

Uni-Royal

DATASHEET

Product Name **High Power Wire-wound Flat Aluminum Shell Fixed Resistors**

Part Name **HPWF 40W Series**

File No. **DIP-SP-057**

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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
- 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 Flat Aluminum Shell Fixed Resistors the 1st to 4th digits are to indicate the product type.

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

- 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.

$J=\pm 5\%$ $K=\pm 10\%$

- 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:

$0=10^0$ $1=10^1$ $2=10^2$ $3=10^3$ $4=10^4$ $5=10^5$ $6=10^6$ $J=10^{-1}$ $K=10^{-2}$ $L=10^{-3}$ $M=10^{-4}$

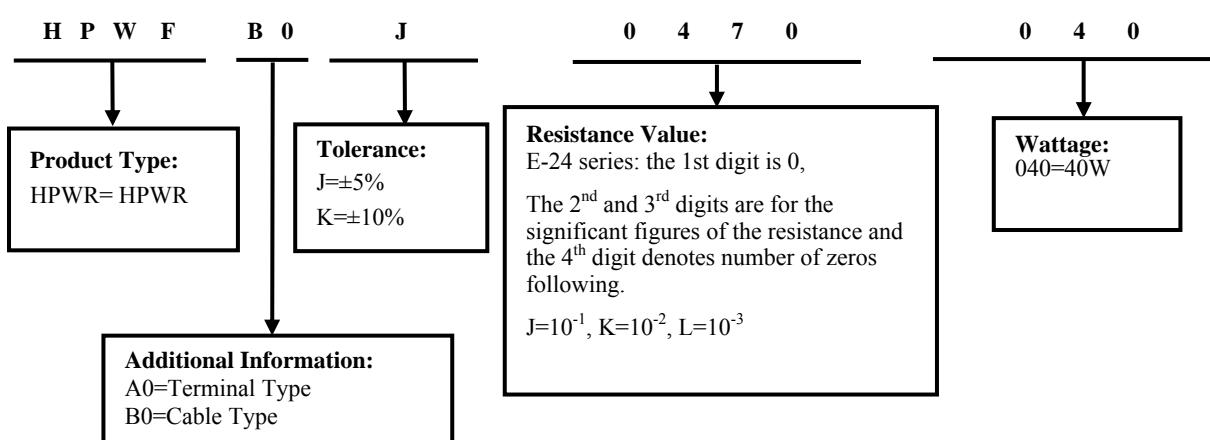
- 2.5 The 12th ~14th digits.

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

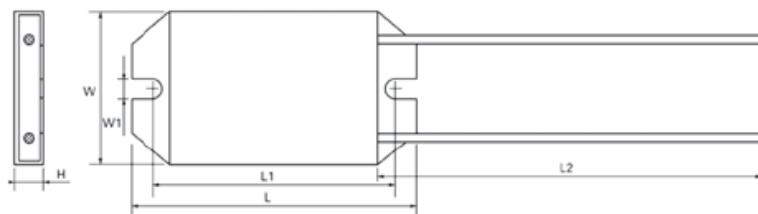
Example: 040 = 40W

3. Ordering Procedure

(Example: HPWF 40W $\pm 5\%$ 47Ω B/B)



4. Dimension

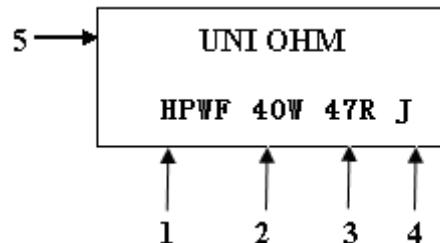


Unit:mm

Type	$L \pm 1$	$L1 \pm 0.5$	$L2 +20/-0$	$W \pm 0.5$	$W1 \pm 0.2$	$H \pm 0.5$	Resistance Range
HPWR 40W	85	72	300	45	5.5	8.2	$10\Omega \sim 100\Omega$

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

5. Resistor marked



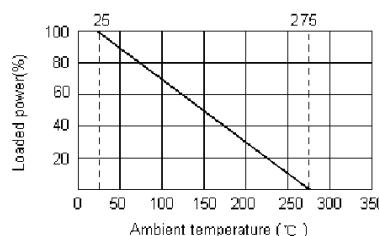
Code description and regulation:

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

marking: LASER PRINT

Note : The marking code shall be prevailed in kind!

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	<20Ω: ±400PPM/°C ≥20Ω: ±350PPM/°C	4.8 Natural resistance changes per temp. Degree centigrade $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/°C)}$ 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 (-55°C or 125°C)
Short time overlord	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 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	Applied voltage AC1000V for 60 seconds
Insulation resistance	≥ 100MΩ	More than 100MΩ at DC 500V

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, Br 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 temperature coefficient test conditions	4	Nov.07, 2022	Haiyan Chen	Yuhua Xu
3	Modify the Ordering Procedure	2	Dec.31, 2024	Haiyan Chen	Yuhua Xu
4	Modify the product name Add the resistance range	1 3	May.13, 2025	Haiyan Chen	Yuhua Xu

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