



**UNI-ROYAL**  
厚聲集團

# DATA SHEET

**Product Name**    **Metal Strip Chip Resistors**

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**Part Name**    **LR Series**

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## 1. Scope

- 1.1 This specification for approve relates to the Metal Strip Chip Resistors manufactured by UNI-ROYAL.
- 1.2 Low Resistance / Low TCR
- 1.3 Excellent long term stability
- 1.4 RoHs compliant and halogen free.
- 1.5 Lead free.
- 1.6 High precision current sensing and voltage division.

## 2. Part No. System

Part No. includes 14 codes shown as below:

2.1 1st~4th codes: Part name. E.g.: LR05, LR06, LR12, LR25, LR28, LR27

2.2 5th~6th codes: Power rating.

|                     |                |     |     |     |     |     |      |      |      |    |
|---------------------|----------------|-----|-----|-----|-----|-----|------|------|------|----|
| E.g.: W=Normal Size | “1~G” = “1~16” |     |     |     |     |     |      |      |      |    |
| Wattage             | 1/32           | 3/4 | 1/2 | 1/3 | 1/4 | 1/8 | 1/10 | 1/16 | 1/20 | 1  |
| Normal Size         | WH             | 07  | W2  | W3  | W4  | W8  | WA   | WG   | WM   | 1W |

If power rating is lower or equal than 1 watt, 5<sup>th</sup> code would be “W” and 6<sup>th</sup> code would be a number or letter.

E.g.: 1W=1W 4W=4W

2.3 7<sup>th</sup> code: Tolerance. E.g.: D=±0.5% F=±1% G=±2% J=±5% K=±10%

2.4 8<sup>th</sup>~11<sup>th</sup> codes: Resistance Value.

2.4.1 If value belongs to standard value of  $\geq 5\%$  series, 8<sup>th</sup> code would be zero, 9<sup>th</sup>~10<sup>th</sup> codes are significant figures of the resistance and 11<sup>th</sup> code is the power of ten.

2.4.2 If value belongs to standard value of  $\leq 2\%$  series, 8<sup>th</sup>~10<sup>th</sup> codes are significant figures of the resistance, and 11<sup>th</sup> code is the power of ten.

2.4.3 11<sup>th</sup> codes listed as following:

0=10<sup>0</sup> 1=10<sup>1</sup> 2=10<sup>2</sup> 3=10<sup>3</sup> 4=10<sup>4</sup> 5=10<sup>5</sup> 6=10<sup>6</sup> J=10<sup>-1</sup> K=10<sup>-2</sup> L=10<sup>-3</sup> M=10<sup>-4</sup>  
N=10<sup>-5</sup> P=10<sup>-6</sup>

2.5 12<sup>th</sup>~14<sup>th</sup> codes.

2.5.1 12<sup>th</sup> code: Packaging Type. E.g.: C=Bulk T=Tape/Reel

2.5.2 13<sup>th</sup> code: Standard Packing Quantity.

4=4000pcs 5=5000pcs C=10000pcs D=20000pcs E=15000pcs

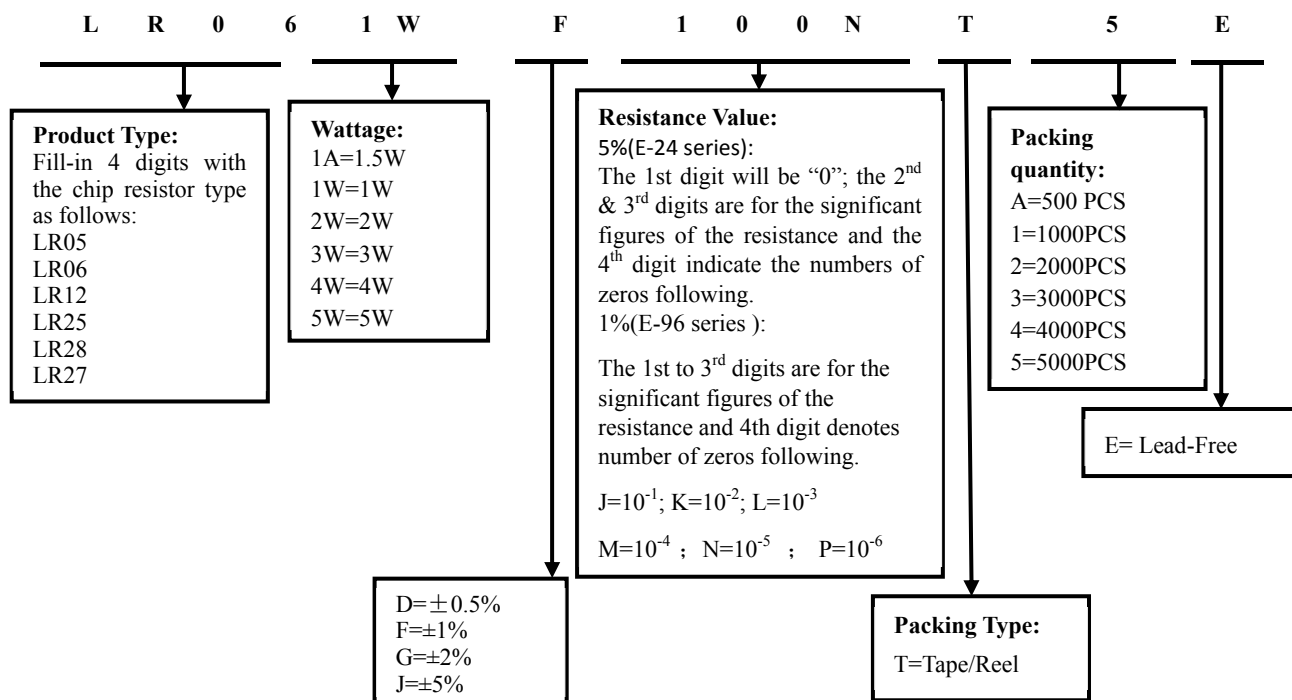
Chip Product: BD=B/B-20000pcs TC=T/R-10000pcs

2.5.3 14<sup>th</sup> code: Special features.

E = Environmental Protection, Lead Free, or Standard type.

## 3. Ordering Procedure

(Example: LR06 1W ±1% 1mΩ T/R-5000)



**4. Marking**

4.1 LR05 products no marking.

4.2 All the other products marking are 4 digits.

(1) "R" designates the decimal location in ohms

e.g. 1mΩ the product marking is R001.

25mΩ the product marking is R025.

100mΩ the product marking is R100.

(2) 0Ω product marking is 0R

4.3 The criteria to distinguishing the mark on the surface of products are that characters can be identified.

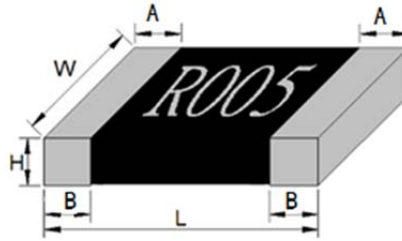
**5. Standard Electrical Specifications**

| Type | Rating Power at 70℃ | T.C.R. (ppm/℃) | Max. Rating Current (A) | Max. Overload Current (A) | Resistance Range (mΩ) |                                  | Operating Temperature Range (℃) |
|------|---------------------|----------------|-------------------------|---------------------------|-----------------------|----------------------------------|---------------------------------|
|      |                     |                |                         |                           | 0.5% (D)              | 1.0% (F)<br>2.0% (G)<br>5.0% (J) |                                 |
| LR05 | 1W                  | ≅±100          | 31.62                   | 63.24                     | ---                   | 1                                | -55~+170℃                       |
|      |                     | ≅±75           | 25.81                   | 44.72                     | ---                   | 1.5~2                            |                                 |
|      |                     | ≅±50           | 15.81                   | 31.62                     | ---                   | 2.5~15                           |                                 |
| LR06 | 1W                  | ≅±50           | 31.62                   | 63.24                     | 7~50                  | 1~50                             |                                 |
|      | 1.5W                | ≅±50           | 38.72                   | 77.46                     | 7~10                  | 1~10                             |                                 |
| LR12 | 2W                  | ≅±75           | 63.24                   | 141.42                    | ---                   | 0.5~0.75                         |                                 |
|      | 2W                  | ≅±50           | 44.72                   | 100.00                    | 16~450                | 1~450                            |                                 |
|      | 3W                  | ≅±75           | 77.45                   | 154.91                    | ---                   | 0.5~0.75                         |                                 |
|      | 3W                  | ≅±50           | 54.77                   | 109.54                    | 7~100                 | 1~100                            |                                 |
| LR25 | 4W                  | ≅±75           | 126.49                  | 252.98                    | ---                   | 0.25~0.3                         |                                 |
|      |                     | ≅±50           | 89.44                   | 178.88                    |                       | 0.5~3                            |                                 |
| LR28 | 4W                  | ≅±50           | 31.62                   | 63.24                     | 7~450                 | 4~450                            |                                 |
| LR27 | 3W                  | ≅±75           | 77.45                   | 173.20                    | ---                   | 0.5                              |                                 |
|      | 3W                  | ≅±50           | 54.77                   | 122.47                    | 7~60                  | 1~60                             |                                 |
|      | 5W                  | ≅±75           | 100.00                  | 173.20                    | ---                   | 0.5                              |                                 |
|      | 5W                  | ≅±50           | 70.71                   | 122.47                    | 7~500                 | 1~500                            |                                 |

**Jumper Specifications**

| Type | Rating Power at 70℃ | Max. Rating Current | Resistance (mΩ) | Operating Temperature Range (℃) |
|------|---------------------|---------------------|-----------------|---------------------------------|
| LR05 | 1W                  | 70.7A               | ≅ 0.2           | -55~+170℃                       |
| LR06 | 1W                  | 70.7A               |                 |                                 |
| LR12 | 2W                  | 100A                |                 |                                 |

## 6. Dimension



Unit:mm

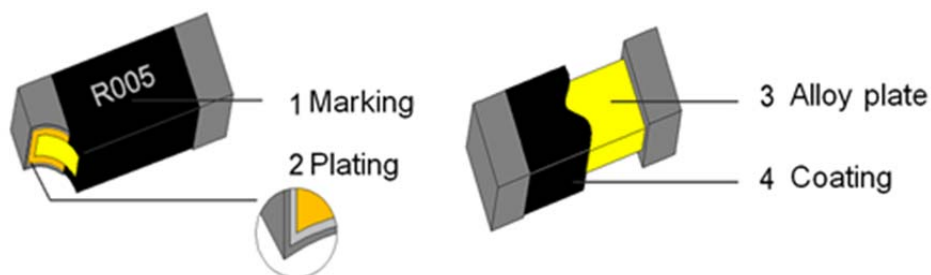
| Type           | Power       | Resistance     | L            | W           | H           | A           | B           |
|----------------|-------------|----------------|--------------|-------------|-------------|-------------|-------------|
|                | Rating      | Range          |              |             |             |             |             |
| LR05<br>(0805) | 1W          | 1mΩ            | 2.100±0.200  | 1.500±0.200 | 0.500±0.200 | /           | 0.400±0.200 |
|                |             | 1.5mΩ          |              |             | 0.350±0.200 |             |             |
|                |             | 2mΩ            |              |             |             |             |             |
|                |             | 2.5~3mΩ        |              |             |             |             |             |
|                |             | 4~8mΩ          |              |             |             |             |             |
|                |             | 9~15mΩ         |              |             |             |             |             |
| LR06<br>(1206) | 1W          | 1mΩ            | 3.200±0.254  | 1.650±0.254 | 0.770±0.254 | 0.508±0.254 | 0.508±0.254 |
|                |             | 2mΩ            |              |             | 0.650±0.254 |             |             |
|                |             | 3~20mΩ         |              |             | 0.550±0.254 |             |             |
|                |             | 21~50mΩ        |              |             | 0.470±0.254 |             |             |
|                | 1.5W        | 1mΩ            |              |             | 0.770±0.254 |             |             |
|                |             | 2mΩ            |              |             | 0.650±0.254 |             |             |
|                |             | 3~10mΩ         |              |             | 0.550±0.254 |             |             |
|                |             |                |              |             |             |             |             |
| LR12<br>(2512) | 2W          | 0.5mΩ          | 6.35±0.254   | 3.18±0.254  | 0.770±0.254 | 1.150±0.254 | 2.200±0.254 |
|                |             | 1mΩ            |              |             | 0.700±0.200 | 1.800±0.200 | 1.800±0.200 |
|                |             | 2~15mΩ         |              |             |             | 0.900±0.200 | 0.900±0.200 |
|                |             | 16~75mΩ        |              |             | 0.600±0.254 | 1.05±0.254  | 1.100±0.254 |
|                |             | 76~100mΩ       |              |             | 0.550±0.254 | 0.75±0.254  |             |
|                |             | 101~135mΩ      |              |             | 0.470±0.254 |             |             |
|                |             | 136~200mΩ      |              |             | 0.400±0.254 |             |             |
|                |             | 201~450mΩ      |              |             |             | 0.850±0.254 |             |
|                | 3W          | 0.5mΩ          |              |             | 0.770±0.254 | 1.150±0.254 | 2.200±0.254 |
|                |             | 1mΩ            |              |             | 0.670±0.254 |             | 1.400±0.254 |
|                |             | 1.5mΩ          |              |             |             |             | 1.150±0.254 |
|                |             | 2mΩ            |              |             |             |             |             |
|                |             | 2.5~6mΩ        |              |             | 0.550±0.254 | 0.75±0.254  | 1.100±0.254 |
|                |             | 7~75mΩ         |              |             | 0.600±0.254 |             |             |
|                |             | 76~100mΩ       |              |             | 0.550±0.254 |             |             |
|                |             | LR25<br>(2725) |              |             | 4W          | 0.25mΩ      | 6.800±0.254 |
| 0.3mΩ          | 1.800±0.254 |                |              |             |             |             |             |
| 0.5mΩ          | 2.300±0.254 |                |              |             |             |             |             |
| 1mΩ            | 1.800±0.254 |                |              |             |             |             |             |
| 1.5mΩ          | 1.500±0.254 |                |              |             |             |             |             |
| 2~3mΩ          |             |                | 0.550±0.254  |             |             |             |             |
|                |             |                |              |             |             |             |             |
| LR28<br>(2728) | 4W          | 4~450mΩ        | 6.600±0.254  | 6.700±0.254 | 0.580±0.254 | 0.40±0.254  | 1.050±0.254 |
| LR27<br>(4527) | 3W          | 0.5mΩ          | 11.300±0.500 | 6.600±0.500 | 0.770±0.254 | 0.90±0.254  | 3.000±0.254 |
|                |             | 1mΩ            |              |             | 0.650±0.254 |             | 2.000±0.254 |
|                |             | 1.5~5mΩ        |              |             | 0.550±0.254 |             |             |
|                |             | 6~60mΩ         |              |             | 0.800±0.254 |             | 0.65±0.254  |
|                | 5W          | 0.5mΩ          |              |             | 0.680±0.254 | 2.000±0.254 |             |
|                |             | 1mΩ            |              |             | 0.580±0.254 |             |             |
|                |             | 1.5~5mΩ        |              |             |             |             |             |
|                |             | 6~500mΩ        |              |             |             |             |             |

## JumperDimension

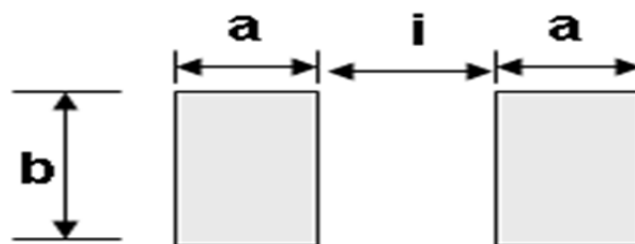
Unit:mm

| Type | Power Rating | Resistance Range | L           | W           | H           | A           | B           |
|------|--------------|------------------|-------------|-------------|-------------|-------------|-------------|
| LR05 | 1W           | < 0.2mΩ          | 2.10±0.20   | 1.500±0.20  | 0.35±0.20   | /           | 0.40±0.20   |
| LR06 | 1W           | < 0.2mΩ          | 3.200±0.250 | 1.650±0.250 | 0.650±0.254 | 0.508±0.254 | 0.508±0.254 |
| LR12 | 2W           | < 0.2mΩ          | 6.350±0.250 | 3.180±0.250 | 0.650±0.254 | 1.15±0.254  | 1.100±0.254 |

## 7. Structure



## 8. Recommend land pattern

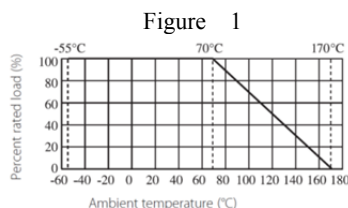


Unit: mm

| Type          | Resistance Range | a    | b    | i    |
|---------------|------------------|------|------|------|
| LR05-1W       | 1~15mΩ           | 1.00 | 1.80 | 1.00 |
| LR06 -1W,1.5W | Jumper : ≦0.2mΩ  | 1.46 | 2.15 | 1.68 |
|               | 1mΩ~100mΩ        | 1.46 | 2.15 | 1.68 |
| LR12 -2W      | Jumper : ≦0.2mΩ  | 2.30 | 3.68 | 3.15 |
|               | 0.5mΩ            | 3.40 | 3.68 | 0.95 |
|               | 1mΩ~15mΩ         | 1.90 | 3.68 | 3.50 |
|               | 16mΩ~200mΩ       | 2.30 | 3.68 | 3.15 |
|               | 201mΩ~500mΩ      | 2.05 | 3.68 | 3.65 |
| LR12 3W       | 0.5mΩ~1mΩ        | 3.40 | 3.68 | 0.95 |
|               | 1.5mΩ            | 2.35 | 3.68 | 1.35 |
|               | 2mΩ              | 2.10 | 3.68 | 2.55 |
|               | 2.5mΩ~100mΩ      | 2.30 | 3.68 | 3.15 |
| LR25 - 4W     | 0.25mΩ ; 0.5mΩ   | 3.25 | 6.85 | 1.70 |
|               | 0.3mΩ ; 1mΩ~3mΩ  | 2.75 | 6.85 | 2.70 |
| LR28 - 4W     | 4mΩ~450mΩ        | 2.05 | 7.20 | 3.90 |
| LR27-,3W,5W   | 0.5mΩ~1.5mΩ      | 4.50 | 8.74 | 4.50 |
|               | 2.0mΩ~100mΩ      | 3.50 | 8.74 | 6.50 |
|               | 101mΩ~500mΩ      | 3.50 | 8.74 | 6.50 |

## 9. Derating Curve

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70 °C. For temperature in excess of 70 °C , The load shall be derate as shown in figure 1.



The following equation may be used to determine the DC (Direct Current) or AC (Alternating Current) (RMS, root mean square value) of normal rated power. However, if the result value exceeds the highest current of regulated standards, the highest normal rated power is to be used

$$I = \sqrt{P \div R}$$

I = Rating current (A)

P= Rating Power (W)

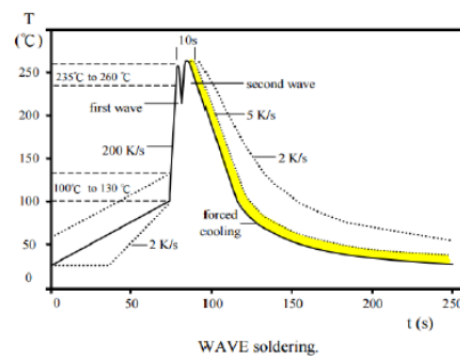
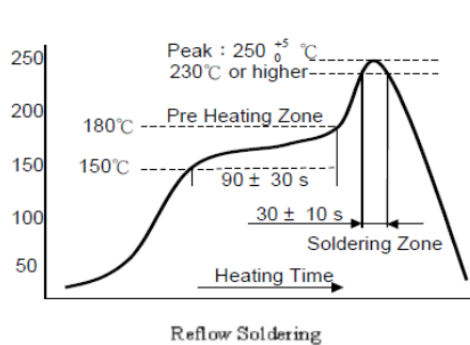
R= Resistance( $\Omega$ )

## 10. Performance Specification

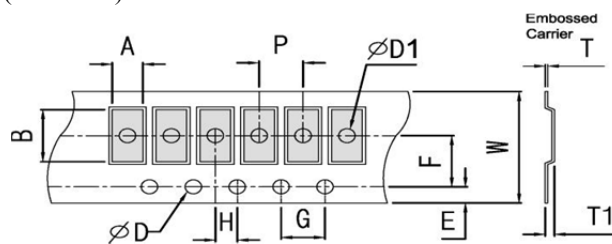
| Test Item                       | Test Methods<br>(GB/T 5729, JIS-C-5201, IEC 60115-1)                                                                                                                                                                                                                                                                                | Requirements                                                                |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Temperature Coefficient         | 4.8 Natural resistance changes per temp. Degree centigrade<br>$\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/°C)}$ R1: resistance value at room temp. (t <sub>1</sub> )<br>R2: resistance value at room temp. +100°C (t <sub>2</sub> )<br>Test pattern: room temp. (t <sub>1</sub> ), room temp. +100°C(t <sub>2</sub> ) | List by specification                                                       |
| Short-time overload             | 4.13 The number of rated power are as follows :<br>LR06: 4 times of rated power;<br>LR12-2W: 5 times of rated power; LR12-3W: 4 times of rated power;<br>LR25: 4 times of rated power;<br>LR28: 4 times of rated power;<br>LR27-3W: 5 times of rated power; LR27-5W: 3 times of rated power;<br>for 5 seconds                       | LR27: $\Delta R \leq \pm 2.0\%$<br>The others:<br>$\Delta R \leq \pm 0.5\%$ |
| Load Life                       | 4.25.1 Permanent Resistance change after 1000 hours operating at rated working current or Max .Working Current whichever less with duty cycle of 1.5hours “ON” , 0.5 hour “OFF” at 70 $\pm$ 2°C ambient.                                                                                                                            | LR27: $\Delta R \leq \pm 2.0\%$<br>The others:<br>$\Delta R \leq \pm 1.0\%$ |
| High Temperature Exposure       | <b>MIL-STD-202 108A</b><br>Exposed to a temperature of 155 $\pm$ 2°C for 1000H.                                                                                                                                                                                                                                                     | LR27: $\Delta R \leq \pm 2.0\%$<br>The others:<br>$\Delta R \leq \pm 1.0\%$ |
| Biased Humidity                 | <b>MIL-STD-202 Method 103</b><br>1000 hours 85°C/85%RH. Note: Specified conditions:10% of operating power.<br>Measurement at 24 $\pm$ 4 hours after test conclusion.                                                                                                                                                                | $\Delta R \leq \pm 0.5\%$                                                   |
| Rapid change of temperature     | 4.19. 30 min at -55 °C and 30 min at 155°C; 100 cycles                                                                                                                                                                                                                                                                              | $\Delta R \leq \pm 0.5\%$                                                   |
| Terminal bending                | 4.33. 2mm , 10Sec                                                                                                                                                                                                                                                                                                                   | $\Delta R \leq \pm 0.5\%$                                                   |
| Resistance to Solder Heat       | 4.18 Dip the resistor into a temperature of 260 $\pm$ 5°C and hold it for a 10 $\pm$ 1 seconds.                                                                                                                                                                                                                                     | $\Delta R \leq \pm 0.5\%$                                                   |
| Solderability                   | 4.17 The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Temperature of solder: 245 $\pm$ 3°C; Dwell time in solder: 2~3 seconds.                                                                                                                                             | >95% Coverage                                                               |
| Dielectric Withstanding Voltage | 4.7 Applied 500 VAC for 1 minute , and Limit surge current 50 mA (max.)                                                                                                                                                                                                                                                             | No short or burned on the appearance                                        |
| Terminal Strength               | 4.16 5N , 10 seconds                                                                                                                                                                                                                                                                                                                | No broken                                                                   |

## For Jumper

| Test Item                   | Test Methods<br>(GB/T 5729, JIS-C-5201, IEC 60115-1)                                                                                                                                                              | Requirements              |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Short Time Overload         | 4.13 Permanent resistance change after the application of a potential of 4 times power rate for 5 seconds                                                                                                         | $\cong 0.2\text{m}\Omega$ |
| Rapid change of temperature | 4.19 30 min at $-55^\circ\text{C}$ and 30 min at $170^\circ\text{C}$ ; 100 cycles                                                                                                                                 | $\cong 0.2\text{m}\Omega$ |
| High Temperature Exposure   | <b>MIL-STD-202 108A</b><br>Exposed to a temperature of $170\pm 2^\circ\text{C}$ for 1000H.                                                                                                                        | $\cong 0.2\text{m}\Omega$ |
| Biased Humidity             | <b>MIL-STD-202 Method 103</b><br>1000 hours $85^\circ\text{C}/85\%\text{RH}$ . Note: Specified conditions: 10% of operating power. Measurement at $24\pm 4$ hours after test conclusion.                          | $\cong 0.2\text{m}\Omega$ |
| Load Life                   | 4.25 Permanent Resistance change after 1000 hours operating at rated working current or Max. Working Current whichever less with duty cycle of 1.5 hours "ON", 0.5 hour "OFF" at $70\pm 2^\circ\text{C}$ ambient. | $\cong 0.2\text{m}\Omega$ |
| Solderability               | 4.17 The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Temperature of solder : $245\pm 3^\circ\text{C}$ ; Dwell time in solder: 2~3 seconds.              | >95% coverage             |

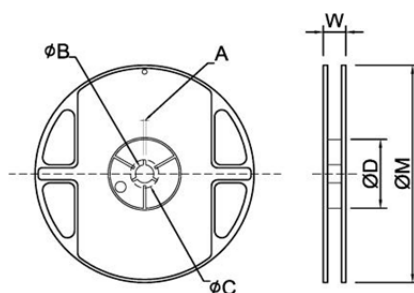
11. Soldering Profile12. Packing of Surface Mount Resistors

## 12.1 Embossed Dimensions:(Unit: mm)



| Type | Resistance Range | W         | P         | E         | F         | φ D                                | φ D1      | G        | H        | A         | B         | T1        | T         |
|------|------------------|-----------|-----------|-----------|-----------|------------------------------------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| LR05 | 1~15mΩ           | 8.0±0.30  | 4.0±0.10  | 1.75±0.10 | 3.5±0.10  | 1.50 <sup>+0.1</sup> <sub>-0</sub> | 1.0±0.10  | 4.0±0.10 | 2.0±0.10 | 2.03±0.10 | 3.55±0.10 | 0.80±0.20 | 0.20±0.05 |
| LR06 | 1mΩ              | 8.0±0.30  | 4.0±0.10  | 1.75±0.10 | 3.5±0.10  |                                    | 1.0±0.10  | 4.0±0.10 | 2.0±0.10 | 2.03±0.10 | 3.55±0.10 | 1.10±0.10 | 0.20±0.05 |
|      | 2~100mΩ          |           |           |           |           |                                    |           |          |          |           |           | 0.85±0.10 |           |
| LR12 | 0.5mΩ            | 12.0±0.30 | 4.0±0.10  | 1.75±0.10 | 5.5±0.10  |                                    | 1.55±0.10 | 4.0±0.10 | 2.0±0.10 | 3.50±0.10 | 6.80±0.10 | 1.10±0.10 | 0.20±0.05 |
|      | 1~500mΩ          |           |           |           |           |                                    |           |          |          |           |           | 0.90±0.10 |           |
| LR25 | 0.25~3mΩ         | 12.0±0.30 | 8.0±0.10  | 1.75±0.10 | 5.5±0.10  |                                    | 1.55±0.10 | 4.0±0.10 | 2.0±0.10 | 6.81±0.10 | 7.16±0.10 | 1.05±0.10 | 0.25±0.05 |
| LR28 | 4~450mΩ          | 12.0±0.30 | 8.0±0.10  | 1.75±0.10 | 5.5±0.10  |                                    | 1.55±0.10 | 4.0±0.10 | 2.0±0.10 | 7.10±0.10 | 7.05±0.10 | 0.95±0.10 | 0.20±0.05 |
| LR27 | 0.5~500mΩ        | 24.0±0.30 | 12.0±0.10 | 1.75±0.10 | 11.5±0.10 |                                    | 1.50±0.10 | 4.0±0.10 | 2.0±0.10 | 7.38±0.10 | 12.0±0.10 | 1.05±0.10 | 0.30±0.10 |

## 12.2 Dimension of Reel : (Unit: mm)



| Type | Taping   | Qty/Reel             | A       | ΦB       | ΦC       | ΦD       | W        | ΦM      |
|------|----------|----------------------|---------|----------|----------|----------|----------|---------|
| LR05 | Embossed | 5,000pcs             | 2.0±0.5 | 13.0±0.5 | 21.0±0.5 | 60.0±1.0 | 10.0±1.0 | 178±2.0 |
| LR06 | Embossed | 5,000pcs             | 2.0±0.5 | 13.0±0.5 | 21.0±0.5 | 60.0±1.0 | 10.0±1.0 | 178±2.0 |
| LR12 | Embossed | 4,000pcs             | 2.0±0.5 | 13.0±0.5 | 21.0±0.5 | 60.0±1.0 | 13.8±1.0 | 178±2.0 |
| LR25 | Embossed | 2,000pcs<br>1,000pcs | 2.5±0.5 | 13.5±0.5 | 17.7±0.5 | 60.0±1.0 | 16.2±1.0 | 178±2.0 |
| LR28 | Embossed | 2,000pcs<br>1,000pcs | 2.5±0.5 | 13.5±0.5 | 17.7±0.5 | 60.0±1.0 | 16.2±1.0 | 178±2.0 |
| LR27 | Embossed | 1,000pcs<br>500pcs   | 2.0±0.5 | 13.2±0.5 | 17.7±0.5 | 60.0±1.0 | 24.4±2.0 | 178±2.0 |

## 13. Note

13.1 UNI-ROYAL recommend the storage condition temperature:  $25 \pm 5^{\circ}\text{C}$ , humidity :  $60 \pm 20\%$ .

(Put condition for individual product).

Even under UNI-ROYAL recommended storage condition, solderability of products over 1 year old. (Put condition for each product) may be degraded.

13.2 Store / transport cartons in the correct direction, which is indicated on a carton as a symbol.

Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.

13.3 Product performance and soldered connections may deteriorate if the products are stored in the following places:

- Storage in high Electrostatic.
- Storage in direct sunshine、rain and snow or condensation.
- Where the products are exposed to sea winds or corrosive gases, including  $\text{Cl}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{NH}_3$ ,  $\text{SO}_2$ ,  $\text{NO}_2$ .

## 14. Record

| Version | Description                                                                                                     | Page               | Date         | Amended by  | Checked by |
|---------|-----------------------------------------------------------------------------------------------------------------|--------------------|--------------|-------------|------------|
| 1       | First version                                                                                                   | 1~7                | Jun.19, 2019 | Haiyan Chen | Yuhua Xu   |
| 2       | Modify Ordering Procedure                                                                                       | 2                  | Sep.18, 2019 | Haiyan Chen | Yuhua Xu   |
| 3       | 1. Add LR06 3/4w power<br>2. Modify the resistance range<br>3. Modify the Dimension<br>4. Modify characteristic | 4<br>3<br>4<br>6~7 | Dec.03, 2019 | Haiyan Chen | Yuhua Xu   |
| 4       | 1.Add the LR05 specification<br>2.Modify Ordering Procedure                                                     | 1~10<br>2          | Mar.18, 2020 | Haiyan Chen | Yuhua Xu   |
| 5       | Standard specification                                                                                          | 1~8                | Apr.09, 2020 | Haiyan Chen | Yuhua Xu   |