

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.

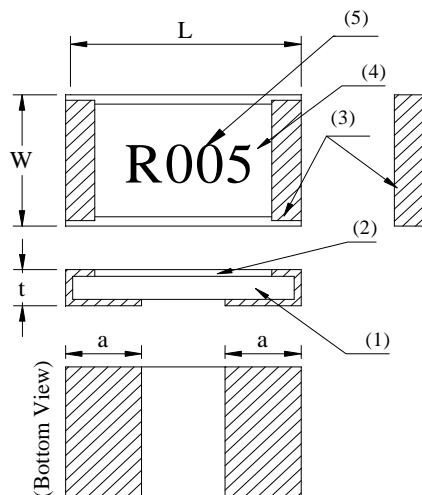
2. Type Designation

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

| | | | | | | |
|--|-----------------------------|-------------|--|--|-----------|--------------------|
| UNLESS OTHERWISE SPECIFIED TOLERANCES ON : X = ± X.X = ± X.XX = ± ANGLES ± HOLE DIA. ± | DRAWN BY : connie 4/3/13 | | 台達電子工業股份有限公司 <i>Delta Electronics, Inc.</i> | | | |
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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) ^{1/2} |

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.

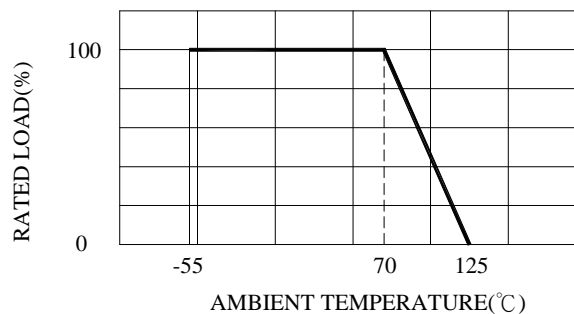


Figure 2. : Power Temperature Derating Curve

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)

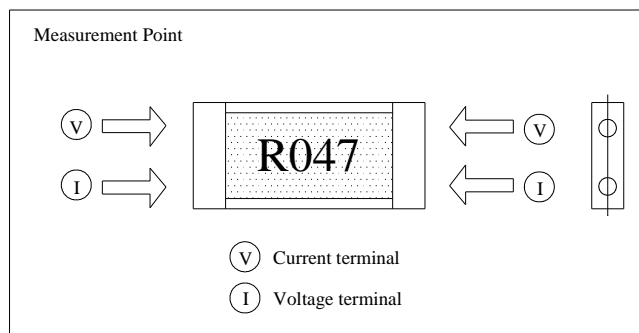
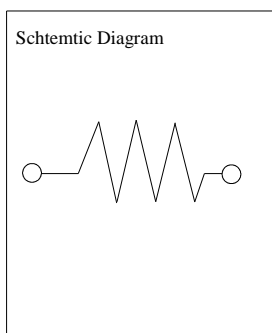
P : Rated dissipation (W)

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, arcing), 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 ± 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 ± 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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X.X = \pm
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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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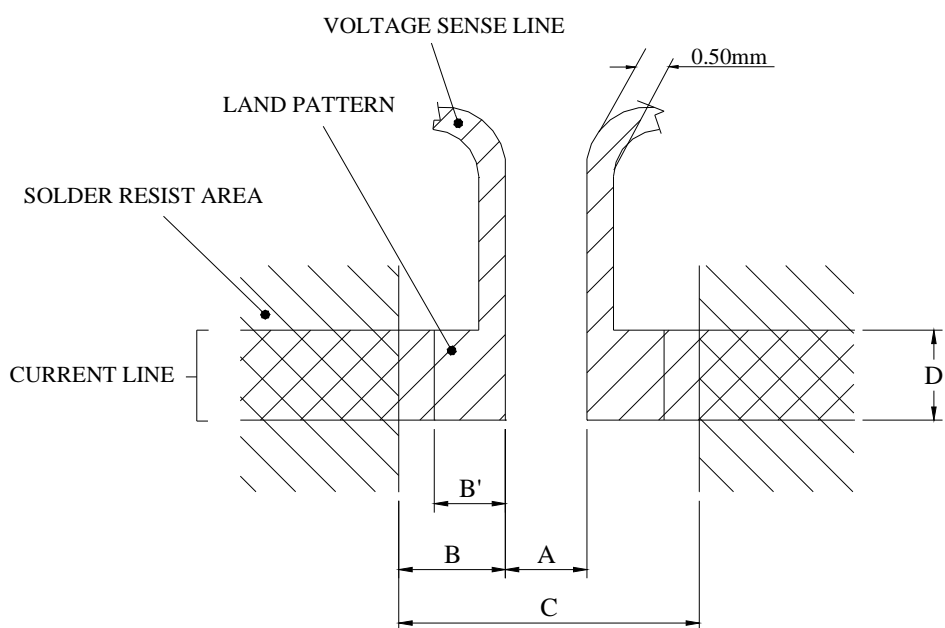
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7. Recommend Land Pattern



| A | B | B' | C | D |
|-----|------|-----|-----|------|
| 3.1 | 2.75 | 1.4 | 7.0 | 3.05 |

Unit : mm

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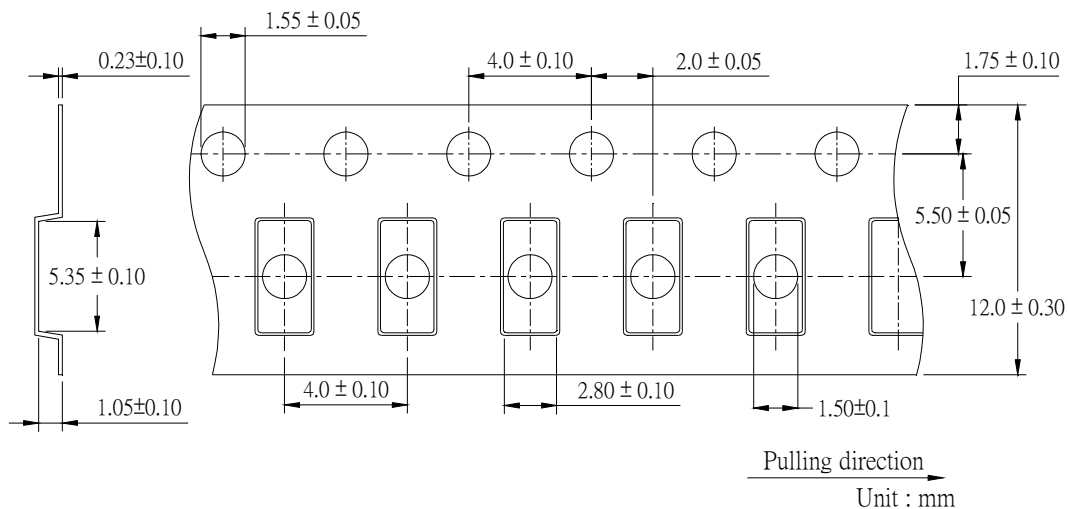
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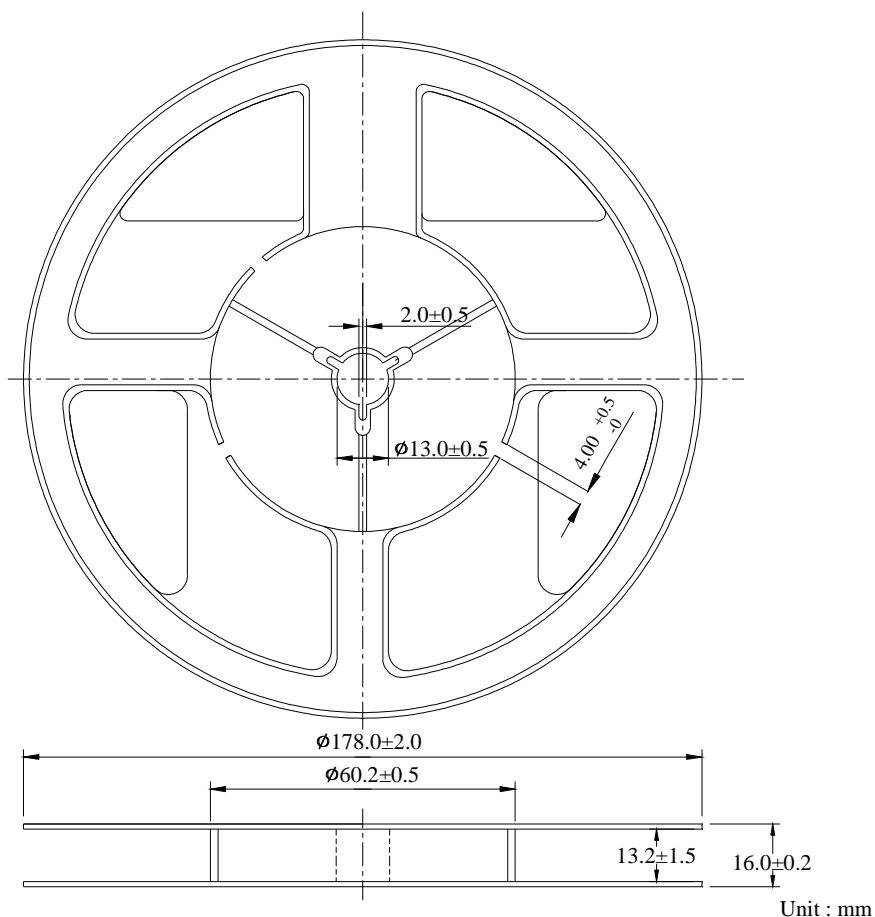
8. Packaging

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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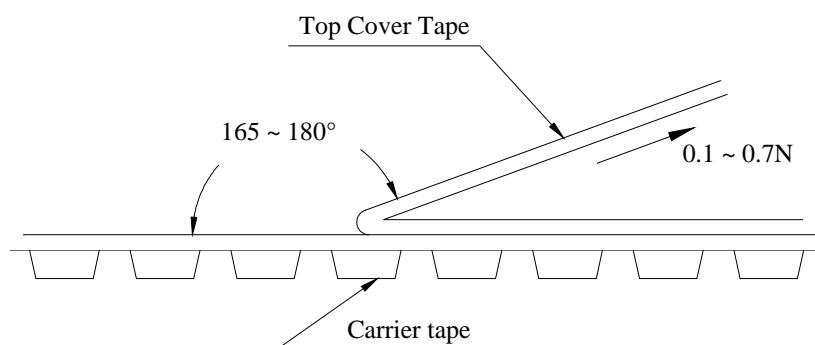
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8-2 Peel Strength of Top Cover Tape

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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