



# DATASHEET

**Product Name** Cement Heating Fixed Resistors

**Part Name** PRWP 3W Series

**File No.** DIP-SP-063

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## 1. Scope:

- 1.1 This datasheet is the characteristics of Cement Heating Fixed Resistors manufactured by UNI-ROYAL.
- 1.2 Double resistor design, high calorific value, high power, strong pressure resistance
- 1.3 For electrical mosquito repeller
- 1.4 For fragrance diffuser
- 1.5 Compliant with RoHS directive.
- 1.6 Halogen free requirement.

## 2. Part No. System:

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

- 2.1 For Arc porcelain shell Fixed resistor, these 4 digits are to indicate the product type .

Example: PRWP=PRWP- 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: 3W=3W;

- 2.3 The 7th digit is to denote the Resistance Tolerance. The following letter code is to be used for indicating the standard Resistance Tolerance.

J=±5% ; K=±10%

- 2.4 The 8<sup>th</sup> to 11<sup>th</sup> digits is to denote the Resistance Value.

2.4.1 For Cement Fixed Resistors the 8<sup>th</sup> digits will be coded with “W”or “P”to denote Wire-wound type or Power Film type respectively of the Cement Fixed Resistor product. 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. Example: P652=6.5KΩ

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.

2.5.1The 12<sup>th</sup> digit is to denote the Packaging Type with the following codes:B=Bulk/Box

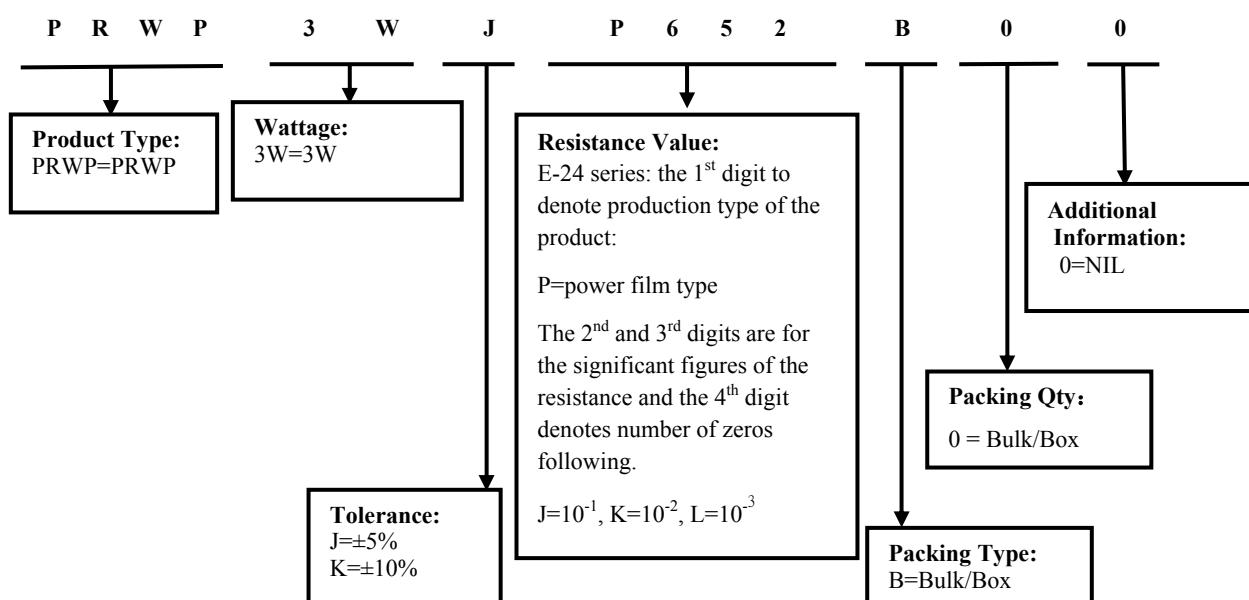
2.5.2 The 13<sup>th</sup> digit is normally to indicate the Packing Quantity, This digit should be filled with “0”for theCemen products with “Bulk/Box” packing requirements.

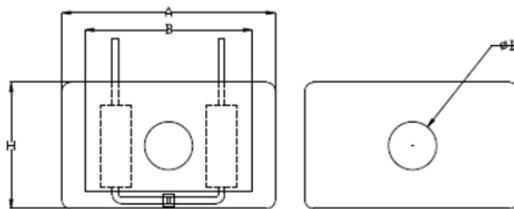
- 2.5.3 For some items, the 14<sup>th</sup> digit alone can use to denote special features of additional information with the following codes or standard product

Example: 0= standard product

## 3. Ordering Procedure

(Example: PRWP 3W ±5% 6.5KΩ B/B )

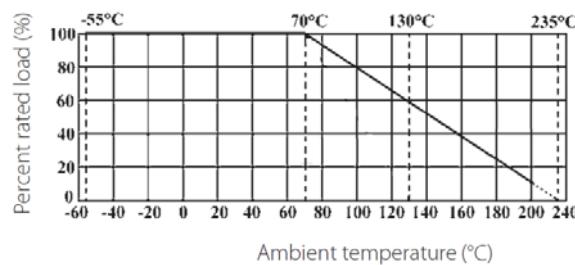


**4. Dimension (Unit: mm)**


Type	A±1	B±0.5	H±0.5	Φ D±0.5	Tolerance	Resistance Range
PRWP 3W	40	32.5	24.5	10	±5% & ±10%	5K4~25K

**5. Derating Curve**

Resistors shall have a power rating based on continuous load operation at an ambient temperature from -55°C to 70°C. For temperature in excess of 70°C, the load shall be derate as shown in figure 1


**5.1 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)

**6. Performance Specification**

Characteristic	Limits	Test Method (GB/T5729&JIS-C-5201&IEC60115)
Temperature Coefficient	±350PPM/°C	4.8 Natural resistance changes per temp. Degree centigrade $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/°C)}$ <p>R<sub>1</sub>: Resistance Value at room temperature (t<sub>1</sub>) ;  R<sub>2</sub>: Resistance at test temperature (t<sub>2</sub>)  t<sub>1</sub>: +25°C or specified room temperature  t<sub>2</sub>: Test temperature (-55°C or 125°C)</p>
Short-time overload	ΔR/R:±(5%+0.05Ω) 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 Resistors shall be clamped in the trough of a 90°metallic V-block and shall be tested at AC potential respectively specified in the above list for 60-70 seconds. for cement fixed resistors the testing voltage is 1000V.

Solderability	95% coverage Min.	4.17 The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Temperature of solder:245±3°C; Dwell time in solder: 2~3 seconds.
Rapid change of temperature	ΔR/R: ±(2.0%+0.05 Ω) and no mechanical damage.	4.19 30 min at -55 °C and 30 min at 155°C; 100 cycles.
Load life in humidity	ΔR/R: ±(5.0%±0.05 Ω) and no mechanical damage.	4.24 Resistance change after 1000 hours (1.5 hours “ON”, 0.5 hours “OFF”) at RCWV or Max. Working Voltage whichever less in a humidity test chamber controlled at 40±2°C and 93%±3% RH.
Load life	ΔR/R: ±(5.0%±0.05 Ω) and no mechanical damage.	4.25.1 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±2°C ambient.

## 7. Note

7.1 UN-ROYAL recommend the storage condition temperature: 15°C~35°C, humidity :25%~75%.  
(Put condition for individual product)  
Even under UNI-ROYAL recommended storage condition, solderability of products over 1 year old. (Put condition for each product) many be degraded.

7.2 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.

7.3 Product performance and soldered connections may deteriorate if the products are stored in the following places:  
a. Storage in high Electrostatic  
b. Storage in direct sunshine、rain and snow or condensation  
c. Where the products are exposed to sea winds or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>2</sub>.

## 8. Record

Version	Description of amendment	Page	Date	Amended by	Checked by
1	First issue of this specification	1~4	Jul.06, 2023	Fucong Liu	Haiyan Chen