



Figure 13: High-temperature platinum sensor

## User information

### Connection

Standard 2-lead circuits may result in a loss of precision so 3 or 4-lead circuits are recommended.

- With longer cables, with which the resistance and the temperature-dependent resistance of the cable can achieve significant values and
- with platinum temperature sensors with narrower tolerances,
- if significant electromagnetic interferences exist.

### Storage

Platinum temperature sensors should not be subjected to caustic and corrosive media and atmospheres. The specific storage information for each type is to be followed

### Cleaning

Platinum temperature sensors are cleaned before packing and further cleaning is not normally required. Should cleaning be required after mounting, most conventional industrial processes can be used, including immersion in a liquid or ultrasonic bath. We recommend that residue-free cleaning agents are used.

### Handling

Platinum temperature sensors are precision components, and should therefore be carefully handled during mounting. Metal holders, clamps or other rough gripping devices may not be used. Plastic tweezers are recommended for working with thin-film sensors of the F and SMD ranges.

The supply leads may not be bent near the body of the platinum temperature sensor. Frequent repositioning of the supply leads should be avoided.

### Connection technology

The best results are achieved with welding processes (resistance welding, laser welding etc.) or soldering (soft, hard solder). When using hard solder, it should be ensured that the platinum temperature sensor body is not heated above its maximum nominal temperature. In general, the soldering times for hard solder should be less than three seconds.

Shrinkage and ultrasonic sealing is also possible.

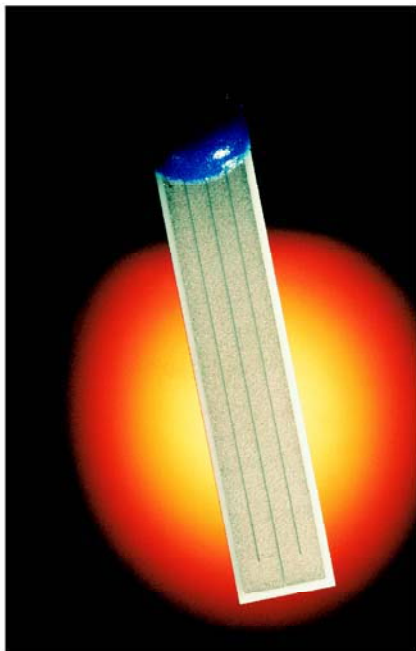


Figure 14: Platinum heater

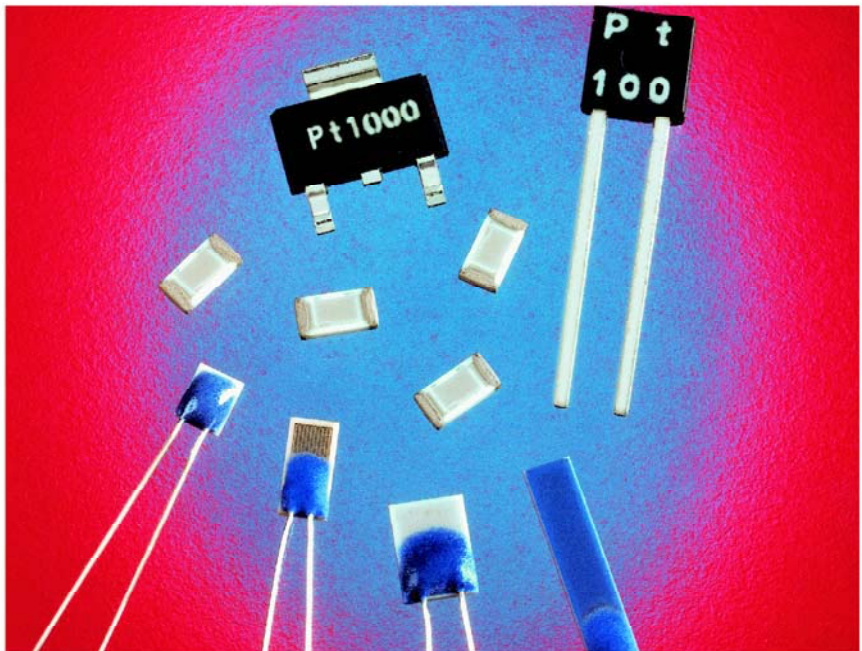


Figure 15: Group of standard platinum sensors

- When shrinkage is being carried out, it must be ensured that any electrical resistance is avoided at the connecting point.
- With ultrasonic sealing, the leads are to be bent out of the level of the platinum temperature sensor, in order to exclude interior damage.
- For the SMD and SOT223 ranges, we recommend automatic further processing with wave or reflow processes.

### Adhesion and embedding

When adhering, embedding, powdering or coating platinum temperature sensors, it is important that the coefficients of thermal expansion of the different materials used agree, in order to avoid mechanical tensions which may affect the sensor signal.

The embedding materials should be chemically neutral and remain elastic after drying. The position of a connected platinum temperature sensor should under no circumstances be subsequently corrected by sliding its body.

The Heraeus Sensor-Nite FR range is already precast in a ceramic casing. The SOT223 and TO92 ranges are cast in plastic.

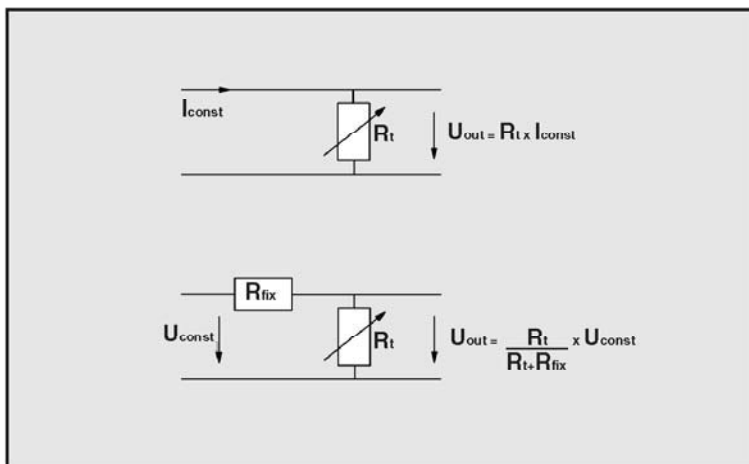


Figure 16: Typical electronic circuits for evaluating temperature signals using an  $R_t$ . Constant current source (top), Constant voltage source and a bleeder chain.

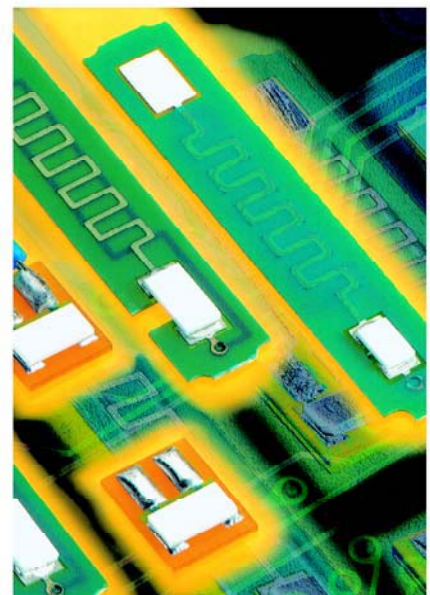


Figure 19: Platinum temperature sensors as an SMD 805-type mounted on a PCB

**Heraeus Sensor-Nite**