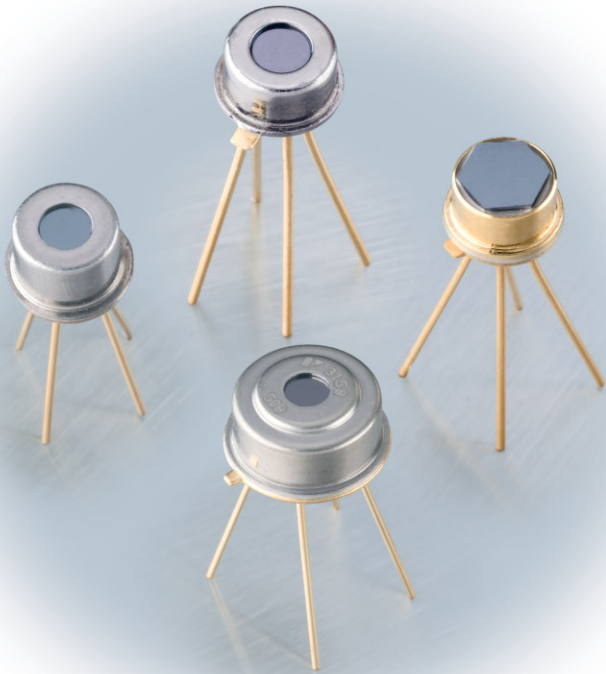


Thermopile Sensor

TPS 23x Family



The choice for low-cost temperature measurement applications

PerkinElmer introduces the new TPS 23x thermopile sensor family of miniature thermopile chips for low-cost temperature measurement applications. It uses a 1x1 mm Si-based chip and carries a large radiation sensitive area of 0.5 mm (diameter). The round absorber area allows a pyrometer design with a small viewing angle and a perfectly round measurement spot.

With its optimized output signal, the TPS 23x family replaces the TPS 43x series, which was introduced in the mid-1990s as the world's first thermopile in CMOS compatible mass production, by offering better performance at a lower cost.

Delivering the perfect suite of thermopiles for your temperature measurement needs

The TPS 23x family of thermopile sensors features housing sizes from the standard TO-39 (8.15 mm cap diameter) down to a miniature TO-41 (3.56 mm cap diameter). Sensitivity ranges between 22 and 58 $\mu\text{V}/\text{K}$. The family includes the TPS 232 in the TO-46 housing and TPS 234 in the TO-39 housing.

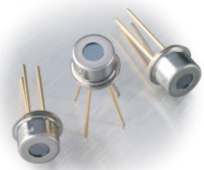
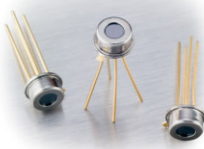
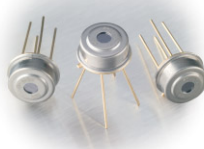
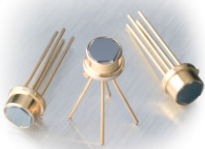
In addition, two new packages that are especially designed for the use in ear thermometers include the miniature TPS 230 and the TPS 23B sensor. The TPS 230 comes in a TO-41 housing, while the TPS 23B comes in a derivative of the TO-46 housing, which features PerkinElmer's proprietary isothermal package for thermal shock dampening.

All packages employ the standard 100 k Ω thermistor as a reference sensor for the ambient temperature.



Thermopile Sensor

TPS 23x Family

Selection Guide				
				
Device	TPS 230	TPS 232	TPS 234	TPS 23B
Housing	TO-41	TO-46	TO-39	TO-46
Cap diameter	3.56 mm	4.7 mm	8.15 mm	4.7 mm
Field of view	82°	120°	66°	88°
Responsivity @ T_{obj} = 227° C, T_{amb} = 25° C	42 V/W	42 V/W	42 V/W	57 V/W
Average sensitivity @ T_{obj} = 40° C, T_{amb} = 25° C	28 µV/K	42 µV/K	22 µV/K	44 µV/K
Average sensitivity @ T_{obj} = 100° C, T_{amb} = 25° C	36 µV/K	56 µV/K	29 µV/K	58 µV/K
Thermopile resistance	110 KΩ	110 KΩ	110 KΩ	110 KΩ
Thermal shock behavior	Very good	Very good	Good	Excellent
Unique feature	Smallest thermopile sensor	Lowest cost for miniature package	Replacement of TPS 334	Best thermal shock performance
Typical application	Ear thermometer	Ear thermometer, pyrometer	Low-cost replacement for industrial applications	Ear thermometer

PerkinElmer Optoelectronics Sensor Solutions

PerkinElmer Optoelectronics offers a broad range of optical sensing and detection solutions that measure temperature, movement, light, distance, and gas – ideal for industrial, automotive, medical, analytical, and defense applications.

With QS and ISO certified development and manufacturing centers around the world, the company is able to

leverage and align global resources to serve customers through innovation and operational excellence. With in-house sensor design and vertically integrated manufacturing including low-cost packaging centers, PerkinElmer sells more than 150 million optical sensors each year.

PerkinElmer's thermopile detectors are used for remote temperature sensing for ear or body thermometers, printers and copiers, home and automotive climate control, and home appliances.

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