

General Description

The STP9CF55S infrared thermopile sensor for non-contact temperature measurement is a thermopile sensor having an output signal voltage directly proportional to the incident infrared (IR) radiation power. Thanks to the high uniformity of the output signal over a wide temperature range, the STP9CF55S is convenient for calibration.

The STP9CF55S comprising a new type CMOS compatible thermopile sensor chip features good sensitivity, small temperature coefficient of sensitivity as well as high reproducibility and reliability. A high-precision thermistor reference chip is also integrated for ambient temperature compensation.

Features and Benefits

- High uniformity of the output signal
- High responsivity, High Signal-Noise ratio
- Small size, high reliability, 4-pin metal housing TO-46
- Operating Temperature Range: -40°C to $+125^{\circ}\text{C}$

Applications

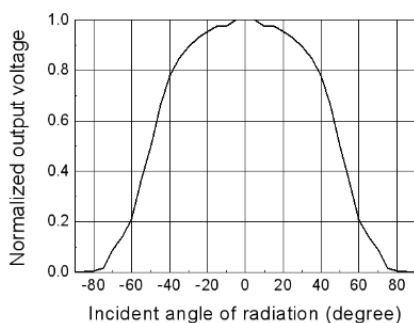
- Non-contact temperature measurement
- Pyrometer, Thermometer

Electrical Characteristics (TA = $+25^{\circ}\text{C}$, unless otherwise noted.)

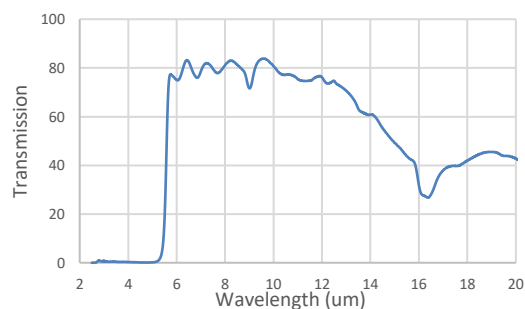
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R_{TP}	Thermopile resistance		55	75	95	K Ω
R	Responsivity	500K, with filter cut-on 5.5 μm	160	210	260	V/W
τ	Time constant			15		Ms
V_N	Noise voltage	Johnson-noise		35.2		nV/Hz ^{1/2}
D^*	Specific detectivity			2.1×10^8		cmHz ^{1/2} /W
FOV	Field of View	At 50% intensity points	85	90	95	$^{\circ}$
TC_{RTP}	TC of resistance	$-40^{\circ}\text{C} \sim 100^{\circ}\text{C}$	400	800	1200	ppm/K
<i>Thermistor</i>						
R_{th}	Thermistor resistance	25°C	95	100	105	K Ω
β	B-value		3930	3950	3970	

Optical Characteristics

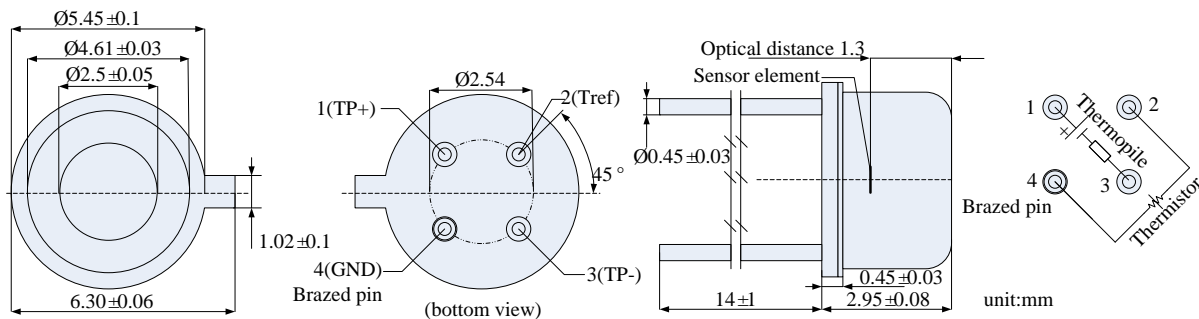
Optical characteristics



Filter parameters



Mechanical Drawings



Revision History

Revision Number	Release Date	Description
Rev1	2021/12/22	Initial Release