

**CUSTOMER**

**SPECIFICATION FOR APPROVAL**

**Description** NTC THERMISTOR

**Type** PVEU37T/5C

**Drawn** \_\_\_\_\_

**Checked** \_\_\_\_\_

**Approve** \_\_\_\_\_

## 1. Description

The specification is applicable to NTC thermistors for inrush current depressing.

## 2. Construct and dimension

### 2.1 Construct

The coating is black insulating resin.

### 2.2 Outline drawing.

Outline drawing and dimension(Unit:mm).

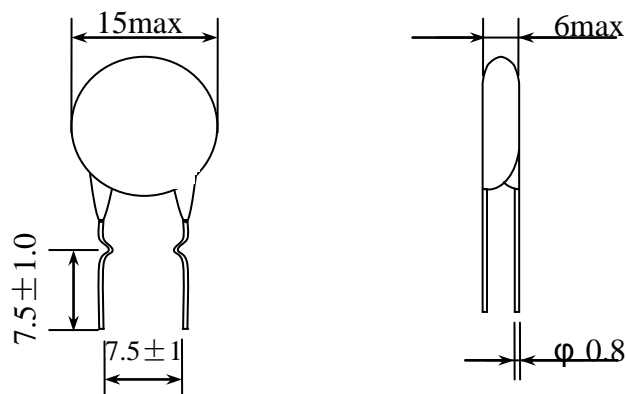


figure 1 Outline drawing and dimension

## 3. Electrical Parameters

No	Name of parameters	Method of testing	Specification
1	Zero-power resistance $R_{25}$ ( $\Omega$ )	$25 \pm 0.1^\circ\text{C}$ Temperature: $25^\circ\text{C} \pm 0.1^\circ\text{C}$ . Measurements shall be made without self-heating of the devices.	$15 \pm 20\%$
2	B-value (K)	$B = (\ln R_1/R_2) / (1/T_1 - 1/T_2)$ $T_1 = (25 + 273.15) \text{ K}$ $T_2 = (85 + 273.15) \text{ K}$ $R_1$ — $T_1$ Resistance at $25^\circ\text{C}$ $R_2$ — $T_2$ Resistance at $85^\circ\text{C}$	$\geq 2700$
3	Dissipation factor $\delta$ (mW/ $^\circ\text{C}$ )	In stationary air of $25^\circ\text{C} \pm 2^\circ\text{C}$	$\approx 20$
4	Thermal time constant $\tau$ (s)	In stationary air of $25^\circ\text{C} \pm 2^\circ\text{C}$	$\approx 70$
5	Maximum current $I_{\text{max}}$ (A)	In stationary air of $25^\circ\text{C} \pm 2^\circ\text{C}$ 3.0A current is continuously applied to the thermistor	3.0
6	Residual resistance at $I_{\text{max}}$ ( $\Omega$ )	(see figure 2)	$\leq 0.5$
7	Insulation resistance (M $\Omega$ )	In the trough of a $90^\circ$ metallic V-block measure with a direct voltage of $100 \pm 15\text{V}$	$\geq 500$

8	Voltage proof (V)	In the trough of a 90° metallic V-block Frequency: 40~60Hz Time: 60s ± 5s	no breakdown or flashover
9	Maximum permissible capacitance $C_{max}$ (μF)	In stationary air of 25°C ± 2°C, AC 220V (see figure 3)	700

#### 4. Environmental Performance

No	Item	Test method and condition	Specification
1	Rapid change of temperature	The thermistor shall be subjected to the procedure of test Na of IEC 60068-2-14 $T_A = -55^\circ\text{C}$ $T_B = +155^\circ\text{C}$ $t_1 = 30\text{min}$ The number of cycles is 5	No visible damage $ \Delta R/R  \leq 15\%$
2	Damp heat (cyclic)	The thermistor shall be subjected to the procedure of test Db of IEC 60068-2-30 The number of cycles is 1	$ \Delta R/R  \leq 10\%$ no breakdown or flashover Insulation resistance $\geq 100\text{M}\Omega$
3	Storage in damp heat, steady state	The thermistor shall be subjected to the procedure of test Ca of IEC 60068-2-3 Temperature: 40 ± 2°C Humidity: (93 ± 3) %RH Time: 100h	visible damage $ \Delta R/R  \leq 10\%$ no breakdown or flashover Insulation resistance $\geq 100\text{M}\Omega$

#### 5. Mechanical Performance

No	Item	Test method and condition	Specification
1	Resistance to soldering heat	The thermistor shall be subjected to the procedure of method 1A of test Tb of IEC 60068-2-20 Temperature of the solder bath: 260 ± 5°C Immersion time: 5 ± 1s	No visible damage $ \Delta R/R  \leq 5\%$
2	Robustness of terminations	The thermistor shall be subjected to the procedure of test U of IEC 60068-2-21 Test $U_{a1}$ : tensile force—10N Test $U_b$ : bending force—5N	No visible damage $ \Delta R/R  \leq 5\%$
3	Vibration	The thermistor shall be subjected to the procedure of test Fc of IEC 60068-2-6 Mounting mean: by body of resistance Frequency: 10~500Hz Swing: 0.75mm or 100m/s <sup>2</sup> Time: 6h	No visible damage $ \Delta R/R  \leq 5\%$

4	Bump	The thermistor shall be subjected to the procedure of test Eb of IEC 60068-2-29 Mounting mean: by body of resistance acceleration: $250\text{m/s}^2$ time of pulse: 6ms    time of bump: 4000	No visible damage $ \Delta R/R  \leq 5\%$
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**6. Endurance test**

No	Item	Test method and condition	Specification
1	Endurance at room temperature with applied continuous maximum current	Current: 3.0A Time: 1000h	No visible damage $ \Delta R/R  \leq 20\%$
2	Storage in dry heat	Temperature: $+155^\circ\text{C}$ Time: 1000h Storage at upper category temperature	No visible damage $ \Delta R/R  \leq 20\%$

**7. Maximum current  $I_{\text{max}}$  test circuit**

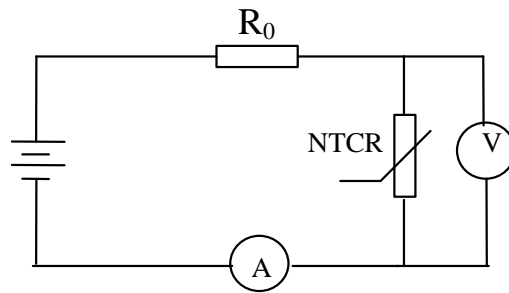


figure2 Maximum current  $I_{\text{max}}$  test circuit

**8. Maximum capacitance  $C_{\text{max}}$  test circuit**

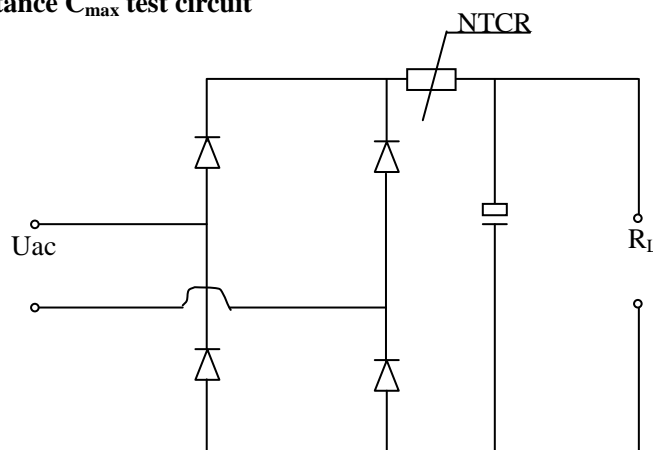


figure 3 Maximum capacitance  $C_{\text{max}}$  test circuit

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9. Character curve

9.1 R—T curve

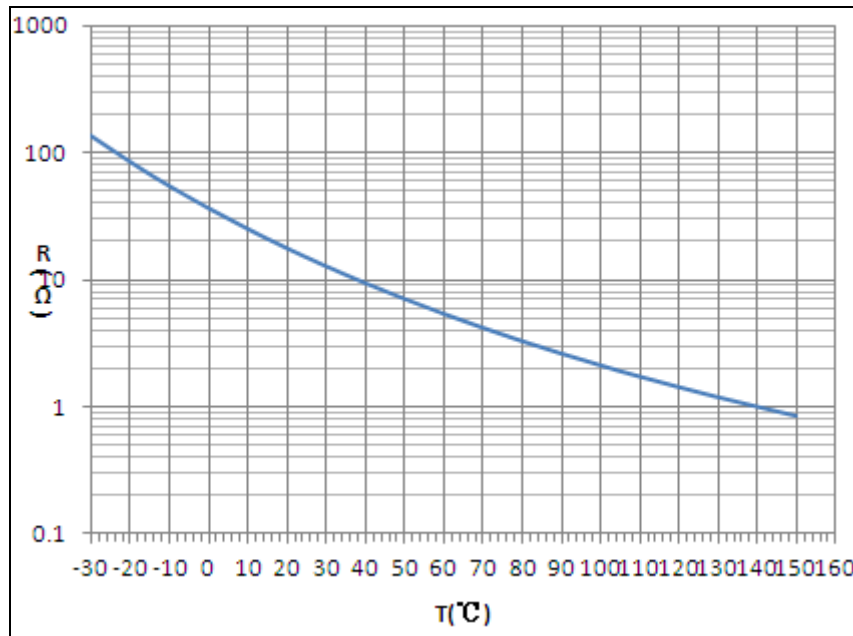


figure 4 R—T curve

9.2 V—I curve

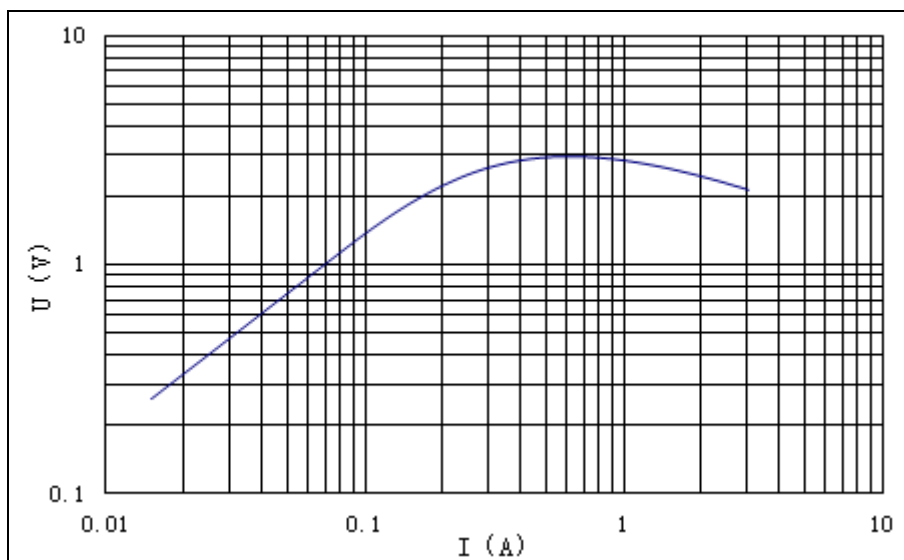


figure 5: V—I curve

9.3 Decreased maximum current  $I_{\max}$  curve

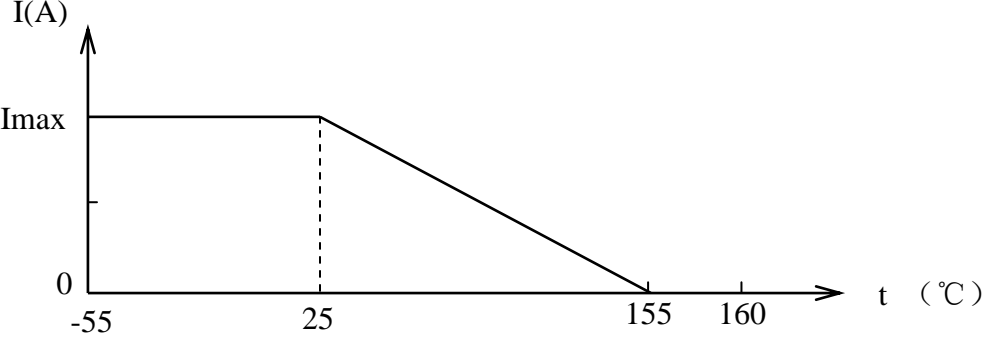


figure 6 Decreased maximum current  $I_{\max}$  curve

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1§. Approvals

1§. 1 UL recognized



file #: E184918

1§. 2 VDE authentication



file #: 40020558

1§. 3 CQC recognized



file #: CQC09001034906