

# DATASHEET

**Product Name**    **Weld Semi-Finished Product Resistors**

---

**Part Name**    **WMO Series**

**File No.**    **DIP-SP-084**

## **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 Weld Semi-Finished Product Resistors manufactured by UNI-ROYAL.
- 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 1<sup>th</sup>~4<sup>th</sup> digits

This is to indicate the Chip Resistor. Example: WMO0= Weld Semi-Finished Product Resistors

### 2.2 5<sup>th</sup>~6<sup>th</sup> indicate material size.

Example: 18=4×22; 23=5×40; 22=5×51; 13=7×28; 15=7×51

### 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.

J=±5%

### 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 5%&10% 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;

For the standard resistance values of ≤2% series in, the 8<sup>th</sup> digit to the 10<sup>th</sup> digits is to denote the significant figures of the resistance and the 11<sup>th</sup> digit is the 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 11<sup>th</sup> 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>

#### 2.4.3 The 12<sup>th</sup>, 13<sup>th</sup> & 14<sup>th</sup> digits.

The 12<sup>th</sup> digit is to denote the Packaging Type with the following codes:

B=Bulk/Box

#### 2.4.4 The 13<sup>th</sup> digit is normally to indicate the Packing Quantity of Tape/Reel packaging types. The following letter code is to be used for some packing quantities:

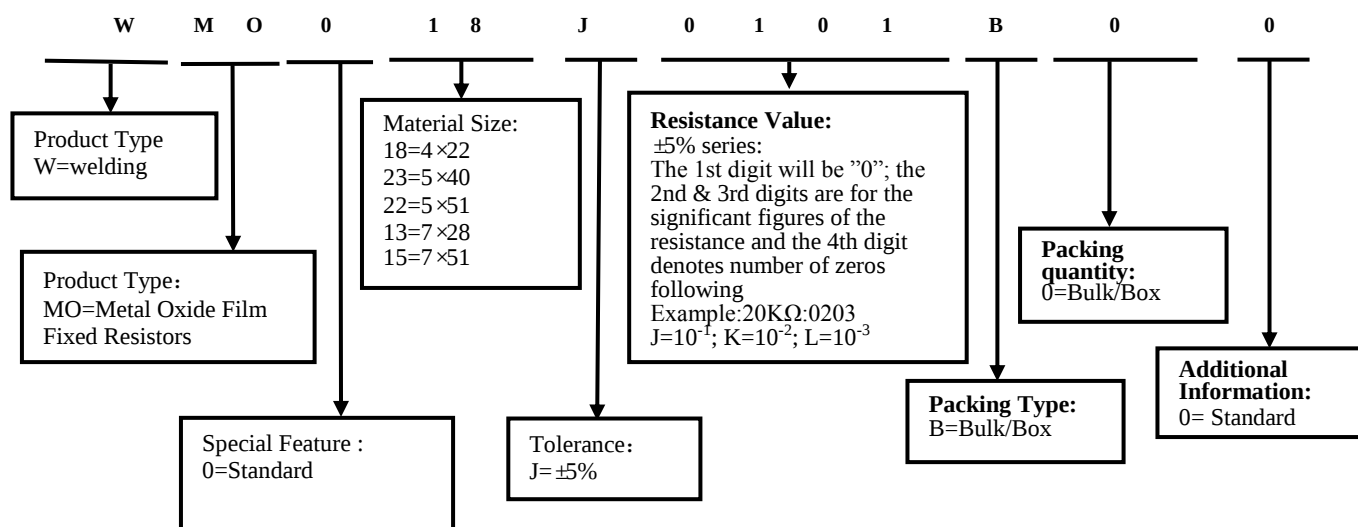
0=Bulk/Box

#### 2.4.5 For some items, the 14<sup>th</sup> digit alone can use to denote special features of additional information with the following codes:

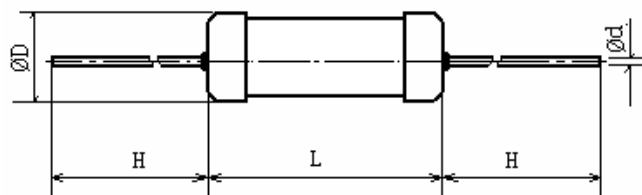
0=Standard

## 3. Ordering Procedure

(Example: WMO 4×22 ±5% 100Ω B/B)



## 4. Dimension

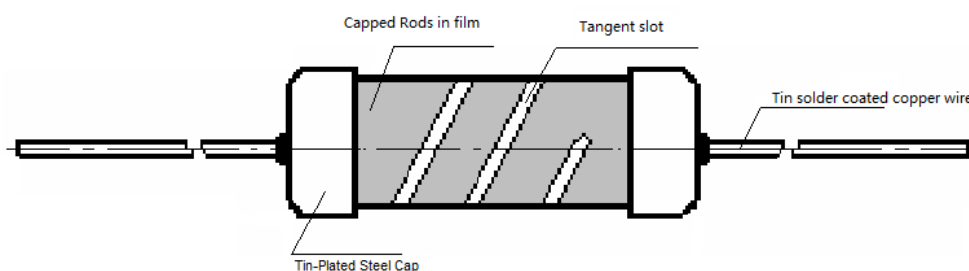


Unit: mm

| Type | Size | L           | ΦD        | H        | Φd±0.05 | Resistance Range |
|------|------|-------------|-----------|----------|---------|------------------|
| WMO  | 4×22 | 22.10-23.18 | 4.57-4.75 | 40±0.5   | 0.80    | 0.1Ω~560KΩ       |
|      | 5×40 | 39.6-44.8   | 5.48-5.6  | 38±0.5   | 0.80    | 0.1Ω~560KΩ       |
|      | 5×51 | 50.6-52.48  | 5.48-5.66 | 38±0.5   | 0.80    | 0.1Ω~560KΩ       |
|      | 7×28 | 27.96-29.09 | 7.39-7.61 | 37.0±0.2 | 0.75    | 20Ω~150KΩ        |
|      | 7×51 | 50.96-52.09 | 7.39-7.61 | 37.0±0.2 | 0.75    | 50Ω~200KΩ        |

\* “H” & “Φ d” can be specially provided according to customer requirements

## 5. Structure



## 6. Performance Specification

| Characteristic          | Limits                                                                                                                                                                                                                                     | Test Methods<br>(GB/T5729&JIS-C-5201&IEC60115-1)                                                                                                                                                                                                                                                                                                                                             |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Coefficient | <b>4×22; 5×40; 5×51:</b><br>$\leq 150\text{K}\Omega: \pm 350\text{PPM}/^\circ\text{C}$<br>$150\text{K}\Omega < R \leq 560\text{K}\Omega: 0 \sim -700\text{PPM}/^\circ\text{C}$<br><b>7×28; 7×51:</b><br>$\pm 350\text{PPM}/^\circ\text{C}$ | 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 °C or specified room temperature<br>$t_2$ : Test temperature (-55 °C or 125 °C)                                        |
| Solderability           | 95% coverage Min.                                                                                                                                                                                                                          | 4.17 The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes.<br>Test temp. Of solder: 245 °C ± 3 °C<br>Dwell time in solder 2~3 seconds.                                                                                                                                                                                                   |
| Terminal strength       | No evidence of mechanical damage                                                                                                                                                                                                           | 4.16 Direct load:<br>Resistance to a 2.5 kg direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads.<br>Twist test:<br>Terminal leads shall be bent through 90° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating direction for a total of 3 rotations. |

## 7. Precaution for storage/Transportation

7.1. 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.

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

7.3. Storage conditions as below are inappropriate:

- a. Stored in high electrostatic environment
- b. Stored in direct sunshine, rain, snow or condensation.
- c. Exposed to sea wind or corrosive gases, such as Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>2</sub>, Br etc.

## 8. Record

| Version | Description   | Page | Date         | Amended by  | Checked by |
|---------|---------------|------|--------------|-------------|------------|
| 1       | First version | 1~4  | Aug.07, 2023 | Haiyan Chen | Yuhua Xu   |

© Uniroyal Electronics Global Co., Ltd. All rights reserved. Specification herein will be changed at any time without prior notice