SEMITEC® Ishizuka Electronics Corporation

THERMISTOR SPECIFICATIONS

1. Scope

This specifications define ratings, dimensions, electrical properties, mechanical properties and climatic properties for AT-4 type thermistor.

2. Part No. **103AT-4-60185**

3. Ratings

3.1 Rated zero-power resistance. R_{25} 10.0 kΩ ± 1 % (at 25 ℃)

3.2 Rated B-value. $B_{25/85}$ 3 435 K ± 1 %

* The rated B-value is calculated using the rated zero-power resistance values measured at 25℃ and 85℃.

3.3 Dissipation factor. Approx. 2 mW/℃ (in air)

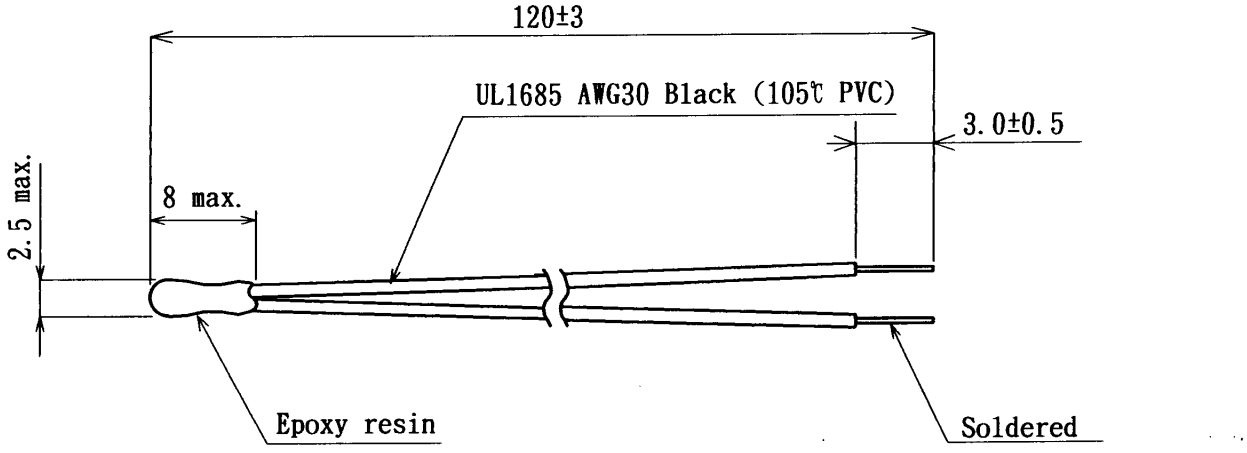
3.4 Thermal time constant. Approx. 10 s (in air)

3.5 Maximum power dissipation. 10 mW (in air at 25℃)

4. Category temperature range -30℃ ~ 90 ℃
(= Operating temperature range)

5. Dimensions

Unit(mm)



Spec. No. : S96-0185	Note	Revision	
Date: Nov. 12, 1997		A	
Approved	Checked / Drawn M. SATO	B	
		C	

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6. Electrical properties (between thermistor body and soldered terminals)

6.1 Insulation resistance Above 100 MΩ at DC 100V.

6.1 Voltage proof DC 100V for one second.

7. Mechanical properties

7.1 Robustness of terminations

a) Tensile to horizontal direction

Hold the thermistor body so that lead wire shall be horizontal.

After 5N loading weight was applied to the lead wire horizontally for one minute, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

b) Tensile to vertical direction

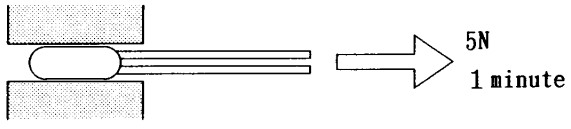
One of lead wires is fixed, another one is slowly loaded the tension of one newton and keep this tension for one minute.

After test, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

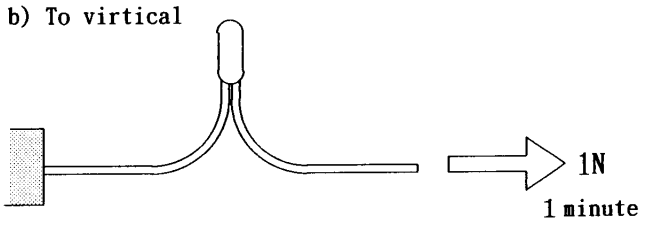
c) Bending

It shall be bent to an angle of 90° and bent back that the terminal of a lead wire was soldered to printed circuits board and the lead wire was pulling with 1N weight. After repeat this action in 5 times, the lead wire shall not break off.

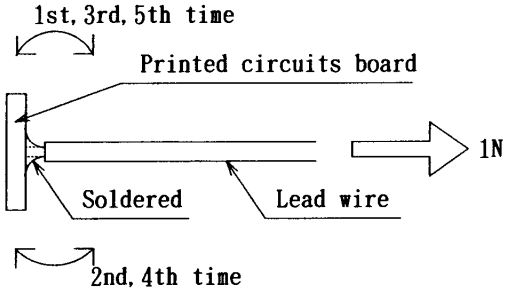
a) To horizontal



b) To virtical



c) Bending



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7.2 Resistance to soldering heat

Terminals of lead wire are immersed in solder bath at 260±5℃ for 10±1 seconds. After being stored in room temperature and humidity for half hours, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

7.3 Solderability

Terminals of lead wire are immersed in solder (P_b:S_n=4:6) bath at 235±5℃ for 2±0.5 seconds.

Above 90% in the terminal surface shall be with new solder, and one of non soldered area shall be below 5%.

7.4 Free fall

After three times natural fall to a maple board from 75cm high, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

7.5 Vibration

The specimens should be fixed to vibratory stage which is able to vibrate with the frequency of 10Hz to 500Hz, amplitude of 1.5mm peak-to-peak or accelation of 10G whichever is smaller, sweeping time takes around 15 minutes from 10Hz to 500Hz and back to 10Hz.

After applied vibration to the specimens of each direction of X, Y, Z for 2 hours, total 6 hours, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

8. Climatic properties

8.1 Dry heat

Test samples shall be exposed in air at 90 ℃ for 1000 hours.

After being stored in room temperature and humidity for one hour, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

8.2 Damp heat

Test samples shall be exposed in 40 ℃, 95%RH for 1000 hours.

After being stored in room temperature and humidity for one hour, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

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8.3 Heat load

DC 0.1mA current shall be applied to the test samples in air at 90℃ for 1000 hours. After being stored in room temperature and humidity for one hour, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

8.4 Cold

Test samples shall be exposed in air at −40℃ for 1000 hours.
After being stored in room temperature and humidity for one hour, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

8.5 Rapid change of temperature

One cycle of the change of temperature shall be proceeded in the order of the following conditions.

- At -20℃, for 5 minutes.
- Room ambient temperature, for one minute.
- At 70℃, for 5 minutes.
- Room ambient temperature. for one minute.

100 cycles of change of temperature shall be applied to the test samples.
After being stored in room temperature and humidity for one hour, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

8.6 Damp load

DC 1mA current shall be applied to the test samples in 40℃, 95%RH for 1000 hours. After being stored in room temperature and humidity for one hour, the change ratio of R_{25} and $B_{25/85}$ shall be within ±2% of the initial value.

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