

DATASHEET

Product Name **Array Type Cement Temperature Fusing Resistors**

Part Name **TFRC 2W $\pm 5\%$ 360 Ω 、 200 Ω 、 1K Ω**

File No. **DIP-SP-083**

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1. Scope

This datasheet is the characteristics of Array Type Cement Temperature Fusing Resistors manufactured by UNI-ROYAL.

1.1 Compliant with RoHS directive.

1.2 Halogen free requirement.

2. Part No. System

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

2.1 These 4 digits are to indicate the product type :

Example: TFRC=TFRC- type

2.2 5th~6th digits:

2.2.1 For power of 1 watt to 16 watt ,the 5th digit will be a number or a letter code and the 6th digit will be the letters of W.

Example: 2W=2W;

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.

2.4.1 For Cement Fixed Resistors the 8th digits will be coded with “W” or “P” to denote Wire-wound type or Power Film type respectively of the Cement Fixed Resistor product. the 9th & 10th digits are to denote the significant figures of the resistance and the 11th digit is the number of zeros following

Example: P102=1KΩ

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

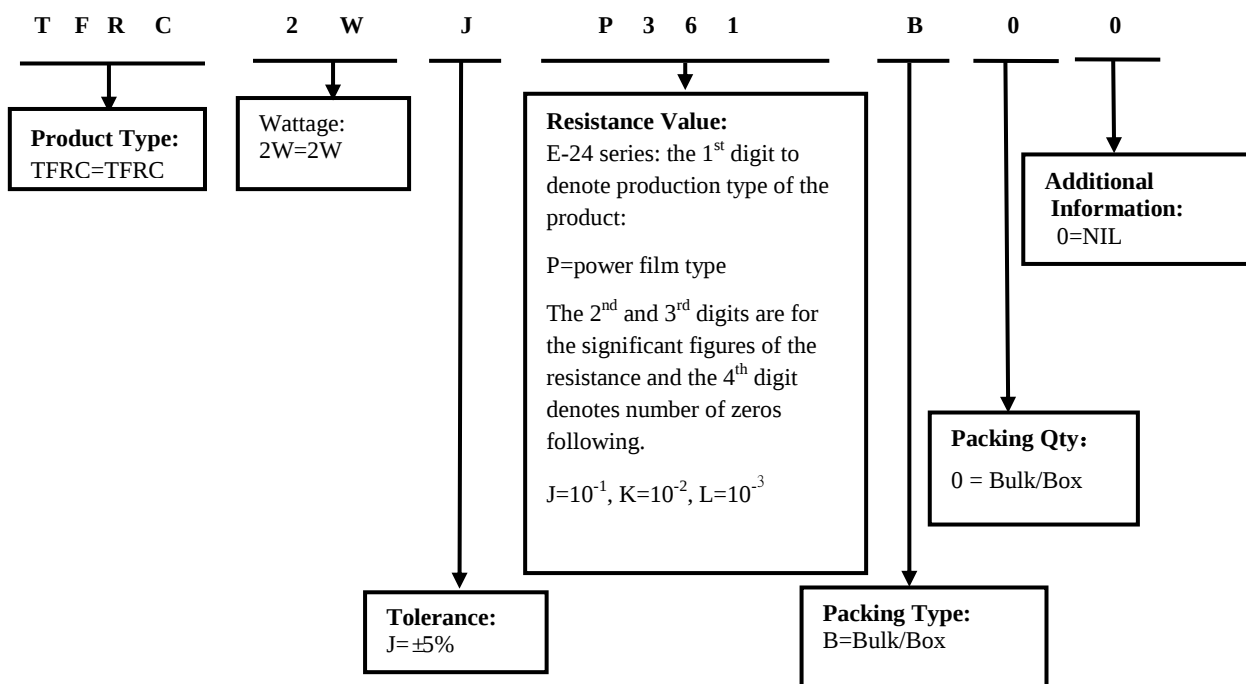
2.5.2 The 13th digit is normally to indicate the Packing Quantity, This digit should be filled with “0” for the Cement products with “Bulk/Box” packing requirements.

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

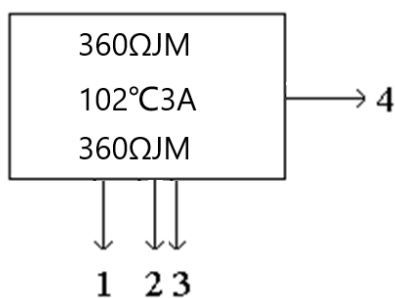
3. Ordering Procedure

(Example: TFRC 2W ±5% 360Ω B/B)



4. Marking

Example:



Code description and regulation:

1. Nominal Resistance Value

2 Resistance Tolerance. J: $\pm 5\%$

3 Pattern:

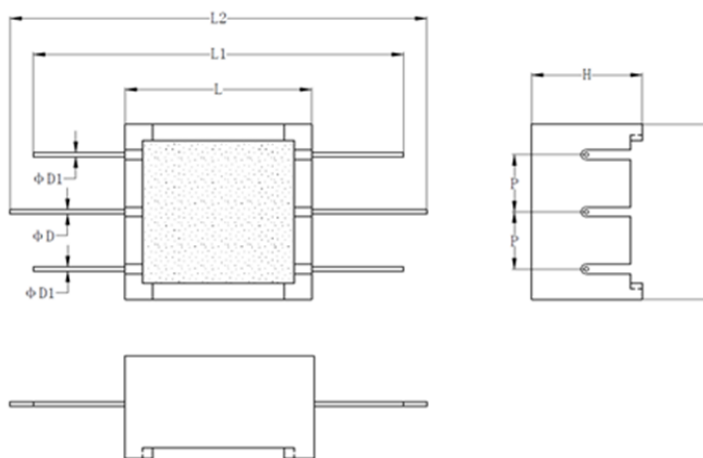
M: Power film

4. Function temperature, Rated current

Color of marking: Black Ink

5. Dimension& Ratings

5.1 Dimension

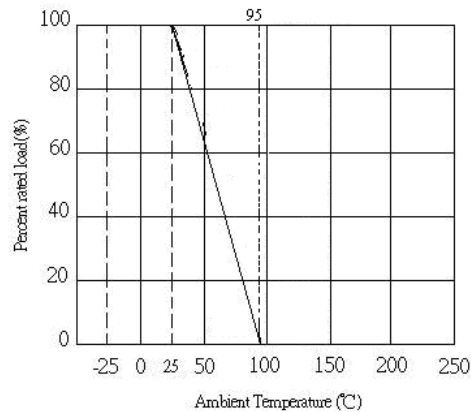


Type	Dimension(mm)								Resistance Range
	L ± 0.5	L1 ± 3	L2 ± 3	W ± 0.5	H ± 0.5	P ± 0.3	$\Phi D \pm 0.04$	$\Phi D1 \pm 0.04$	Power Film
TFRC 2W	16	80	80	16.2	8	5	0.58	0.8	360 Ω
	17.5	70.5	83.5	17	8.5	5	1	0.8	200 Ω
									1K Ω

5.2 Ratings

Type	Tolerance	Resistance Range	Function temperature	Rated current	Rated voltage
TFRC 2W	$\pm 5\%$	360 Ω	102 $^{\circ}\text{C}$	3A	AC250V
		200 Ω	94 $^{\circ}\text{C}$	10A	AC250V
		1K Ω	99 $^{\circ}\text{C}$	10A	

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)
Short-time overload	Resistance change rate must be in $\pm(5\%+0.05\Omega)$, and no mechanical damage.	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.
Solderability	95% Coverage Min.	4.17 The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Test temp. Of solder: $245^{\circ}\text{C} \pm 3^{\circ}\text{C}$ Dwell time in solder: 2~3seconds.
Resistance to soldering heat	Resistance change rate must be in $\pm(1\%+0.05\Omega)$, and no mechanical damage.	4.18 Permanent resistance change when leads immersed to a point 2.0-2.5mm from the body in $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ solder for 10 ± 1 seconds.
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down.	4.7 Apply 1000V for 60~70 seconds.
Terminal strength	No evidence of mechanical damage	4.16 Direct load: Resistance to a 2.5 kg direct load for 10 seconds 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.
Humidity (Steady State)	$\Delta R/R$: $\pm(5\%+0.1\Omega)$ Max. With no evidence of mechanical damage.	7.9 Resistance change after 1,000 hours without load in a humidity test chamber controlled at $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 90 to 95% relative humidity.
Load life	$\Delta R/R$: $\pm(5\%+0.1\Omega)$ 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 $70 \pm 2^{\circ}\text{C}$ ambient.

8. 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.
- 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	1~5	Nov.08, 2022	Song Nie	Haiyan Chen

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