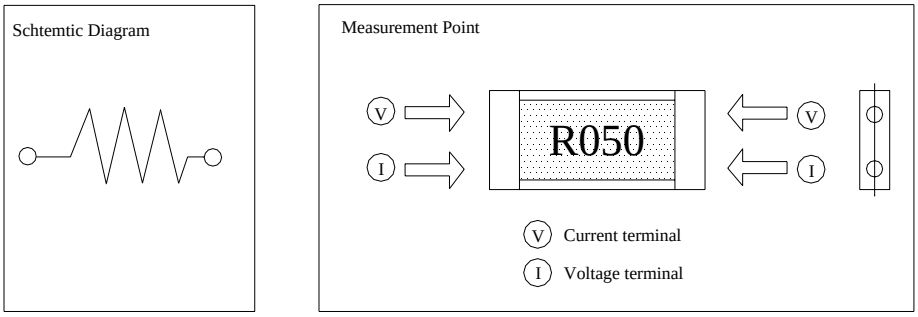
The rated voltage shall be determined by the following expression.

$V = \sqrt{P \times R}$ Where V：Rated voltage (V)
R：Nominal resistance value (Ω)
P：Rated dissipation (W)

4-3 Operation and Storage Temperature Range

-55℃ to +125℃

5. Schematic Diagram. Measurement Point



6. Characteristics

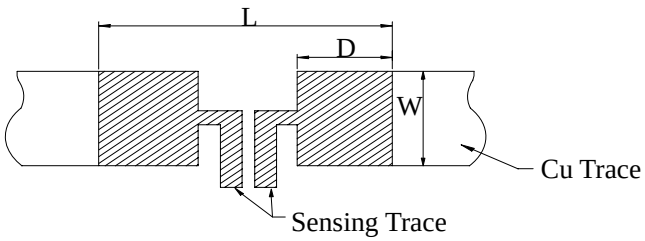
Test Item	Condition of Test	Requirements
Short Time Overload	2.5 * rated voltage for 5 seconds Refer to JIS C 5201-1 4.13	ΔR : ± (0.5%+0.0005Ω) Without significant damage by flashover (spark, arching), burning or breakdown etc.
Insulation Resistance	The resistor shall be cramped in the metal block and 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%+0.0005Ω) Without damage by flashover, fire or breakdown, as shown below.
Thermal Shock	-55 ~125℃ 5 cycles, 15 min at each extreme condition Refer to JIS C 5201-1 4.19	ΔR : ± (1.0%+0.0005Ω) 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%+0.0005Ω) Without distinct damage in appearance
High Temperature Exposure	Kept at 125℃ for 1,000 hours Refer to JIS C 5201-1 4.23.2	ΔR : ± (1.0%+0.0005Ω) 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%+0.0005Ω) 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%+0.0005Ω) 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%+0.0005Ω) 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%+0.0005Ω) 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%+0.0005Ω) Without mechanical damage such as break

7. Recommended Solder Pad Dimensions

	W	L	D
2550	3.05	6.12	1.56

Unit : mm

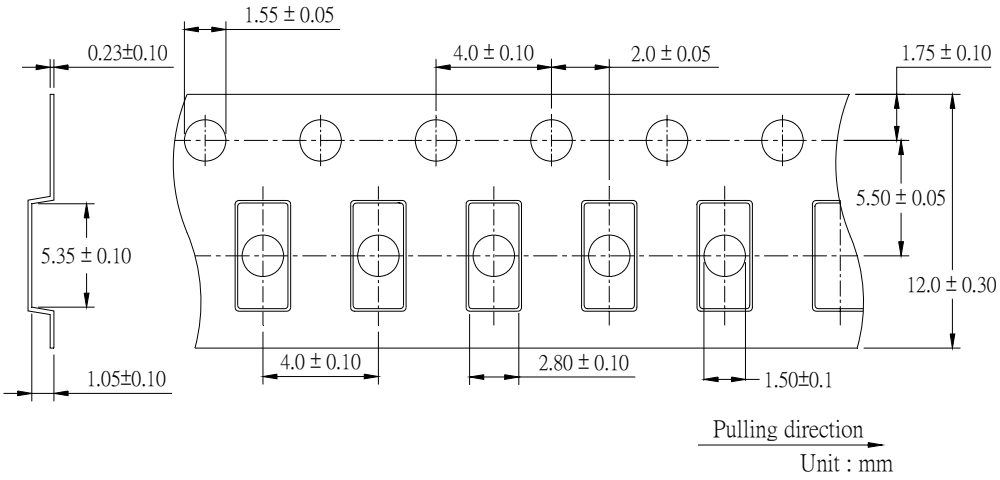


Note : We recommend there is no circuit design between pads to avoid circuit short

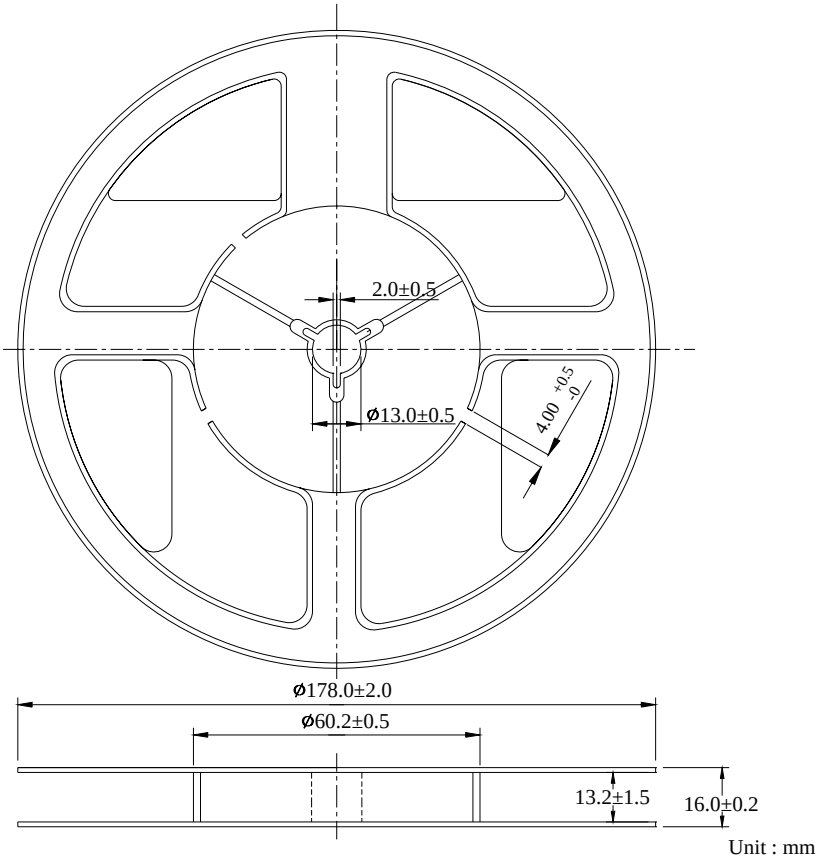
8. Packaging

8-1 Dimensions

8-1-1 Tape packaging dimensions



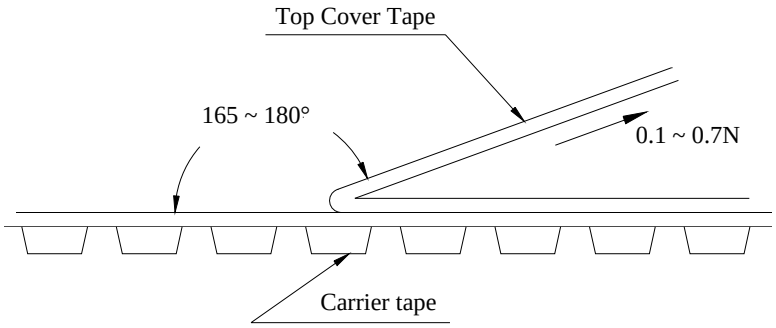
8-1-2 Reel dimensions



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