

General Description

The STP9CF55 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 anti-electromagnetic interference design, STP9CF55 is robust for all kinds of application environment.

The STP9CF55 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 responsivity, High Signal-Noise ratio
- Small size, high reliability, 4-pin metal housing TO-46
- Operating Temperature Range: -40°C to $+125^{\circ}\text{C}$
- Anti-electromagnetic interference

Applications

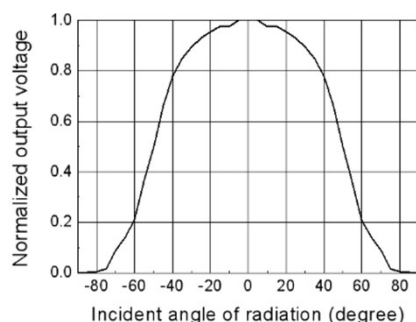
- Non-contact temperature measurement
- Pyrometer, Thermometer

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

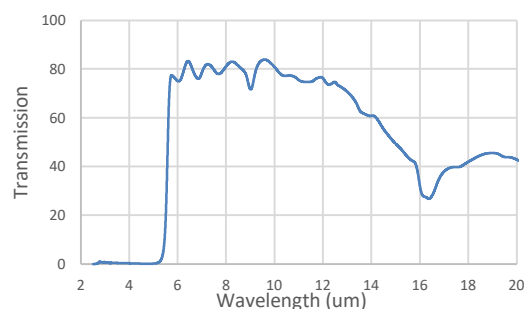
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R_{TP}	Thermopile resistance		55	75	95	$K\Omega$
R	Responsivity	500K, with filter cut-on 5.5 μm	160	210	260	V/W
τ	Time constant			15		Ms
V_N	Noise voltage	Johnson-noise		35.2		$\text{nV}/\text{Hz}^{1/2}$
D^*	Specific detectivity			2.1×10^8		$\text{cmHz}^{1/2}/\text{W}$
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
Thermistor						
R_{th}	Thermistor resistance	25°C	95	100	105	$K\Omega$
β	B-value		3930	3950	3970	

Optical Characteristics

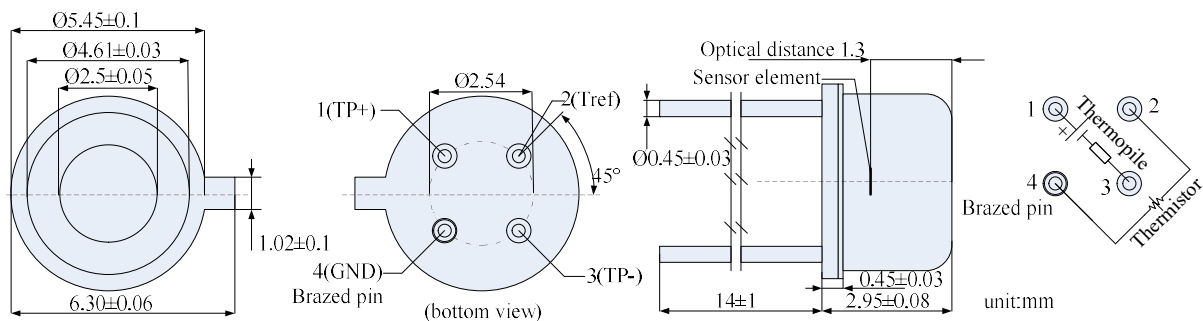
Optical characteristics



Filter parameters



Mechanical Drawings



Revision History

Revision Number	Release Date	Description
Rev1	2021/3/12	Initial Release