

# DATASHEET

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|                     |                                         |
|---------------------|-----------------------------------------|
| <b>Product Name</b> | <b>Communication Terminal Resistors</b> |
|---------------------|-----------------------------------------|

|                  |                                                             |
|------------------|-------------------------------------------------------------|
| <b>Part Name</b> | <b>CTR 1/4W <math>\pm 1\%</math> 120<math>\Omega</math></b> |
|------------------|-------------------------------------------------------------|

|                 |                       |
|-----------------|-----------------------|
| <b>Part No.</b> | <b>CTR0W4F1200B00</b> |
|-----------------|-----------------------|

|                 |                   |
|-----------------|-------------------|
| <b>File No.</b> | <b>DIP-SP-125</b> |
|-----------------|-------------------|

## Uniroyal Electronics Global Co., Ltd.

88#, Longteng Road, Economic & Technical Development Zone, Kunshan, Jiangsu, China

Tel +86 512 5763 1411 / 22 /33

Email [marketing@uni-royal.cn](mailto:marketing@uni-royal.cn)

Manufacture Plant Uniroyal Electronics Industry Co., Ltd.

Aeon Technology Corporation

Royal Electronic Factory (Thailand) Co., Ltd.

Royal Technology (Thailand) Co., Ltd.

## 1. Scope

- 1.1 This datasheet is the characteristics of Communication Terminal Resistors manufactured by UR.
- 1.2 Compliant with RoHS directive.
- 1.3 Halogen free requirement.

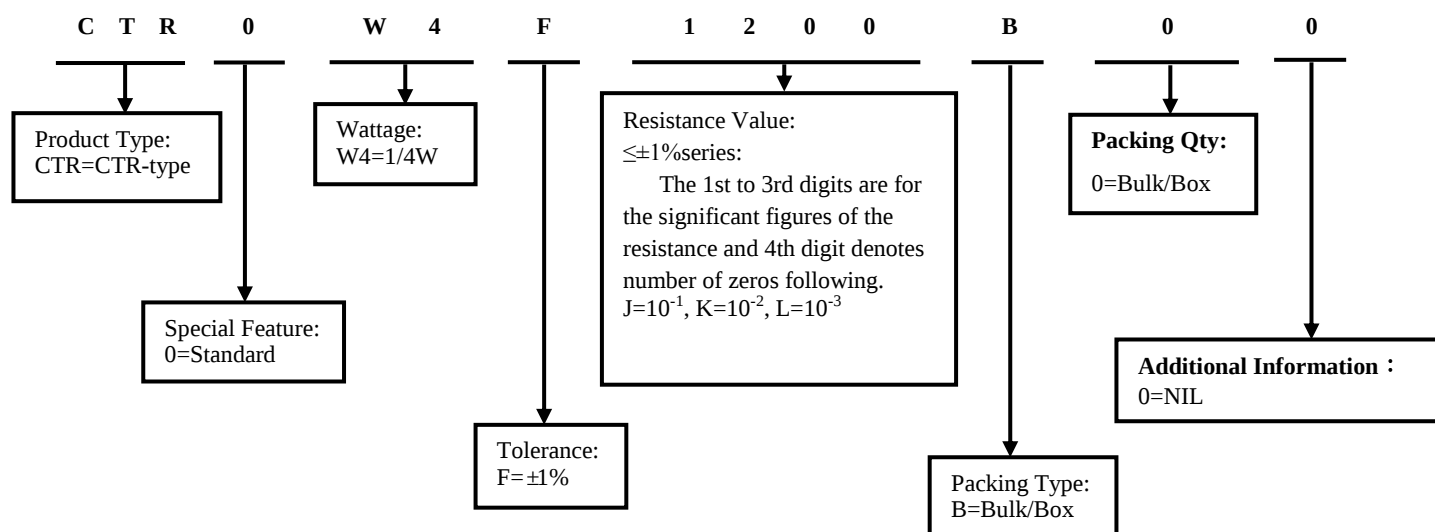
## 2. Part No. System

The standard Part No. includes 14 digits with the following explanation:

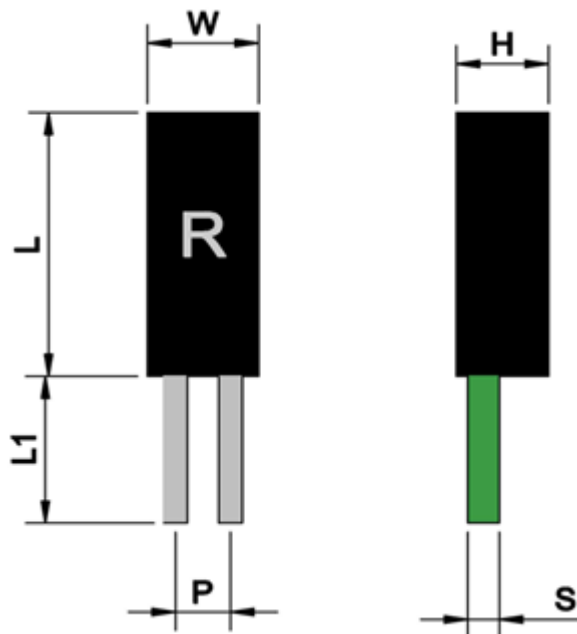
- 2.1 For Cement Fixed Resistors, these 4 digits are to indicate the product type but if the product type has only 3digits, the 4<sup>th</sup> digit will be "0"  
Example: CTR=CTR-type
- 2.2 5<sup>th</sup>~6<sup>th</sup> digits:
  - 2.2.1 For power of 1 watt to 16 watt ,the 5<sup>th</sup> digit will be a number or a letter code and the 6<sup>th</sup> digit will be the letters of W.  
Example: W4=1/4W
- 2.3 The 7<sup>th</sup> digit is to denote the Resistance Tolerance. The following letter code is to be used for indicating the standard Resistance Tolerance.  
F=±1%
- 2.4 The 8<sup>th</sup> to 11<sup>th</sup> digits is to denote the Resistance Value.
  - 2.4.1 For the standard resistance values of E-24 series, the 8<sup>th</sup> digit is "0",the 9<sup>th</sup> & 10<sup>th</sup> digits are to denote the significant figures of the resistance and the 11<sup>th</sup> digit is the number of zeros following;
  - 2.4.2 The following number s and the letter codes are to be used to indicate the number of zeros in the 11th digit:  
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>
- 2.5 The 12<sup>th</sup>, 13<sup>th</sup> & 14<sup>th</sup> digits.
  - 2.5.1 The 12<sup>th</sup> digit is to denote the Packaging Type with the following codes:  
B=Bulk/Box
  - 2.5.2 The 13<sup>th</sup> digit is normally to indicate the Packing Quantity of Tape/Box & Tape/Reel packaging types. Using "0" to indicate the Bulk packaging types, the following letter codes is to be used for some packing quantities:  
0=Bulk/Box
  - 2.5.3 For some items, the 14<sup>th</sup> digit alone can use to denote special features of additional information with the following codes or standard product  
Example: 0= standard product

## 3. Ordering Procedure

(Example: CTR 1/4W ±1% 120Ω B/B )



## 4. Dimension (mm)

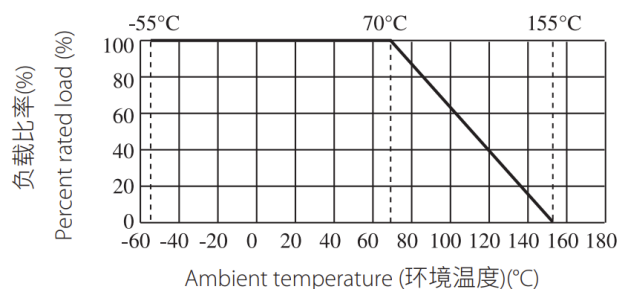


| Type     | W+0.1/-0 | L+1/-0 | L1+0/-1 | H+0.1/-0 | P±0.1 | S±0.1 |
|----------|----------|--------|---------|----------|-------|-------|
| CTR 1/4W | 7.1      | 18     | 10      | 5.9      | 3.5   | 2     |

## 5. Ratings

| Type | Power | Resistance Range | Tolerance | Operating Temperature |
|------|-------|------------------|-----------|-----------------------|
| CTR  | 1/4W  | 120Ω             | ±1%       | -55°C~+155°C          |

## 6. Derating Curve



### 6.1 Voltage rating:

Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial-line frequency and waveform corresponding to the power rating, as determined from the following formula:

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

Where: RCWV = rated dc or RMS ac continuous working voltage at commercial-line frequency and waveform (VOLT.)

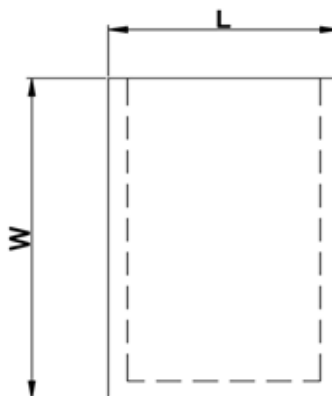
P = power rating (WATT.) R = nominal resistance (OHM)

## 7. Performance Specification

| Characteristic                  | Limits                                                                                                | Test Methods<br>(GB/T5729&JIS-C-5201&IEC60115-1)                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Coefficient         | $\pm 100 \text{PPM}/^{\circ}\text{C}$                                                                 | 4.8 Natural resistance changes per temp. Degree centigrade<br>$\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM}/^{\circ}\text{C})$ $R_1$ : Resistance Value at room temperature ( $t_1$ ) ;<br>$R_2$ : Resistance at test temperature ( $t_2$ )<br>$t_1$ : $+25^{\circ}\text{C}$ or specified room temperature<br>$t_2$ : Test temperature ( $-55^{\circ}\text{C}$ or $125^{\circ}\text{C}$ ) |
| Short-time overload             | Resistance change rate must be in $\Delta R/R \leq \pm(1\% + 0.05\Omega)$ , and no mechanical damage. | 4.13 Permanent resistance change after the application of a potential of 2.5 times RCWV or Max. Overload Voltage whichever less for 5 seconds.                                                                                                                                                                                                                                                         |
| Dielectric withstanding voltage | No evidence of flashover mechanical damage, arcing or insulation break down.                          | 4.7 Testing voltage is 1000V, 60-70 seconds.                                                                                                                                                                                                                                                                                                                                                           |
| Insulation resistance           | $\geq 1 \text{ M}\Omega$                                                                              | Testing voltage is 500V, 60 seconds.                                                                                                                                                                                                                                                                                                                                                                   |
| Rapid change of temperature     | Resistance change rate must be in $\Delta R/R \leq \pm(5\% + 0.05\Omega)$ , and no mechanical damage. | 4.19 30 min at $-55^{\circ}\text{C}$ and 30 min at $155^{\circ}\text{C}$ ; 100 cycles.                                                                                                                                                                                                                                                                                                                 |
| Humidity ( Steady state )       | Resistance change rate must be in $\Delta R/R \leq \pm(5\% + 0.05\Omega)$ , and no mechanical damage. | 4.24 Temporary resistance change after a 240 hours exposure in a humidity test chamber controlled at $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 90 to 95% relative humidity.                                                                                                                                                                                                                       |
| Load life in humidity           | Resistance change rate must be in $\Delta R/R \leq \pm(1\% + 0.05\Omega)$ , and no mechanical damage. | 7.9 Resistance change after 1000 hours (1.5hours "ON" , 0.5hours "OFF" ) at RCWV or Max. Working Voltage whichever less in a humidity test chamber controlled at $40 \pm 2^{\circ}\text{C}$ and $93\% \pm 3\%$ RH.                                                                                                                                                                                     |
| Load life                       | Resistance change rate must be in $\Delta R/R \leq \pm(1\% + 0.05\Omega)$ , and no mechanical damage. | 4.25.1 Permanent Resistance change after 1000 hours operating at RCWV or Max. Working Voltage whichever less with duty cycle of 1.5 hours "ON" , 0.5 hour "OFF" at $70 \pm 2^{\circ}\text{C}$ ambient.                                                                                                                                                                                                 |
| Terminal strength               | No evidence of mechanical damage                                                                      | 4.16 Resistance to a 2.5Kg direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads.                                                                                                                                                                                                                                                                                 |

## 8. Packing

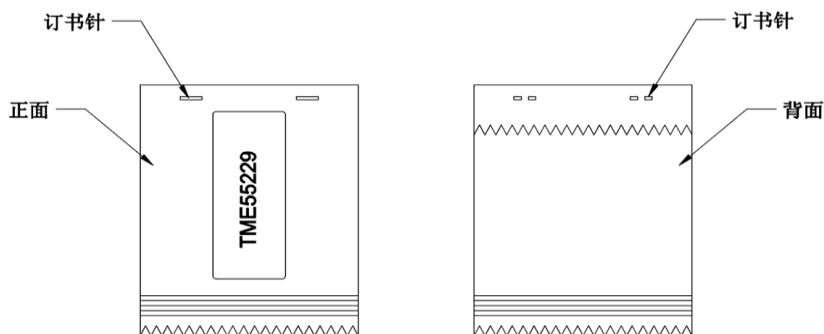
### 8.1 Kraft paper bag



| Unit: mm |                 |           |           |          |
|----------|-----------------|-----------|-----------|----------|
| Type     | Packing         | W $\pm 1$ | L $\pm 1$ | Quantity |
| CTR      | Kraft paper bag | 90        | 60        | 2pcs     |

Note: Kraft paper bag sealed with paper tape.

## 8.2 Label



## 9. Note

9.1. UNI-ROYAL recommend products store in warehouse with temperature between 15 to 35℃ under humidity between 25 to 75%RH.

Even under storage conditions recommended above, solder ability of products will be degraded stored over 1 year old.

9.2. Cartons must be placed in correct direction which indicated on carton, otherwise the reel or wire will be deformed.

9.3. Storage conditions as below are inappropriate:

- Stored in high electrostatic environment
- Stored in direct sunshine, rain, snow or condensation.
- Exposed to sea wind or corrosive gases, such as  $\text{Cl}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{NH}_3$ ,  $\text{SO}_2$ ,  $\text{NO}_2$ , Br etc.

## 10. Record

| Version | Description                                        | Page   | Date         | Amended by | Checked by  |
|---------|----------------------------------------------------|--------|--------------|------------|-------------|
| 1       | First version                                      | 1~4    | Sep.29, 2024 | Junying Ye | Haiyan Chen |
| 2       | Modify the tolerance of the "H"<br>Add the packing | 3<br>4 | Nov.06,2024  | Junying Ye | Haiyan Chen |
| 3       | Add Terminal strength<br>Add packaging remarks     | 4      | Nov.15,2024  | Junying Ye | Haiyan Chen |
| 4       | Add label                                          | 5      | Nov.22,2024  | Junying Ye | Haiyan Chen |

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