

## Features

- $R_0$ : 1000  $\Omega$
- TCR 3850ppm/K
- Application temperature -20...200°C
- Resistance tolerance  $\pm 0.012\%$  (Class Z)
- Size 2.0 x 10.0 x 1.4 mm<sup>3</sup> (width/length/height)
- Gold coated Nickel wire 10 mm length, 0.25mm diameter

## Applications

- Applications with high accuracy needs
- Specific temperature feedback control
- Industrial applications
- ...

# PTFB102ZPGM

## Platinum Temperature Sensor

Pt1000, 2.0x10.0, Class Z, PTFB102ZPGM

## Product Description

This sensor is a resistance temperature detector (RTD) using a platinum resistor as sensing element. This platinum resistor consists of a structured platinum film on a ceramic substrate, passivated by a glass cover. The connection wires are protected with glass ceramic on the welding area. The material for the connection wire is gold coated nickel wire.

The characteristic curve of this Platinum RTD complies with DIN EN 60751. The usage of Platinum as resistive material guarantees high long term stability.

Due to relative small outline and low mass this RTD has a low time constant; therefore it is a suitable solution for fast and precise feedback control systems.

This RTD-Element comes with a very narrow tolerance and allows very precise measurements without extra calibration.

The sensor is designed for temperature applications up to 200°C.

Sensors are delivered with measured values.

- Platinum Temperature Sensor
- Conformal to DIN EN 60751
- Global interchangeability
- Wide temperature range
- Fast response time
- Class Z (F0.03) tolerance
- Small outline dimensions
- Gold coated nickel lead wires
- Measuring values included

## PTFB102ZPGM

Platinum Temperature Sensor

### Sensor properties

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Nominal Resistance at 0 °C	R <sub>0</sub>	Class Z (F 0.03)	999.88	1000.0	1000.12	Ω
Temperature Coefficient of Resistance	TCR	0 °C, 100 °C		3850		ppm/°C
Tolerance Temperature Range*		Class Z (F 0.03)	-20		200	°C
Self Heating Coefficient in air, flow: 1 m/s				0.25		°C/mW
Response Time Water Flow: 0.4 m/s	τ <sub>W,0.9</sub>			0.4		s
Response Time Air Flow: 1 m/s	τ <sub>A,0.9</sub>			20		s
Measuring Current		Class Z (F 0.03)			0.3	mA
Lead wire Au-coated Ni-wire		Diameter length		0.25 10		mm mm
Calibration Point		length		8		mm

\*possible operating temperature range is, -200°C to +600°C for elements with Au-coated Ni wire.

**Specified accuracy is not guaranteed if the sensor is exposed to temperatures outside the specified tolerance temperature range.**

### Calculation Formulas

The calculation formulas of this Pt-RTD are defined in DIN EN 60751 as following:

For T ≥ 0 °C:  $R_{(T)} = R_{(0)} \cdot (1 + a \cdot T + b \cdot T^2)$

For T < 0 °C:  $R_{(T)} = R_{(0)} \cdot [1 + a \cdot T + b \cdot T^2 + c \cdot (T - 100^\circ\text{C}) \cdot T^3]$

Coefficients:  $a = 3.9083\text{E-}03$        $b = -5.775\text{E-}07$        $c = -4.183\text{E-}12$

Tolerances: Class Z (F 0.03):  $\pm (0.03 + 0.0007 \cdot |T/^\circ\text{C}|) \text{ } ^\circ\text{C}$  (-20 ... +200 °C)

## Mechanical Dimensions

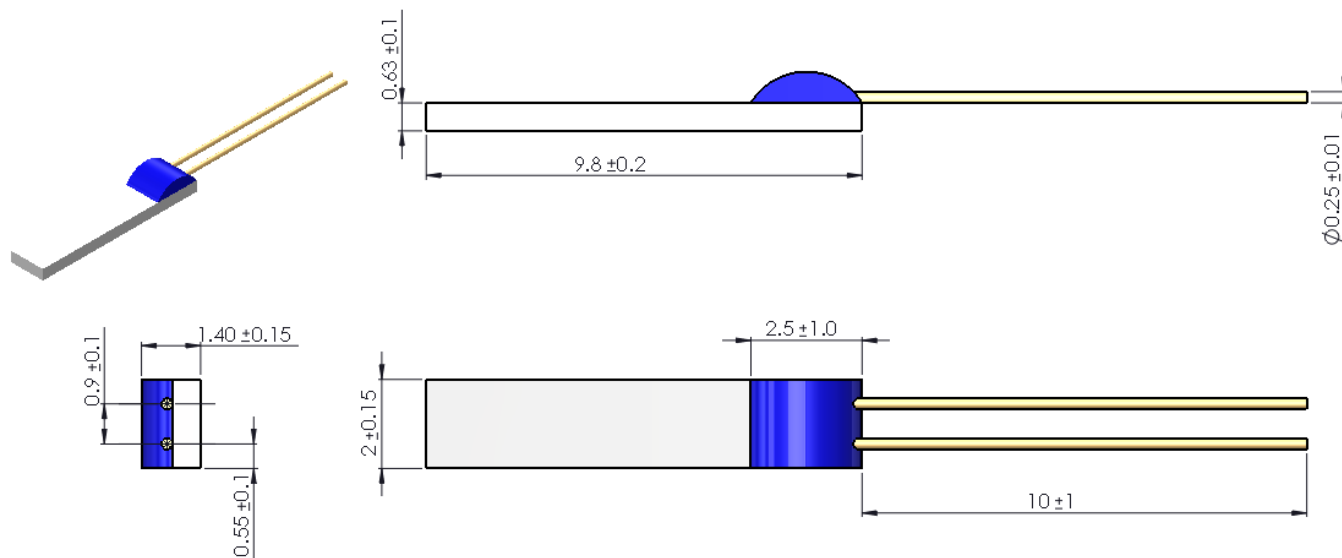


Figure 1: Mechanical dimensions of Platinum Temperature Sensor

## Ordering Information

Description	Part Number	Configuration information
Pt1000, 2.0x10.0, Class Z, PTFB102ZPGM	NB-PTCO-119	1000 Ohms, 2.0 mm x 10.0 mm x 1.4 mm, F 0.03 (Z), 10mm Au-coated Ni-wire

## Packing and Minimum Order Quantity

Packing	PCS per Packing Unit	MOQ
Transparent envelope with measured values	50	50

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