

DATASHEET

Product Name **High Power Wire-wound Aluminum Shell Resistance**

Part Name **HAWR Series**

File No. **DIP-SP-060**

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1. Scope:

- 1.1 This datasheet is the characteristics of High Power Wire-wound Aluminum Shell Resistance manufactured by UNI-ROYAL.
- 1.2 Anti-vibration, high stability.
- 1.3 Excellent transient current impact capability, suitable for the start of the inverter under harsh conditions.
- 1.4 Application: Frequency Conversion Equipment, such as Elevator, Freezer, Crane, Lift etc.
- 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 High Power Wire-wound Aluminum Shell Resistance the 1st to 4th digits are to indicate the product type.

Example: HAWR= High Power Wire-wound Aluminum Shell Resistance

2.2 5th ~6th digits:

2.2.1 The 5th & 6th digits will show the connector style.

Example: A0=Terminal Type; B0=Cable Type.

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 8th to 11th digits is to denote the Resistance Value.

2.4.1 For the standard resistance values of 5%&10% series, the 8th digit is “0”, the 9th & 10th digits are to denote the significant figures of the resistance and the 11th 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=10⁰ 1=10¹ 2=10² 3=10³ 4=10⁴ 5=10⁵ 6=10⁶ J=10⁻¹ K=10⁻² L=10⁻³ M=10⁻⁴

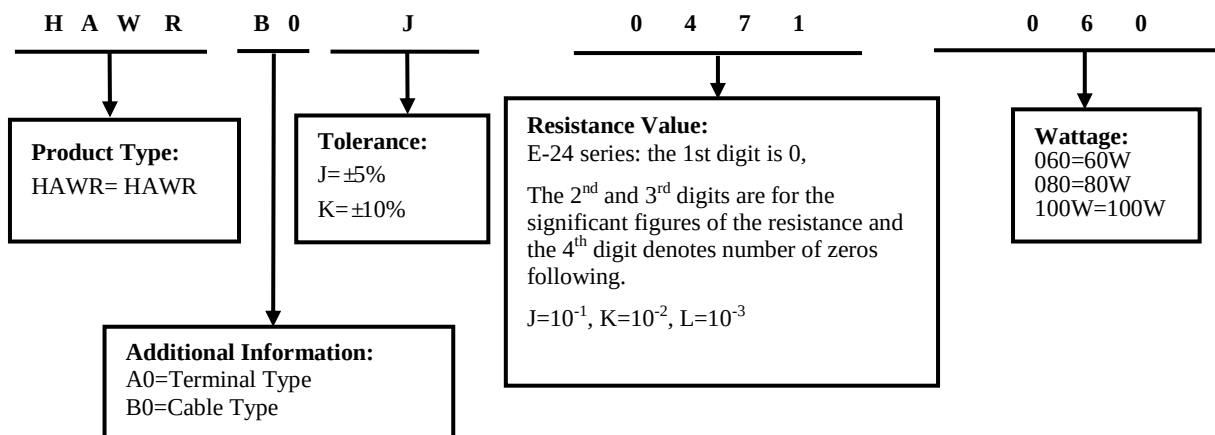
2.5 The 12th ~14th digits.

2.5.1 The 12th to the 14th digits are to denote the actual wattage of the products.

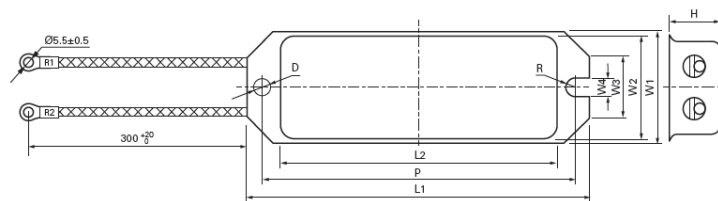
Example: 060 = 60W 080 = 80W 100=100W

3. Ordering Procedure

(Example: HAWR 60W ±5% 470 Ω B/B)



4. Dimension

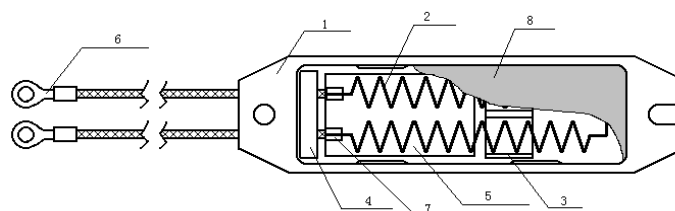


Unit:mm

Type	L1 ±1	L2 ±2	P ±1	W1 ±1	W2 ±1	W3 ±0.5	W4 ±0.2	D ±0.2	H ±1
HAWR60W	100	75.5	90	30	28	16.5	4.5	4.6	16.5
HAWR80W	130.5	104.5	117.5	43	38.5	22	6.0	6.0	21
HAWR100W	130	110	118	42	39	22.5	6.0	6.0	20

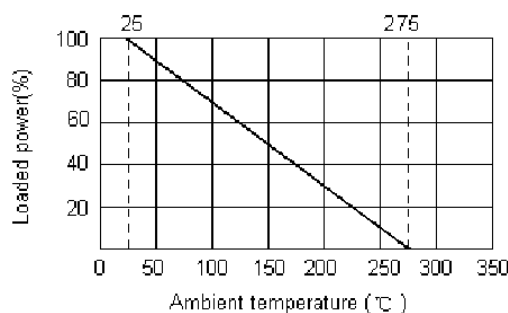
*Remark: For further information, please contact our sales team.

5. Structure



No.	Name	Material Generic Name	Remark
1	Aluminous crust	Aluminum	
2	Alloy wire	Ni Cr	
3	Pedestal	Al ₂ O ₃ CaO	
4	Ceramic parts	Al ₂ O ₃ CaO	
5	Mica	Si Al	
6	Terminal	Cu Sn	
7	Terminal	Cu Sn	
8	Filling Materials	SiO ₂	

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 method (GB/T 5729&JIS-C-5201&IEC60115-1)
Temperature Coefficient	±350 PPM/°C	4.8 Natural resistance changes per temp. Degree centigrade $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/°C)}$ R_1: Resistance Value at room temperature (t_1) ; R_2: Resistance at test temperature (Upper limit temperature or Lower limit temperature) t_1: +25 °C or specified room temperature t_2: Upper limit temperature or Lower limit temperature test temperature
Short-time overload	Resistance change rate is: ±(5%+0.05Ω)max. With no evidence of mechanical damage.	4.13 Permanent resistance change after the application of a potential of 2.5 times RCWV or the max. Overload voltage respectively specified in the above list, whichever less for 5 seconds.
Humidity (Steady State)	Resistance change rate is: ±(5%+0.05Ω)max. With no evidence of mechanical damage.	7.9 Resistance change after 240 hours without load in a humidity test chamber controlled at 40°C ±2°C and 90 to 95% relative humidity.
Load life	Resistance change rate is: ±(5%+0.05Ω)max. With no evidence of 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 25±2°C ambient.
Rapid change of temperature	Resistance change rate is: ±(5%+0.05Ω)max. With no evidence of mechanical damage.	4.19 30 min at -55 °C and 30 min at 155 °C; 100 cycles.

8. Note

8.1. UNI-ROYAL recommend products store in warehouse with temperature between 15 to 35 °C 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.

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

8.3. 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 Cl₂, H₂S, NH₃, SO₂, NO₂, etc.

9. Record

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~4	Apr.16, 2019	Haiyan Chen	Yuhua Xu
2	Modify the ordering procedure	2	Dec.31, 2024	Haiyan Chen	Yuhua Xu

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