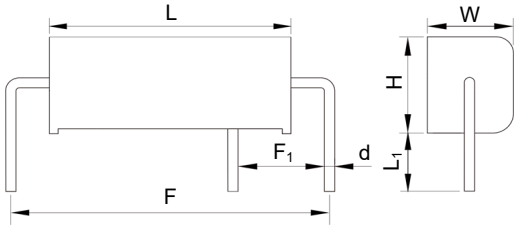
TRXF

Thermal-Link & Fusing Resistor (Active Protection)

TRXF2 Series

3 Pins

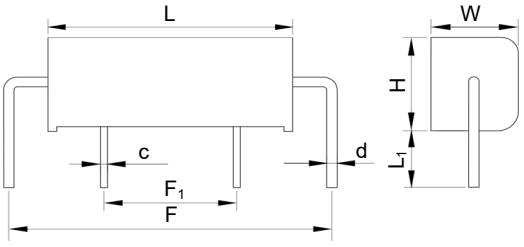
Dimensions (mm)



L	L_1[a]	W	H	d	F[a]	F_1
14.0 ± 0.5	3.5 ± 0.5	6.0 Max.	6.0 ± 0.5	Φ0.54 ± 0.05	18.0 ± 1.0	5.0 ± 0.5

Note:
a: F, L_1 and the bending mode of pins can be customized as required.

4 Pins



L	L_1[a]	W	H	d	c*	F[a]	F_1
14.0 ± 0.5	3.5 ± 0.5	6.0 Max.	6.0 ± 0.5	Φ0.54 ± 0.05	□0.40 ± 0.10	18.0 ± 1.0	7.5 ± 1.0

Note:
a: F, L_1 and the bending mode of pins can be customized as required.
c*: Cross-section of pin is square.

Description

Thermal-Link & Fusing Resistor (TRXF) is an active protection integrated component with over temp. and over current protections, in which Alloy Thermal-link (ATCO) is built in the core of Fusible Wirewound Resistor (RXF) and forming special connection with RXF.

Features

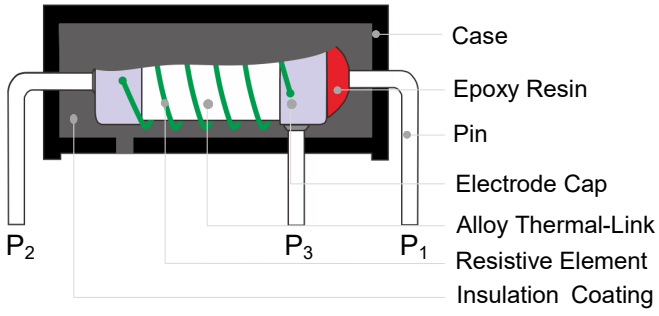
- Patented Product
- Over Temp. Protection
- Active Protection
- Small Fault Current Protection
- RoHS & REACH Compliant

Applications

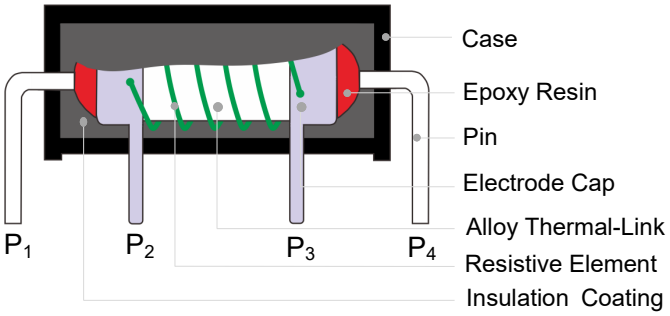
- Electric Blanket
- LED Drivers

Structure Diagram

3 Pins



4 Pins



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TRXF2 Series

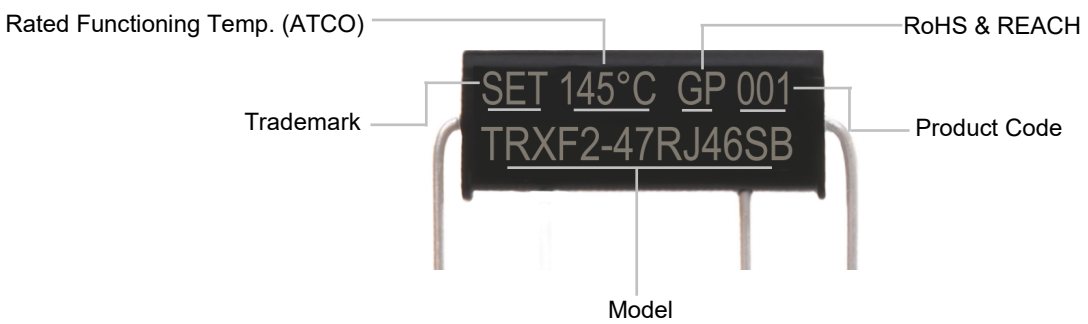
Agency Approvals

Agency	Standards	File No.	Resistance Range
c UL us	UL60691	E214712	0.47 Ω ~ 470 Ω
CCC	GB 9816	2020980205000191	0.47 Ω ~ 1000 Ω
TÜVRheinland	IEC 60065	R50279979	2 Ω ~ 1000 Ω

Electrical Characteristics

Item	Parameter
Power Type (***P***)	2 W
Rated Resistance (***R***)	0.47 Ω ~ 1000 Ω
Resistance Tolerance	5% (E24) , 10% (E12)
Fusing Time (less than 60 seconds)	6 W, (115 ℃ ≤ T_f ≤ 135 °C)
	8 W, (145 ℃ ≤ T_f ≤ 150 °C)
Fusing Temp.	109 °C to 113 °C (T_f = 115 °C)
	119 °C to 123 °C (T_f = 125 °C)
	123 °C to 127 °C (T_f = 130 °C)
	128 °C to 132 °C (T_f = 135 °C)
	138 °C to 142 °C (T_f = 145 °C)
	143 °C to 147 °C (T_f = 150 °C)

Marking



TRXF

Part Numbering System

TRXF 2 - 4R7 J 46 S B - 001

Other Options

Case Type
B: Square

Pin Type
S: 3 Pins
F: 4 Pins

ATCO Code
42: B2 (115 °C) 45: B5 (135 °C)
43: B3 (125 °C) 46: B6 (145 °C)
44: B4 (130 °C) 47: B7 (150 °C)

Tolerance
J: ± 5%
K: ± 10%

Rated Resistance
R47: 0.47 Ω
4R7: 4.7 Ω
47R: 47 Ω
470R: 470 Ω

Power Type
2: 2 W

Product Category
TRXF: Thermal-Link & Fusing Resistor

Glossary

Item	Description
RXF	**Fusible Wirewound Resistor** A power resistor which is made by winding a resistive element on a ceramic core, and the core is coated by insulation coating. It intends to interrupt a current flow at a predetermined time when the current exceeds a predetermined value.
ATCO	**Alloy Thermal-Link** Alloy Type Thermal-Link, alloy is the thermal element. Thermal-Link is a non-resettable device incorporating a THERMAL ELEMENT which will open a circuit once only when exposed for a sufficient length of time to a temp. in excess of that for which it has been designed.
R	**Rated Resistance** Resistance value for which the resistor has been designed, and which is generally used for denomination of the resistor.
U_N	**Rated Voltage** The d.c. or a.c. r.m.s. voltage calculated from the square root of the product of the rated resistance and the rated dissipation.
Fusing Temp.	**Fusing Temp.** The temp. of the TRXF which causes it to change its state of conductivity is measured with silicone oil bath in which the temp. is increased at the rate of 0.3 °C/min to 0.5 °C/min, with a detection current up to 10 mA as the only load.
T_f	**Rated Functioning Temp.** The temp. of the Thermal-Link which causes it to change its state of conductivity with a detection current up to 10 mA as the only load.
TCR	**Temp. Coefficient of Resistance** Relative variation of resistance between two given temp. divided by the difference in the temp. producing it.

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Thermal-Link & Fusing Resistor (Active Protection)

TRXF2 Series

Specifications

Model	Power Type	Rated Resistance	Resistance Tolerance	Rated Functioning Temp. (T_f)	Fusing Temp.	Agency Approvals			Environmental Status	
						cURus	TUV	CCC	RoHS	REACH
	(W)	(Ω)	(%)	(°C)	(°C)					
TRXF2-××××42FB(SB)	1	0.47 ~ 1.8	±5, ±10	115	109 ~ 113	●	N/A	●	●	●
		2 ~ 1000				●	●	●	●	●
TRXF2-××××43FB(SB)	1	0.47 ~ 1.8	±5, ±10	125	119 ~ 123	●	N/A	●	●	●
		2 ~ 1000				●	●	●	●	●
TRXF2-××××44FB(SB)	1	0.47 ~ 1.8	±5, ±10	130	123 ~ 127	●	N/A	●	●	●
		2 ~ 1000				●	●	●	●	●
TRXF2-××××45FB(SB)	1	0.47 ~ 1.8	±5, ±10	135	128 ~ 132	●	N/A	●	●	●
		2 ~ 1000				●	●	●	●	●
TRXF2-××××46FB(SB)	1	0.47 ~ 1.8	±5, ±10	145	138 ~ 142	●	N/A	●	●	●
		2 ~ 1000				●	●	●	●	●
TRXF2-××××47FB(SB)	1	0.47 ~ 1.8	±5, ±10	150	143 ~ 147	●	N/A	●	●	●
		2 ~ 1000				●	●	●	●	●

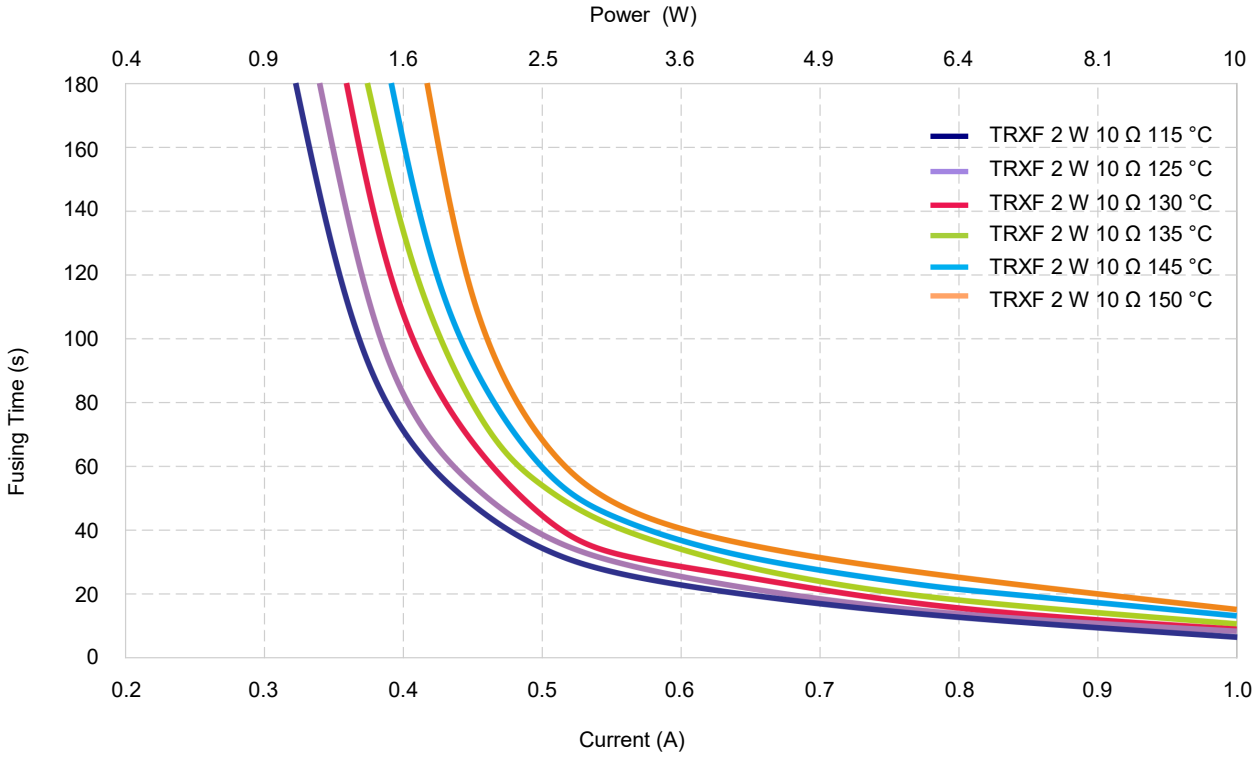
Resistance Selection Table (According to IEC60063-2015, blue font is SETsafe | SETfuse common resistance).

Rated Resistance (Ω)	Code	Rated Resistance (Ω)	Code	Rated Resistance (Ω)	Code	Rated Resistance (Ω)	Code
0.10	R10	1.0	1R0	10	10R	100	100R
0.11	R11	1.1	1R1	11	11R	110	110R
0.12	R12	1.2	1R2	12	12R	120	120R
0.13	R13	1.3	1R3	13	13R	130	130R
0.15	R15	1.5	1R5	15	15R	150	150R
0.16	R16	1.6	1R6	16	16R	160	160R
0.18	R18	1.8	1R8	18	18R	180	180R
0.20	R20	2.0	2R0	20	20R	200	200R
0.22	R22	2.2	2R2	22	22R	220	220R
0.24	R24	2.4	2R4	24	24R	240	240R
0.27	R27	2.7	2R7	27	27R	270	270R
0.30	R30	3.0	3R0	30	30R	300	300R
0.33	R33	3.3	3R3	33	33R	330	330R
0.36	R36	3.6	3R6	36	36R	360	360R
0.39	R39	3.9	3R9	39	39R	390	390R
0.43	R43	4.3	4R3	43	43R	430	430R
0.47	R47	4.7	4R7	47	47R	470	470R
0.51	R51	5.1	5R1	51	51R	510	510R
0.56	R56	5.6	5R6	56	56R	560	560R
0.62	R62	6.2	6R2	62	62R	620	620R
0.68	R68	6.8	6R8	68	68R	680	680R
0.75	R75	7.5	7R5	75	75R	750	750R
0.82	R82	8.2	8R2	82	82R	820	850R
0.91	R91	9.1	9R1	91	91R	910	910R

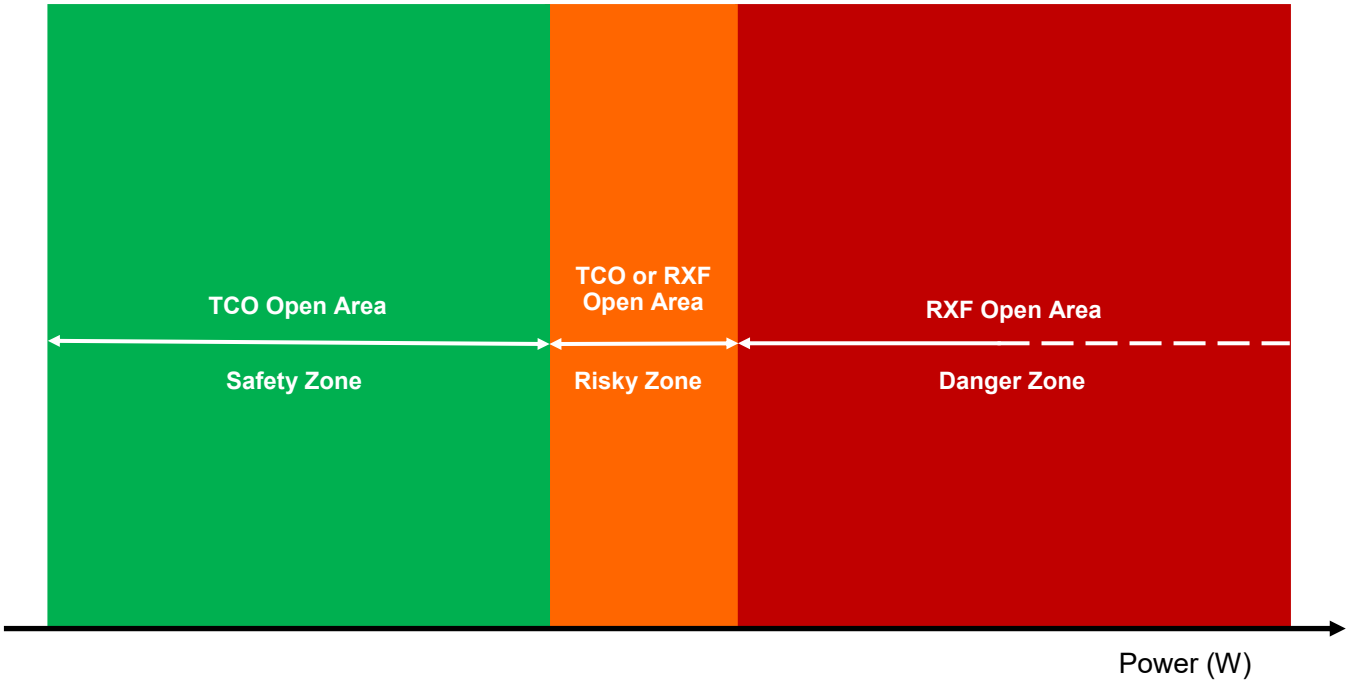
TRXF

Fusing Time Curve (For Reference Only)

TRXF can open effectively at lower power multiples to protect the circuit timely (ambient temp. 25 °C ± 2 °C).



Over Rated Power Fusing Gragh



TRXF

Performance Test

Mechanical Performance Test

Item	Test Condition	Criterion
Tensile Test	A pin withstand 10 N × 60 seconds	No Visible Damage ΔR ≤ ± (1%R + 0.05 Ω)
Twist Test	A pin 2 mm away from body, bent 90°, twist 180° × 2 times	No Visible Damage ΔR ≤ ± (1%R + 0.05 Ω)

Environmental Test

Item	Test Condition	Criterion
Temp. Cycle	1. - 55 °C × 30 minutes 2. Room Temp. × (10 to 15) minutes 3. 85 °C × 30 minutes 4. Room Temp. × (10 to 15) minutes 5. 5 Cycles from Step 1 to Step 4	ΔR ≤ ± (2%R + 0.05 Ω)

Electrical Performance Test

Item	Test Condition	Criterion
TCR	$TCR=\frac{(R_2-R_1)}{R_1(T_2-T_1)}\times 10^6$ R_1: Resistance Value at 25 °C R_2: Resistance Value at 125 °C	Within Specified Value
Short-Time Overload	2.5U_N× 5 seconds	No Visible Damage ΔR ≤ ± (2%R + 0.05 Ω)
Insulation Resistance	Foil Method: Apply 500 VDC between both terminations of the resistor connected together as one pole and the metal foil as the other pole.	Insulation Resistance ≥ 1,000 MΩ
Voltage Proof	Foil Method: Apply 900 VAC × 1 min between terminations and the metal foil.	No Breakdown or Flashover
Fusing Test	Apply test current to the resistor (constant current source).	Fusing Time ≤ 60 seconds
Solderability	Solder Bath (non-activated flux) Scaling Powder: 25% Rosin Alcohol Bath Temp.: (255 ± 5) °C Depth of Immersion (From the seating plane or component body): (1.5 to 2.0) mm Time of Immersion: (2.5 ± 0.5) seconds	Soldering Area ≥ 95%
Fusing Temp.	Silicone oil bath: temp. rise rate is 0.3 °C/min to 0.5 °C/min, detection current ≤ 10 mA.	109 °C to 113 °C (T_f = 115 °C) 119 °C to 123 °C (T_f = 125 °C) 123 °C to 127 °C (T_f = 130 °C) 128 °C to 132 °C (T_f = 135 °C) 138 °C to 142 °C (T_f = 145 °C) 143 °C to 147 °C (T_f = 150 °C)

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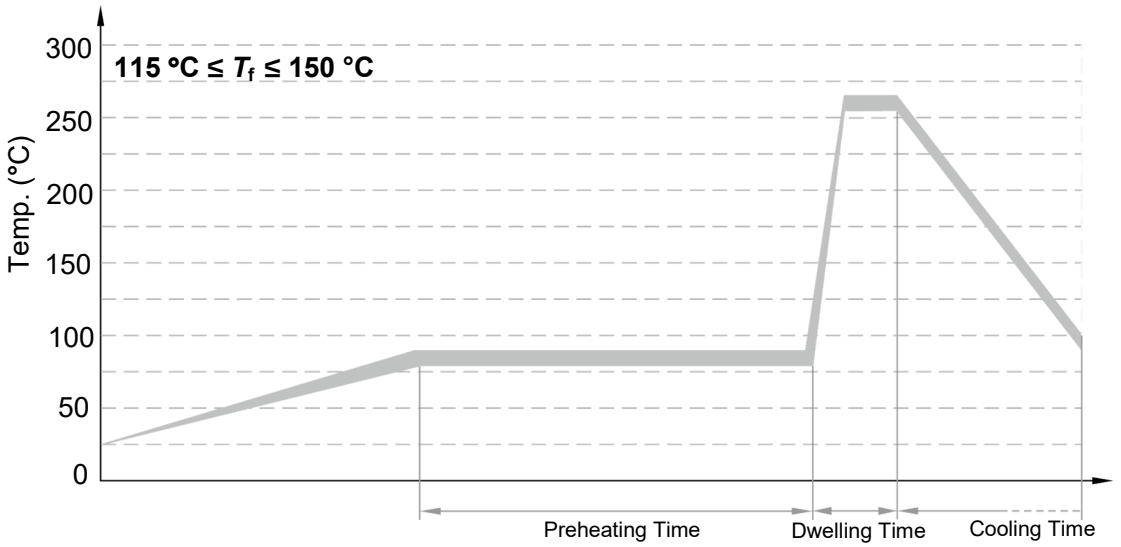
Wave Soldering Parameters (For Reference Only)

The Wave Soldering Parameters are for reference only, before TRXF is for practice usage, relative validation is recommended.



Item	Temp. (°C)	Time (s)
Preheating	80 ~ 90	60 ~ 100
Dwelling	260 ± 5	4 ~ 5

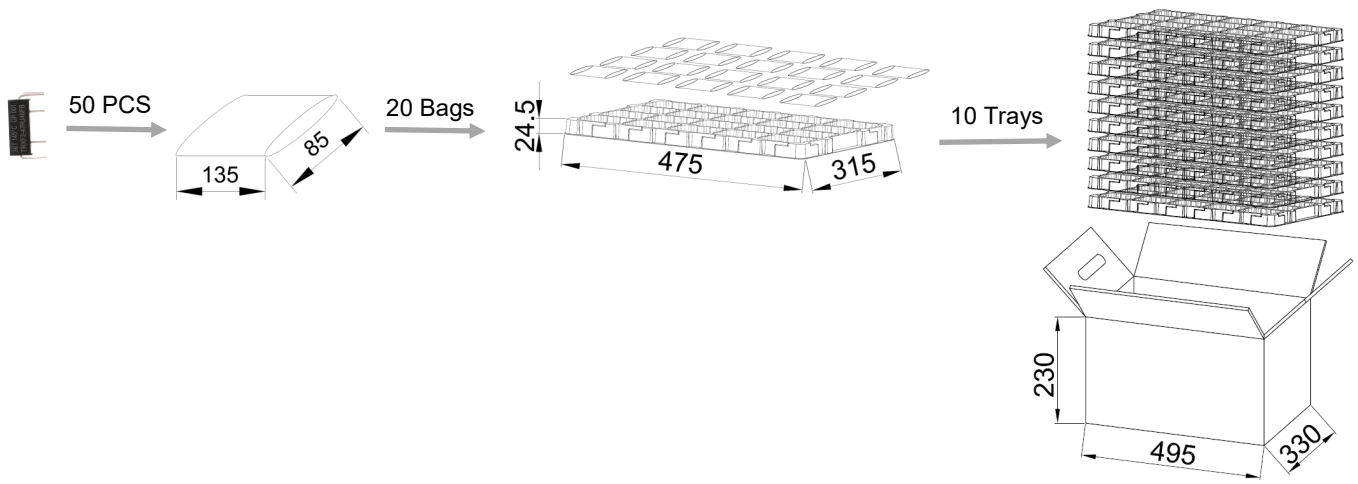
Recommended Hand-Soldering Parameters

Solder Iron Temp.: (350 ± 5) °C

Soldering Time: 2 s Max. (115 °C ≤ T_f ≤ 150 °C)

Packaging Information

Item	PE Bag	Tray	Carton
Dimensions (mm)	135 × 85	475 × 315 × 24.5	495 × 330 × 230
Quantity (PCS)	50	1,000	10,000
Gross Weight (3 Pin) (kg)			7.5 ± 10%
Gross Weight (4 Pin) (kg)			9.0 ± 10%



ATTENTION

Cold Resistance Test

1. If product TCR is not less than 350 (10^{-6}/°C), the measured resistance value shall be corrected as the relative resistance value under 25 °C according to TCR formula.
2. Resistance Measurement (4-terminal test).

Replacement

As TRXF is a non-resettable product, for safety sake, please use the same type of TRXF for replacement.

Usage

1. Do not touch the resistor body or pins directly when power is on, to avoid burn or electric shock.
2. When air pressure is from 80 kPa to 106 kPa, the relative altitude shall be +2000 m to - 500 m.

Storage

1. Please store TRXF with ambient temp. 10 °C ~ 30 °C and relative humidity 30% ~ 75%.
2. Do not store the TRXF at the high temp., high humidity or corrosive gas environment, avoid influencing the solderability of the pins, please use them up within 1 year after receiving the goods.

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