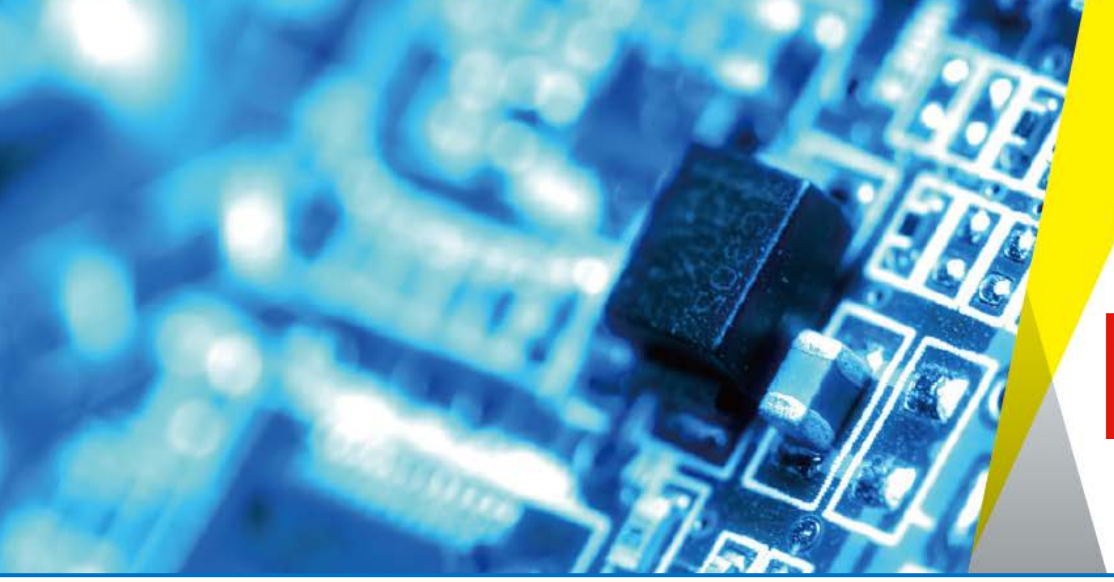

DATA SHEET

Product Name	**High Power Wire-wound Iron Shell Fixed Resistors**
Part Name	**HDWR Series**
File No.	**DIP-SP-094**

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1. Scope:

1.1 This data sheet is the characteristics of High Power Wire-wound Iron Shell Fixed Resistors manufactured by UNI-ROYAL

1.2 Anti-vibration,high stability

1.3 Non-lnductive type is available

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 For Cement Fixed Resistors, these 4 digits are to indicate the product type but if the product type has only 3digits, the 4th digit will be "0"
Example: HDWR = HDWR type

2.2 5th~6th digits: Power
Example: 50=50W

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%

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

2.5 The 12th, 13th & 14th digits.

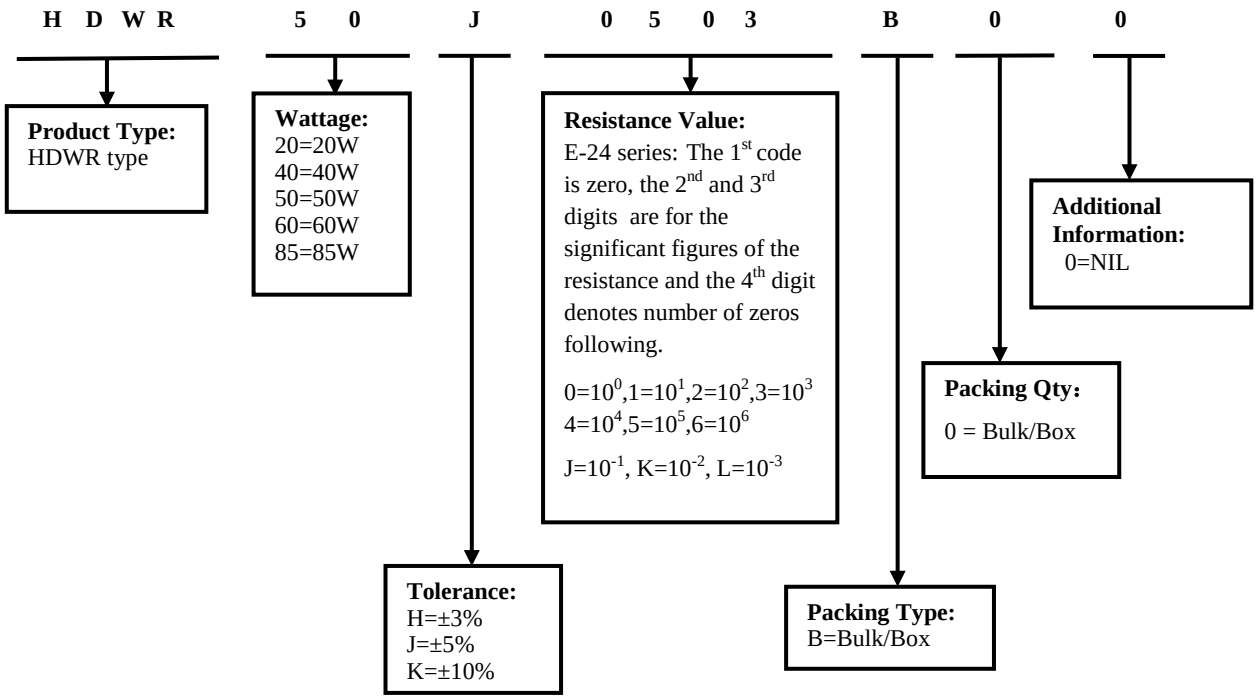
2.5.1 The 12th digit is to denote the Packaging Type with the following codes: B=Bulk/Box

2.5.2 The 13th digit is normally to indicate the Packing Quantity, This digit should be filled with "0"for the Cement products with "Bulk/Box" packing requirements.

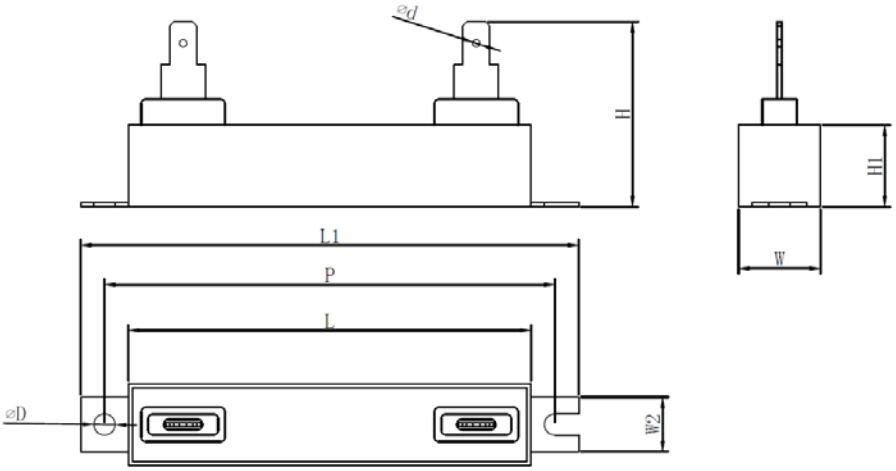
2.5.3 For some items, the 14th digit alone can use to denote special features of additional information with the following codes or standard product.
Example: 0= standard product

3. Ordering Procedure

(Example: HDWR 50W ±5% 50KΩ B/B)



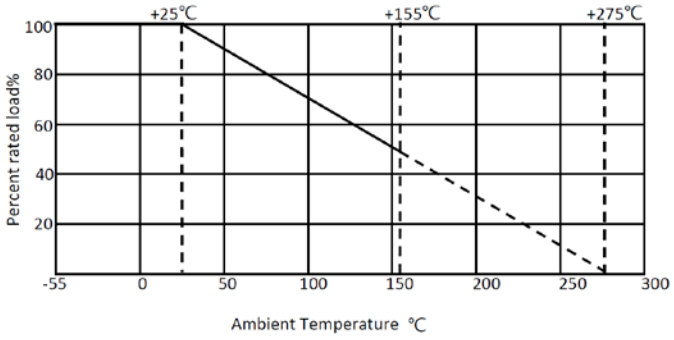
4. Dimension（Unit：mm）



Type	Rating Power	Dimension (mm)									Tolerance	Resistance Range
		L±1.5	L1±1.5	W±1	W2±1	H±1	H1±1	P±1.5	φD±O.5	φd±0.1		
HDWR	20W/45W	25.4	47.6	19	12.7	38.1	19	36.5	5	1.8	±3% ±5% ±10%	0.05Ω~6KΩ
HDWR	40W/70W	65	87.3	19	12.7	38.1	19	76.2	5	1.8		1Ω~25KΩ
HDWR	50W/100W	94	116	19	12.7	38.1	19	105	5	1.8		1.5Ω~47.5KΩ
HDWR	60W/115W	141.3	163.5	19	12.7	38.1	19	152.4	5	1.8		2.5Ω~81KΩ
HDWR	85W/150W	190.5	215.9	19	12.7	38.1	29	203.2	5	1.8		4.5Ω~100KΩ

* Low power without radiator, high power with radiator

5. 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)

6. Performance Specification

Characteristic	Limits	Test Methods (GB/T5729&JIS-C-5201&IEC60115-1)
Temperature coefficent	±200PPM/℃	4.8 Natural resistance changes 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 （t_1）; R_2: Resistance at test temperature （t_2） t_1: +25°C or specified room temperature t_2: Test temperature（125℃）
Short-time overload	△R≤±(5%+0.05Ω)	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.	4.7 Apply 2500VAC for 60 seconds.
Insulation resistance	≥100MΩ	4.6 Test voltage will be 500±50VDC ; test the resistance value after 1 minute.
Rapid change of temperature	△R≤±(5%R+0.05Ω)	4.19 30 min at -55 °C and 30 min at 155°C 5 cycles.
Humidity	△R≤±(5%R+0.05Ω)	4.24 Temporary resistance change after 96 hours exposure in a humidity test chamber controlled at 40±2℃ and 90-95% relative humidity,
Load life	△R≤ (±5%+0.05Ω) No evidence of flashover 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℃ ambient.

7. Note

8.1. 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_2, H_2S, NH_3, SO_2, NO_2, Br, etc.

8. Record

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~4	Jul.27, 2024	Haiyan Chen	Yuhua Xu