

**UNI-ROYAL**  
厚聲集團

# DATA SHEET

**Product Name** High Power Wire-wound Iron Shell Fixed Resistors

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**Part Name** HPWR 110W、120W、220W Series

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## 1. Scope

- 1.1 This datasheet is the characteristics of High Power Wire-wound Flat Aluminum Shell Fixed Resistors manufactured by UNI-ROYAL.
- 1.2 High Power Wire-wound Flat Aluminum Shell Fixed Resistors
- 1.3 Easy to assembled on PCB
- 1.4 Application: Power supply of frequency converter

## 2. Part No. System

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

- 2.1 High Power Wire-wound Flat Aluminum Shell Fixed Resistors the 1<sup>st</sup> to 4<sup>th</sup> digits are to indicate the product type.

Example: HPWR= High Power Wire-wound Flat Aluminum Shell Fixed Resistors

- 2.2 5<sup>th</sup>~6<sup>th</sup> digits:

- 2.2.1 This is to indicate the wattage or power rating. To dieting the size and the numbers,

The following codes are used; and please refer to the following chart for detail:

W=Normal Size; S=Small Size; U=Extra Small Size; “1”~“G”to denotes“1”~“16”as Hexadecimal:

1/16W~1/2W (< 1W)

Wattage	1/2	1/3	1/4	1/5	1/6	1/8	1/10	1/16
Normal Size	W2	W3	W4	W5	W6	W8	WA	WG
Small Size	S2	S3	S4	S5	S6	S8	SA	SG

1W~16W ( $\geq 1W$ )

Wattage	1	2	3	5	7	8	9	10	15
Normal Size	1W	2W	3W	5W	7W	8W	9W	AW	FW
Small Size	1S	2S	3S	5S	7S	8S	9S	AS	FS

- 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%    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 the standard resistance values of E-24 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 zeros following;

For the standard resistance values of E-96 series, 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>    N=10<sup>-5</sup>    P=10<sup>-6</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:

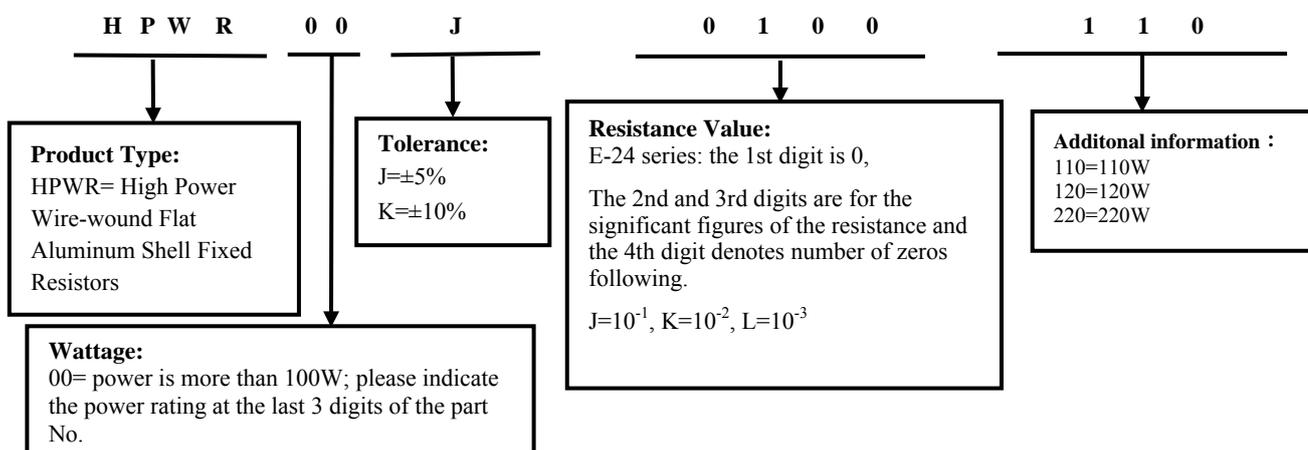
B=Bulk /Box

- 2.4.4 Current Sense Resistors, The 13<sup>th</sup> digit should be filled with “0”

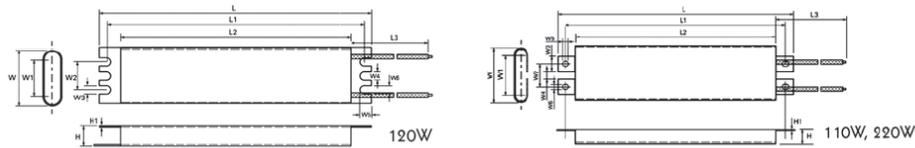
- 2.4.5 Current Sense Resistors, The 14<sup>th</sup> digit should be filled with “0”

## 3. Ordering Procedure

(Example: HPWR 110W ±5% 10Ω B/B)



#### 4. Dimension

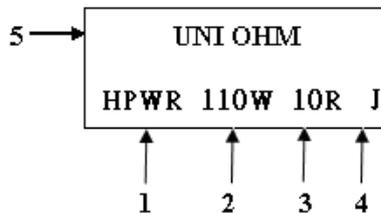


Unit:mm

Type	L±0/-5	L1±0.5	W±0.5	H±0.5	L3±5
HPWR 110W	105	91.5	44.6	11.5	300
HPWR 120W	195	184	40	14	250
HPWR 220W	200	187	44.6	11.5	250

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

#### 5. Resistor marked

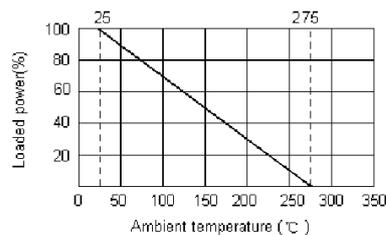


##### Code description and regulation:

1. Resistors type
2. Wattage rating
3. Nominal resistance value
4. Resistance tolerance. J: ± 5%
5. Trademark

marking: LASER PRINT

#### 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	±300 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 <sub>1</sub> : Resistance Value at room temperature ( t <sub>1</sub> ) ; R <sub>2</sub> : Resistance at test temperature (Upper limit temperature or Lower limit temperature) t <sub>1</sub> : +25°C or specified room temperature t <sub>2</sub> : 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 10 times power rating or the max. Overload voltage respectively specified in the above list, whichever less for 10 seconds.
Load life (room temperature)	Resistance change rate is :±( 5%+0.05Ω) max. With no evidence of mechanical damage.	(Room temperature 25°C±5°C) continue electrify for 96h.
Humidity (Steady state)	Resistance change rate is: ±(3%+0.05Ω)Max. With no evidence of mechanical damage.	4.24 Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at 40±2°C and 90~95%RH relative humidity
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down	AC 3000V for 60 seconds

**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:

- 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>, etc.

**9. Record**

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~4	Apr.16, 2019	Haiyan Chen	Yuhua Xu

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