## Thin film thermistor

# JT Thermistor

The JT series thermistor features high accuracy and a thickness of less than 500 µm. The JT thermistor also has excellent electrical insulation and can be safely used in environments where it might come in contact with electrodes.

## Product number explanation

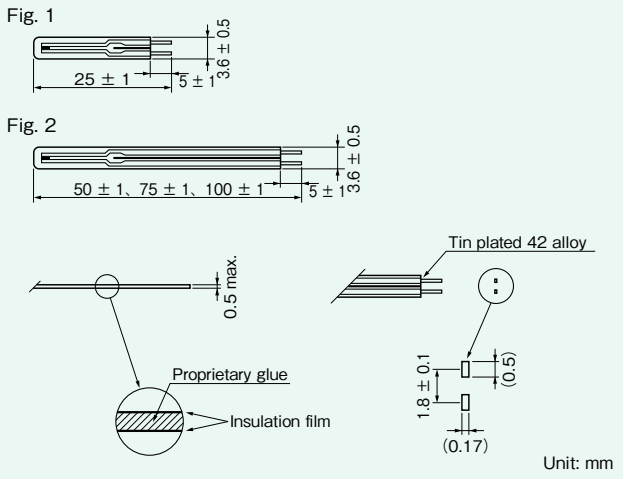
103 JT – □□□

- Shape (length) 025: 25 mm (Fig. 1)
  050: 50 mm (Fig. 2)
  075: 75 mm (Fig. 2)
  100: 100 mm (Fig. 2)
- High accuracy thin film thermistor
- Rated zero-power resistance at 25 ℃
  E.g.: 103 = 10 x $10^3$ Ω

## Applications

Battery packs, battery chargers, IT equipment, mobile devices, LCDs, surface temperature sensors, high sensitivity air temperature sensors

## Dimensions




Unit: mm

## Specifications

| Product number | $R_{25}$ [1] | $R_{25}$ tolerance | B value [2] | Dissipation factor (mw / ℃) | Thermal time constant (s) [3] | Rated power at 25 ℃ (mW) | Operating temperature range (℃) |
|---|---|---|---|---|---|---|---|
| 103JT | 10.0 kΩ | ± 1% | 3435 K ± 1% | approx. 0.7 | approx. 5 | 3.5 | – 50 to 125 |
| 104JT | 100 kΩ | | 4390 K ± 1% | | | | |

[1]: Rated zero-power resistance at 25 ℃ [2]: B value calculated from rated zero-power resistance at 25 ℃ and 85 ℃
[3]: Time required to reach 63.2% of temperature difference. Measured with sensor suspended in mid-air.

## Reliability data

| Item | Test conditions | Criteria |
|---|---|---|
| Resistance to soldering heat | 5 s at 260 ℃ | ΔR, ΔB ± 1% |
| Solderability | 2 s at 245 ℃<br>Flux material: Rosin 25%, ethyl alcohol 75% | More than 90% soldered |
| Tensile strength (lead wire) | 10 s at 1 N (horizontal pull) | ΔR, ΔB ± 1% and visual inspection |
| Termination bending | 2.5 N, one time, 90° | |
| Free fall | Three times natural fall to a maple board from 0.75 m height. | |
| Voltage proof | 100 V AC for one minute | Less than 1 mA |
| Insulation resistance | 100 V DC | Over 100 MΩ |
| Dry heat | 1000 hours at 125 ℃ | ΔR, ΔB ± 1% |
| Damp heat (under electrical load) | 1000 hours at 40 ℃ and 90% humidity<br>Electrical load: 1 mA DC | |
| Temperature cycle (thermal shock) | 100 cycles as below:<br>1. - 25 ℃ for 30 minutes<br>2. Room temperature for 3 minutes<br>3. 125 ℃ for 30 minutes<br>4. Room temperature for 3 minutes | |

## Caution

- If you plan pressing or pushing the thermistor against an object or inserting it into a tight space please contact SEMITEC sales staff.
- When soldering make sure to avoid contact of the hot part (over 150 ℃) and the sensor, because this may melt the sensor film.
- When bending the sensor make sure to not apply force on the sensor head (minimum distance from sensor: 3 mm) when fixing it. Additionally, make sure to bend the lead wire with a minimum distance of 7 mm from the sensor head.

## Resistance / temperature characteristics

| Temperature (℃) | Product number | |
|---|---|---|
| | 103JT | 104JT |
| – 50 | 367.7 | 9584 |
| – 40 | 204.7 | 4572 |
| – 30 | 118.5 | 2282 |
| – 20 | 71.02 | 1191 |
| – 10 | 43.67 | 647.2 |
| 0 | 27.70 | 365.0 |
| 10 | 18.07 | 212.5 |
| 20 | 12.11 | 127.7 |
| 25 | 10.00 | 100.0 |
| 30 | 8.301 | 78.88 |
| 40 | 5.811 | 50.03 |
| 50 | 4.147 | 32.51 |
| 60 | 3.011 | 21.61 |
| 70 | 2.224 | 14.66 |
| 80 | 1.668 | 10.13 |
| 85 | 1.451 | 8.483 |
| 90 | 1.267 | 7.135 |
| 100 | 0.9753 | 5.111 |
| 110 | 0.7597 | 3.720 |
| 120 | 0.5981 | 2.746 |
| 125 | 0.5331 | 2.371 |
| $B_{25/85}$ | 3435 K | 4390 K |

Unit: kΩ