

Sensors for biological applications

Any questions related to "sensing the unknown" are welcome

Introducing new sensors that fully utilize SEMITEC's proprietary technology

Temperature sensor

Non-contact (IR)



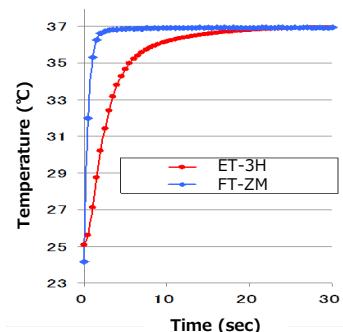
For ear (tympanic) thermometers

Fast response time



For axillary (armpit) temperature measurement

Response time when measuring axillary temperature

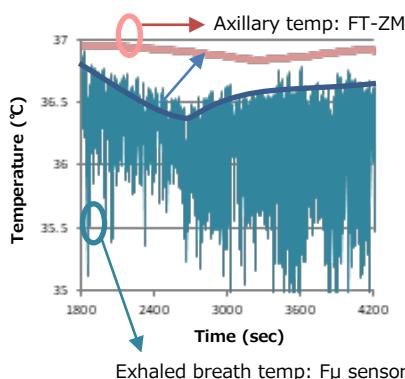


Ultraminiature



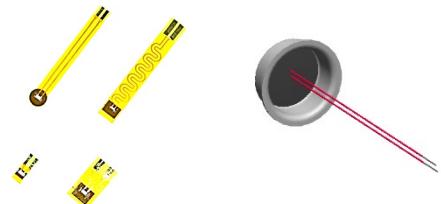
For catheters

Exhaled breath temperature and axillary temperature



Exhalation: Temperature difference = Breathing depth
Maximum value per breath is correlated with axillary temp

Flexible, thin, small



For skin surface temperature measurement

SEMITEC®

SEMITEC USA Corp.

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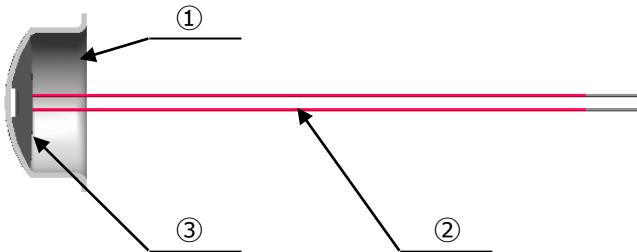
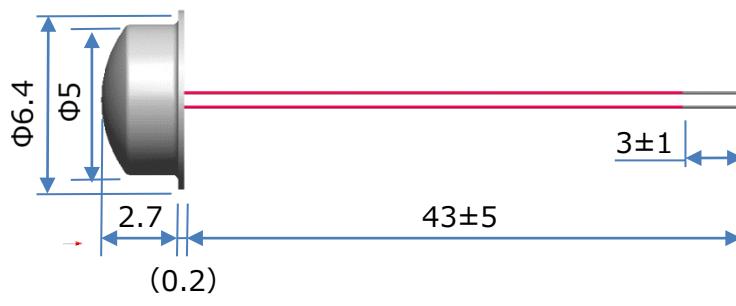
E-mail: sales@semitec-usa.com Web: www.semitec-usa.com

Ver. 2.04

Skin surface temperature sensor (Metal cap mounting type)

SEMITEC, a longtime supplier of thermistors for digital thermometers, has developed a sensor with a form factor suitable for measuring skin surface temperature. The sensor is capable of quick and accurate detection of changes in body surface temperature. This has been made possible through mounting SEMITEC's proprietary, miniature, thin-film thermistor to a metal case.

Exterior dimensions

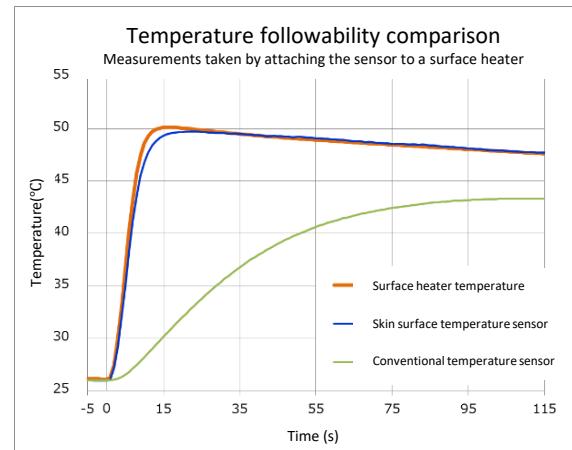
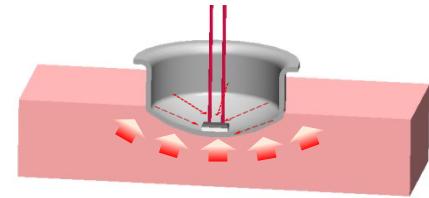


Sensor Materials

① Metal cap	Material: SUS304
② Thermistor	503FT-ZM
③ Potting compound	Thermally conductive resin

Features

- Shape that adheres well to the skin
- Fast response to temperature changes
- Easy to incorporate into a design



Basic specifications

Zero-power resistance (R_{25})	$50.0\text{k}\Omega\pm 5\%$
B value ($B_{25/85}$)	$3\ 435\text{K}\pm 1\%$
Dissipation constant (element only)	$0.3\text{mW}/\text{°C}$ (approx.)
Thermal time constant (element only)	1 second (approx.)

Applications

- Wearable devices
(Health management of athletes, sports personnel, construction workers; Monitoring of care recipients and infants)
- Biomedical equipment
- Thermometers

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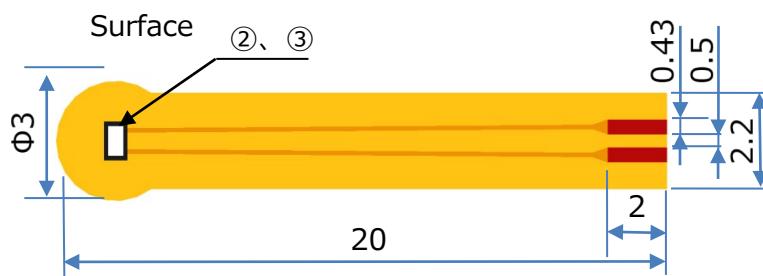
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Ver. 5.00

Skin surface temperature sensor (Ultra-thin film type)

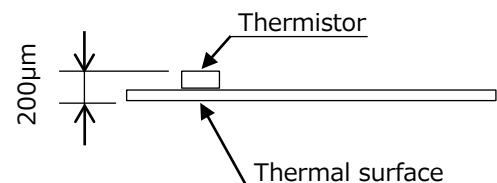
SEMITEC, a longtime supplier of thermistors for digital thermometers, has developed a sensor with a form factor suitable for measuring skin surface temperature. This ultra low-profile sensor (200 μ m) has been realized through mounting SEMITEC's proprietary, miniature, thin-film thermistor on FPC, and is far thinner than the JT series sensors which have been our thinnest solution (500 μ m) over the years. With its excellent flexibility, the sensor can be attached to the skin surface.

Exterior dimensions

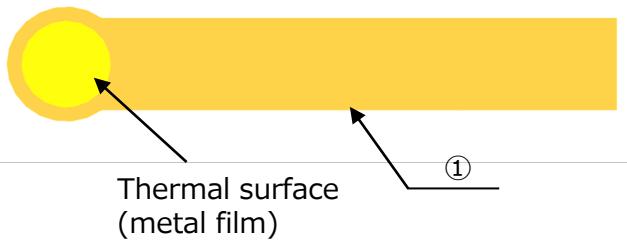


Features

- Ultra low profile (total thickness: 200 μ m)
- Excellent flexibility
- Shapes can be tailored to match various mounting location requirements

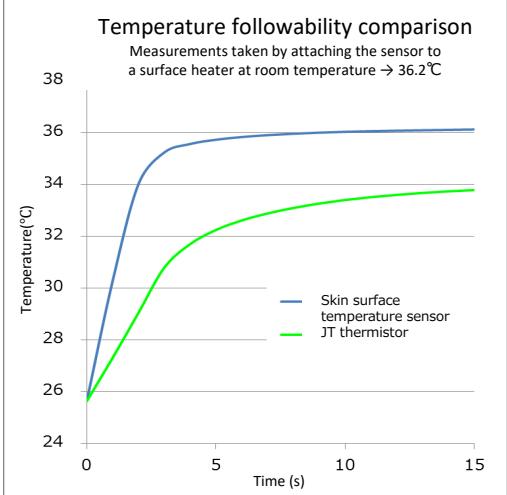


Back side (skin surface side)



Sensor Materials

① FPC	Polyimide resin
② Thermistor	FT
③ Solder	Pb-free



Basic specifications

Zero-power resistance (R_{25})	10k Ω ±1%
B value ($B_{25/85}$)	3 370K±1%
Dissipation constant (element only)	0.3mW/°C (approx.)
Thermal time constant (element only)	1 second (approx.)
Thickness (FPC + Thermistor)	200 μ m Max

Applications

- Wearable devices
(Health management of athletes, sports personnel, construction workers; Monitoring of care recipients and infants)
- Biomedical equipment
- Thermometers

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