UniOhm

C O N F I D E N T I A L D O C U M E N T

SPECIFICATION FOR APPROVAL

DACHS

Description : Cement Fixed Wire Wound

(Lead Type)

Customer Part no.: 103372

UniOhm Part no.: PRWE18JW102B00 (PRWE 18W +/-5% 1KΩ (Wire-wound))

Approved by

RoHS V3 Compliant (EU) 2015/863

REACH Compliant

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Issue Date: 2024/03/01

CHANGE NOTIFICATION HISTORY

Version	Date of Version	History	Remark
1	2023/09/04	1. Resistance value: 1KΩ	
2	2024/03/01	1. Correct the dimension (W2) to 2.3± 0.3mm	Page.5

Cement Fixed Wire Wound

1. Scope:

This specification for approval relates to Cement Fixed Wire Wound manufactured by UniOhm 's specifications.

2. Type designation:

The type designation shall be in the following form:

(Ex.)	PRWE	18W	J	1KΩ
	Type	Power Rating	Resistance Tolerance	Nominal Resistance

3. Ratings:

Ratings shall be shown in the table 1.

Table 1

Type	PRWE
Rated Power	18W at 70℃
Rated Ambient Temp.	70 ℃
Operating Temp. Range	-55℃ --- +155℃
Resistance Tolerance	± 5%
Wire-wound Resistance Value	1KΩ

3.1 Power rating:

Resistors shall have a power rating based on continuous full load operation at an ambient temperature of 70 ℃

3.2 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:

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

Note : Max. Working Voltage or $\sqrt{P \times R}$ whichever is lesser

Max. Overload Voltage or 2.5 $\sqrt{P \times R}$ whichever is lesser

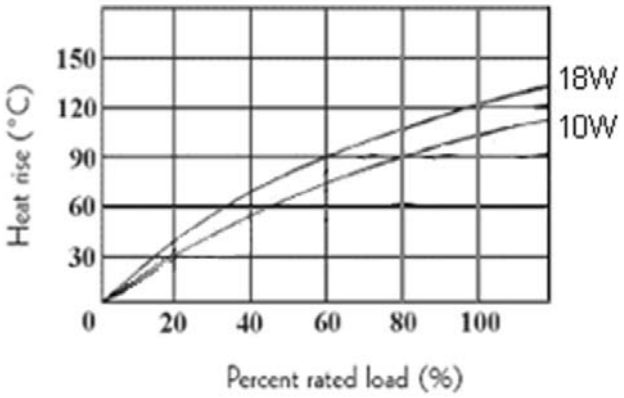
Were : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt)

P = Power Rating (watt)

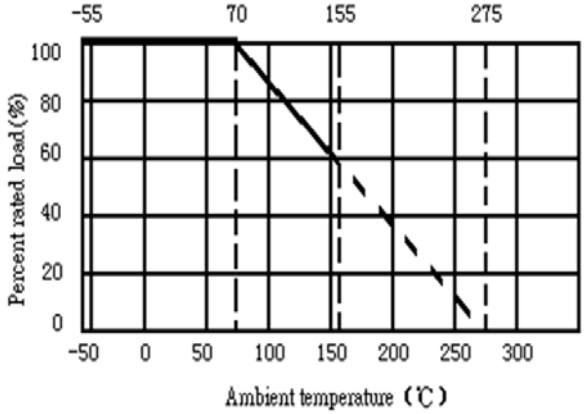
R = Nominal Resistance (ohm)

Cement Fixed Wire Wound

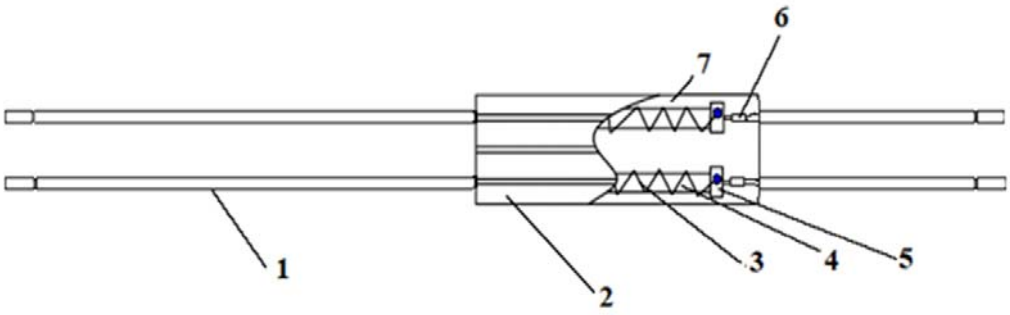
Heat Rise Chart



Derating Curve



4. Construction:



No.	Name	Material Generic Name
1	Silica wire	/
2	Ceramic case	Al_2O_3 C_aO
3	Alloy wire	Ni Cr
4	Body	Al_2O_3
5	Cap	Tin plated iron
6	Connect terminal	Cu
7	Filling materials	SiO_2

Cement Fixed Wire Wound

5. Characteristic :

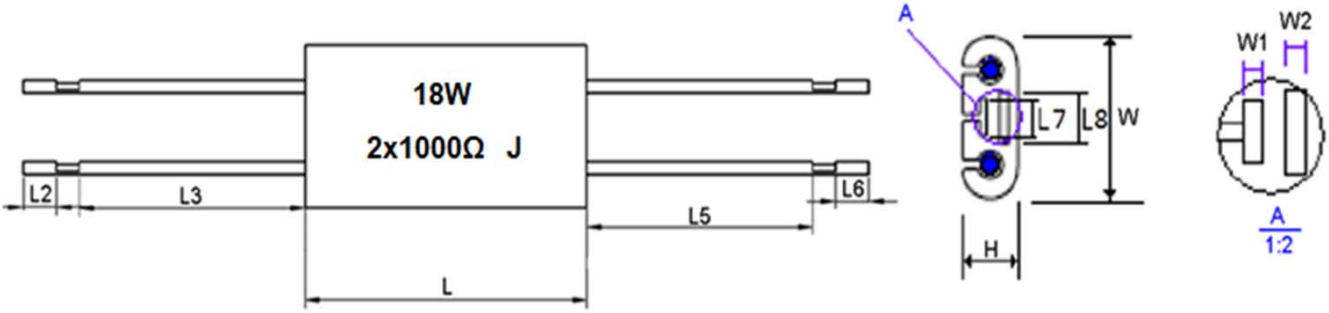
Characteristics	Limits	Test Methods (JIS C 5201-1)
Dielectric withstanding voltage	No evidence of flashover, mechanical damage, arcing or insulation break down	Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at AC potential respectively for 60 +10/ -0 secs. for cement fixed resistors the testing voltage is 1000V.
Temperature coefficient	±350 PPM/℃ Max.	Natural resistance change per temp. degree centigrade. $\frac{R_2-R_1}{R_1(t_2-t_1)} \times 10^6$ (PPM/℃) R_1: Resistance value at room temperature (t1) R_2: Resistance value at room temp. plus 100 ℃ (t_2) (Sub-clause 4.8)
Short time overload	Resistance change rate is ± (5% + 0.05Ω) Max. with no evidence of mechanical damage	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds (Sub-clause 4.13)
Terminal strength	No evidence of mechanical damage	**Direct load** : Resistance to a 2.5 kgs direct load for 10 secs. in the direction of the longitudinal axis of the terminal leads **Twist test :** 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 (Sub-clause 4.16)
Solderability	95 % coverage Min.	The area covered with a new , smooth clean , shiny and continuous surface free from concentrated pinholes. Test temp. of solder : 245℃ ±3℃ Dwell time in solder : 2 to 3 secs. (Sub-clause 4.17)
Humidity (Steady state)	Resistance change rate must be in ±(5%+0.05Ω) , and no mechanical damage.	Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at 40±2℃ and 90~95%RH relative humidity (Sub-clause 4.24)

Cement Fixed Wire Wound

<table>
<tr><th>Characteristics</th><th>Limits</th><th>Test Methods
(JIS C 5201-1)</th></tr>
<tr><td>Resistance to soldering heat</td><td>Resistance change rate is
± (1% + 0.05Ω) Max. with no evidence of mechanical damage</td><td>Permanent resistance change when leads immersed to a point 2.0-2.5mm from the body in 260℃±5℃ solder for 10±1 seconds.
(Sub-clause 4.18)</td></tr>
<tr><td>Temperature cycling</td><td>Resistance change rate is
± (2% + 0.05Ω) Max. with no evidence of mechanical damage</td><td>Resistance change after continuous 5 cycles for duty shown below:
<table>
<tr><th>Step</th><th>Temperature</th><th>Time</th></tr>
<tr><td>1</td><td>-55℃ ± 3℃</td><td>30 mins</td></tr>
<tr><td>2</td><td>Room temp.</td><td>10～15 mins</td></tr>
<tr><td>3</td><td>+155℃ ± 2℃</td><td>30 mins</td></tr>
<tr><td>4</td><td>Room temp.</td><td>10～15 mins</td></tr>
</table>
(Sub-clause 4.19)</td></tr>
<tr><td>Load life in humidity</td><td>
<table>
<tr><th colspan="2">Resistance value</th><th>△R/R</th></tr>
<tr><td>Wire-wound</td><td>1KΩ</td><td>± 5%</td></tr>
</table>
</td><td>Resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "on", 0.5 hour "off") in a humidity test chamber controlled at 40 ℃ ± 2 ℃ and 90 to 95 % relative humidity
(Sub-clause 4.24.2.1)</td></tr>
<tr><td>Load life</td><td>
<table>
<tr><th colspan="2">Resistance value</th><th>△R/R</th></tr>
<tr><td>Wire-wound</td><td>1KΩ</td><td>± 5%</td></tr>
</table>
</td><td>Permanent resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "on", 0.5 hour "off") at 70℃ ± 2℃ ambient
(Sub-clause 4.25.1)</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Cement Fixed Wire Wound

6. Dimension : Unit : mm

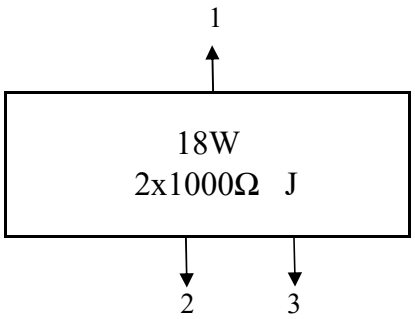


Type	Rating Wattage	L±1.5	L2±1	L3±5	L5±5	L6±1	L7±0.3	L8±0.3
PRWE	18W	75	5	57	120	9	6	8.7

Type	Rating Wattage	W±1	W1±0.3	W2±0.3	H±0.5
PRWE	18W	26.5	1.3	2.3	10

7.Marking :

Ex.



Code description and regulation

1. Wattage rating.
2. Nominal resistance value.
3. Resistance Tolerance.

J : ± 5 %

Color of marking: Black ink

Part Number System

Explanation of Part Number System

(Cement Fixed Wire Wound)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
P	R	W	E	1	8	J	W	1	0	2	B	0	0

Resistor Type:
PRWE = PRWE

Wattage:
18 = 18W

Tolerance:
J ~ ± 5%

Resistance Value:

E-24 series: the 1st digit to denote production type of the product:

W = Wire wound type

The 2nd and 3rd digits are for the significant figures of the resistance and the 4th digit denote number of zeros following

Decimal point is expressed by:

"J" ~ 0.1, "K" ~ 0.01

Ex.: 4.7Ω ~ 47J, 4.7KΩ ~ 472

Packing Type:
B = Bulk/Box

Packing quantity:
00 = For Bulk/Box Packing

Sample: PRWE 18W +/- 5% 1KΩ B/B (Wire-wound) → PRWE18JW102B00

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Environment Related Substance

This product complies to EU RoHS directive, EU PAHs directive, EU PFOS directive and Halogen free.

Ozone layer depleting substances.

Ozone depleting substances are not used in our manufacturing process of this product.
This product is not manufactured using Chloro fluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), Hydrobromofluorocarbons (HBFCs) or other ozone depleting substances in any phase of the manufacturing process.

Storage Condition (MSL1)

The performance of these products, including the solderability, is guaranteed for a year from the date of arrival at your company, provided that they remain packed as they were when delivered and stored at a temperature of 25°C ± 10°C and a relative humidity of 60%RH ± 10%RH, chemical and dust free atmosphere

Even within the above guarantee periods, do not store these products in the following conditions. Otherwise, their electrical performance and/or solderability may be deteriorated, and the packaging materials (e.g. taping materials) may be deformed or deteriorated, resulting in mounting failures.

1. In salty air or in air with a high concentration of corrosive gas, such as Cl_2, H_2S, NH_3, SO_2, or NO_2
2. In direct sunlight

Cement Fixed Wire Wound

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Regardless of the application of UNIOHM products, it is recommended to carry out safety tests while using measures such as protective circuits and redundant circuits to protect the safety of equipment.