

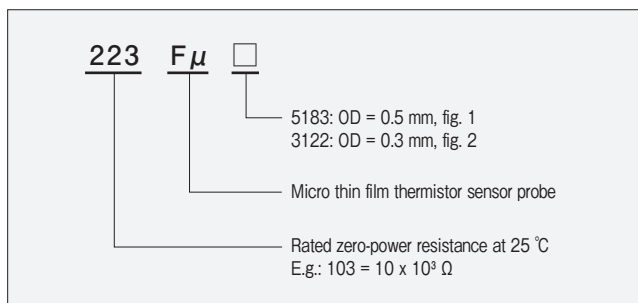
Micro thin film type sensor probe

F μ Thermistor

The F micro thin film thermistor sensor probe has been developed applying SEMITEC's proprietary thin film thermistor technology, specifically with medical purposes in mind.

It is highly suited for catheter applications with its high volume production capability, robustness, reliability, accuracy and faster response than existing thermistors.

Product number explanation



Applications

Medical catheters
Guide wires
Testing equipment
Handheld medical devices
Body temperature monitoring
Other applications that require very small probes

Resistance / temperature characteristics

Temperature (°C)	223F μ ⁵
-10	100.3
0	62.92
10	40.56
20	26.82
30	18.16
40	12.58
50	8.892
60	6.407
70	4.700

⁵: Resistance values for the thermistor chip without lead wires

Specifications

Product number	R ₃₇ ¹	R ₃₇ tolerance	B value ²	Dissipation factor (mW / °C)	Thermal time constant (ms) ³	Rated power at 25°C (mW)	Operating temperature range (°C)
223F μ 5183	14.015 k Ω	± 0.5% ⁴	3454 K ± 1%	approx. 0.35	approx. 52	1.75	- 10 to 70
223F μ 3122	14.015 k Ω	± 3% ⁴	3454 K ± 1%	approx. 0.22	approx. 20	1.1	- 10 to 70

¹: Rated zero-power resistance at 37 °C of the thermistor chip without lead wires

²: B value calculated from rated zero-power resistance at 0 °C and 50 °C without lead wires

³: Time required to reach 63.2% of temperature difference. Measured with sensor suspended in still water.

⁴: If your application requires other tolerance values please contact SEMITEC sales staff.

Reliability data

Item	Test conditions	Criteria
Free fall	Three times natural fall to a maple board from 1 m height.	ΔR, ΔB ± 0.5%
Dry heat	1000 hours at 70 °C	
Damp heat	1000 hours at 70 °C and 90% to 95% humidity	
Temperature cycle (thermal shock)	Seven cycles as below: 1. - 20 °C for 12 hours 2. Room temperature for 1 minute 3. 55 °C for 12 hours 4. Room temperature for 1 minute	

Caution

The F micro thermistor sensor probe is manufactured using a semiconductor process. Due to its microstructure the sensor is sensitive to electrostatic discharge (ESD) in just the same way as common integrated circuits are.

In order to prevent damage to or failure of the sensor SEMITEC recommends to take appropriate precautions against ESD when handling it.

Failure to protect the sensor against ESD may also cause damage to the equipment installed with the sensor, because electrostatic discharge can cause small parametric changes, which means that the sensor may not meet its published specification.

Dimensions

Fig. 1

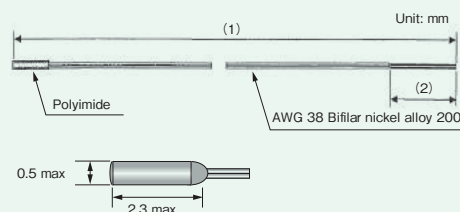
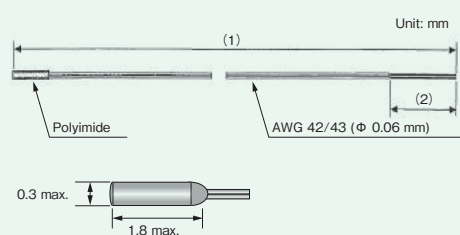


Fig. 2

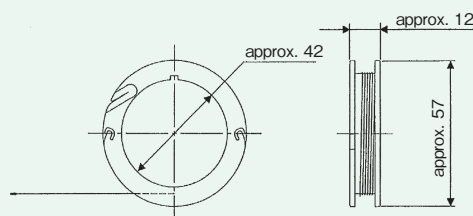


(1) Lead wire length customized according to customer requirements (max. 200 cm).
(2) Bare lead wire length customized according to customer requirements.

Please contact SEMITEC sales staff for products without resin coating on the sensor head for even smaller diameter.

Spool dimensions

Unit: mm



Connection method

The lead wire can be soldered to larger wires by winding it around the larger wire and then soldering.

Please contact SEMITEC sales staff for customized bare lead wire lengths according to your application's requirements.

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