SEMITEC® Ishizuka Electronics Corporation

# THERMISTOR SPECIFICATION

1. Scope

This specification defines electrical requirements, ratings, dimensions and reliability for the ET type thermistor.

2. Part No. 503ET-1S87L-10184

3. Electrical Requierments

3.1 Zero-Power Resistance at 37℃ ($R_{37}$): 29.615 − 30.263 (kΩ) Ⓐ

3.1.1 Tolerance Class ; ±0.09%/group

| Group | Resistance(kΩ) | Group | Resistance(kΩ) |
|---|---|---|---|
| C | 29.615/29.641/29.667 | I | 29.937/29.964/29.991 |
| D | 29.668/29.695/29.721 | J | 29.992/30.018/30.045 |
| E | 29.722/29.749/29.775 | K | 30.046/30.073/30.100 |
| F | 29.776/29.802/29.828 | L | 30.101/30.127/30.154 |
| G | 29.829/29.856/29.883 | M | 30.155/30.182/30.209 |
| H | 29.884/29.910/29.936 | N | 30.210/30.237/30.263 |

Notes; Min./Center/Max.

3.2. ($B_{32/41}$) : 3 943 K ± 0.5% (B value is determined by $R_{32}$ and $R_{41}$)

3.3.Resistance ratio to temperature

| Temp. | Ratio | Temp. | Ratio |
|---|---|---|---|
| 34℃ | 1.132 | 39℃ | 0.9220 |
| 35℃ | 1.086 | 40℃ | 0.8855 |
| 36℃ | 1.042 | 41℃ | 0.8503 |
| 37℃ | 1.000 | 42℃ | 0.8167 |
| 38℃ | 0.960 | | |

The above table is shown a resistance ratio of thermistor at each temperature.

REMARK : THE RESISTANCE VALUES MAY VARY SLIGHTLY AS THE TESTING TEMPERATURE(37℃) IS ±0.03℃ IN ACCURACY.

| Customer: | Date : October 30, 2001<br>Specification NO.: S01-0184A | |
|---|---|---|
| Approved by: | Checked by: | Drawn by:<br>SATO, T. |



File NO. E3-139

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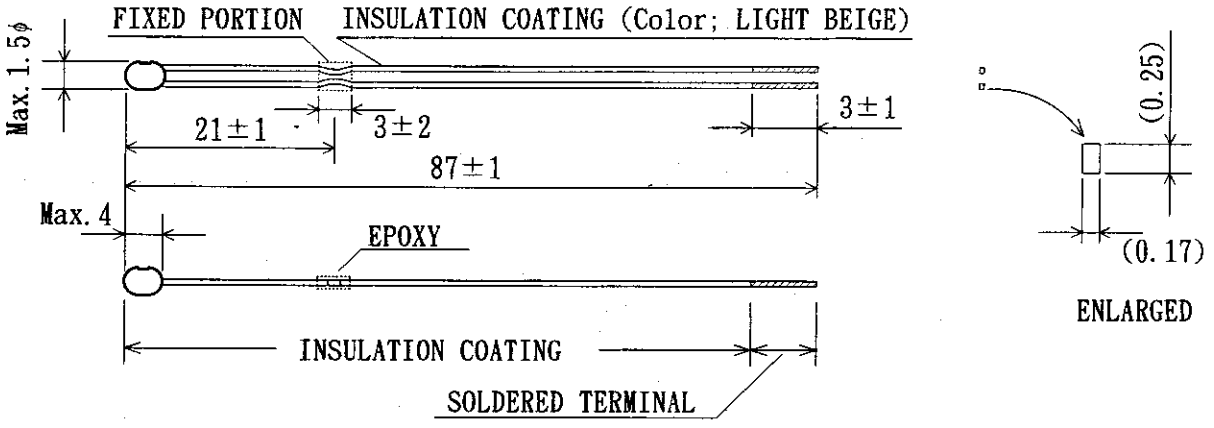
4.Rating

4.1.Category temperature range : -40℃ ～ 100℃

4.2.Dissipation factor : 0.7 mW/℃ (in air)

4.3.Thermal time constant : 0.8 sec (in oil)

5.Dimension(mm)




6.Insulation Resistance

Insulation resistance of test sample should be over 100 Mohm when it is measured by DC 100V Megohmmater between coated pointarea of thermistor element and lead wires.

7.Reliability

7.1.Dry heat

After test sample was left in air at 100℃ for 1 000 hours, the zero-power resistance change ratio should be within ±1% of initial value.

7.2.Damp heat

After test sample was exporsed in air of 95% RH at 40℃ for 1 000 hours, the zero-power resistance change ratio should be within ±1% of initial value.

7.3.Load test at high temperature

After DC 0.1mA was flowed to test sample in air at 100℃ for 1 000 hours, zero-power resistance change ratio should be within ±1% of initial value.

7.4.Change of temperature

After test sample was repeated 5 times cycle in temperature cycles of 5minutes at - 20℃ ; room temperature 3 minutes ; 5 minutes at 100℃ ; room temperature 1 minutes, zero-power resistance change ratio should be within ±1% of initial value.



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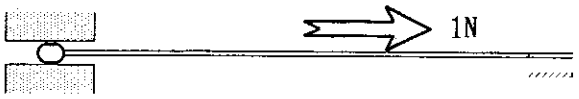
8. Mechanical Performance Test

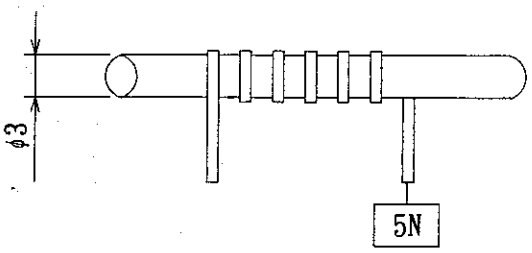
8.1.Terminal strength

After pull 1N static weight for 10 second in the direction of lead axis, test sample should be no change.




8.2.Resin coating strength

The lead-wire shall be firmly wrapped on the cylinder with the diameter of 3mm. A down word tension shall be applied to the lead wire and increased to 5N. After the foregoing, there shall be no visible damage on the coating of the lead-wire.




8.3.Free fall

After one time free fall to a maple board from 1m height, the test sample should be no change.

8.4.Resistance to soldering heat

After lead wire of test sample was one time dipped within 6.0 mm from end of lead wire in solder bath at 260℃ ± 5℃ for 10 ± 1 seconds, the change ratio of zero-power resistance should be within ± 1% of initial value.

9.Quantity balance

A Quantity balance of the tolerance class per shipment shall not be specified in purchase order. Quantity of each class may depend on production result.



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