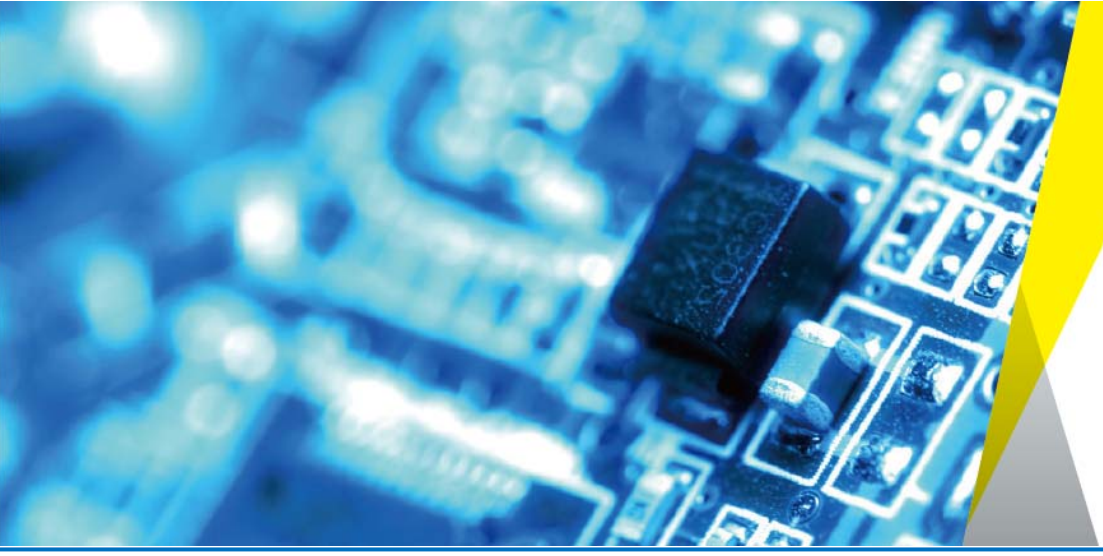

DATASHEET

Product Name	**Array Type Cement Temperature Fusing Resistors**
Part Name	**TFRC 2W ±5% 360Ω、200Ω、1KΩ**
File No.	**DIP-SP-083**

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	Royal Electronic Factory (Thailand) Co., Ltd.
	Royal Technology (Thailand) Co., Ltd.

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

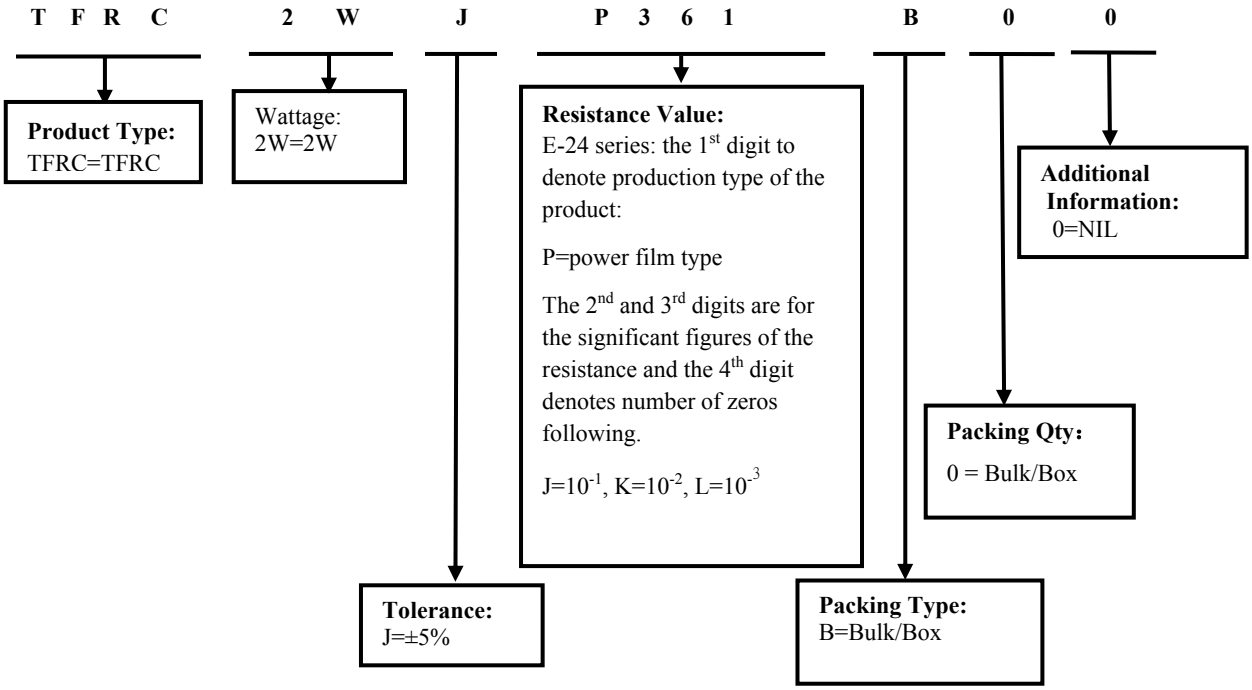
2.5.2 The 13th digit is normally to indicate the Packing Quantity, This digit should be filled with "0"for the Cement products with"Bulk/Box"packing requirements.

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

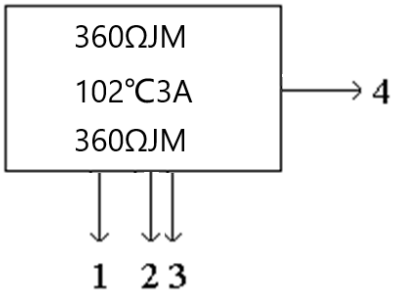
3. Ordering Procedure

(Example: TFRC 2W ±5% 360Ω B/B)



4. Marking

Example:



Code description and regulation:

1. Nominal Resistance Value

2 Resistance Tolerance. J: ± 5%

3 Pattern:

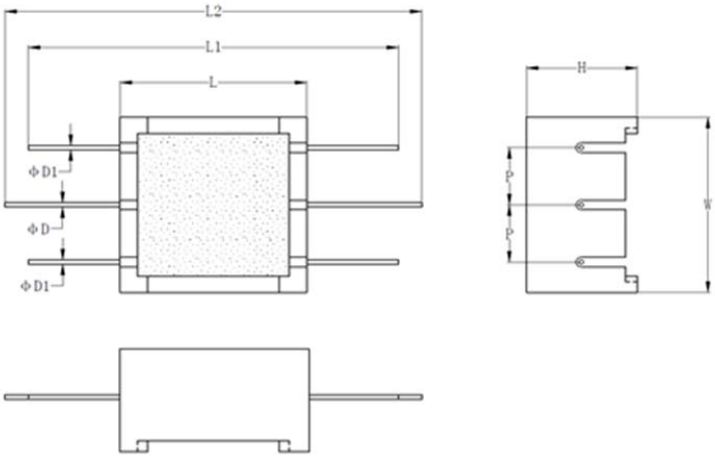
M: Power film

4. Function temperature, Rated current

Color of marking: Black Ink

5. Dimension& Ratings

5.1 Dimension

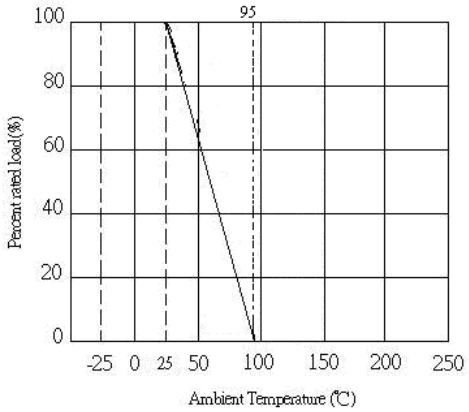


Type	Dimension(mm)								Resistance Range
	L±0.5	L1±3	L2±3	W±0.5	H±0.5	P±0.3	ΦD±0.04	ΦD1±0.04	Power Film
TFRC 2W	16	80	80	16.2	8	5	0.58	0.8	360Ω
	17.5	70.5	83.5	17	8.5	5	1	0.8	200Ω
									1KΩ

5.2 Ratings

Type	Tolerance	Resistance Range	Function temperature	Rated current	Rated voltage
TFRC 2W	±5%	360Ω	102℃	3A	AC250V
		200Ω	94℃	10A	AC250V
		1KΩ	99℃	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 ±(5%+0.05Ω) , and no mechanical damage.	4.13 Permanent resistance change after the application of a potential of 2.5 times RCWV or Max.Overload Votage 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℃±3℃ Dwell time in solder: 2~3seconds.
Resistance to soldering heat	Resistance change rate must be in ± (1%+0.05Ω) , and no mechanical damage.	4.18 Permanent resistance change when leads immersed to a point 2.0-2.5mm from the body in 260℃±5℃ 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)	ΔR/R: ±(5%+0.1Ω) 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℃±2℃ and 90 to 95% relative humidity.
Load life	ΔR/R: ±(5%+0.1Ω) 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±2℃ 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:

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.

9. Record

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~5	Nov.08, 2022	Song Nie	Haiyan Chen