

General Description

The STP11DF55 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, STP11DF55 is robust for all kinds of application environment.

The STP11DF55 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

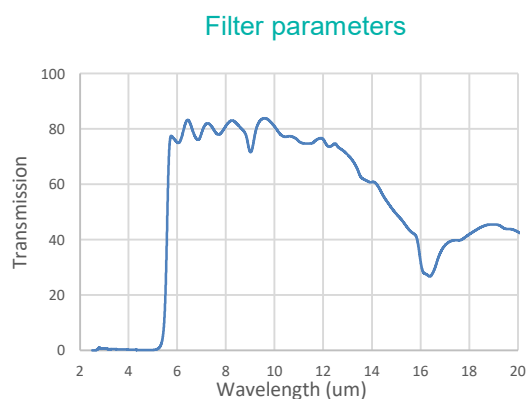
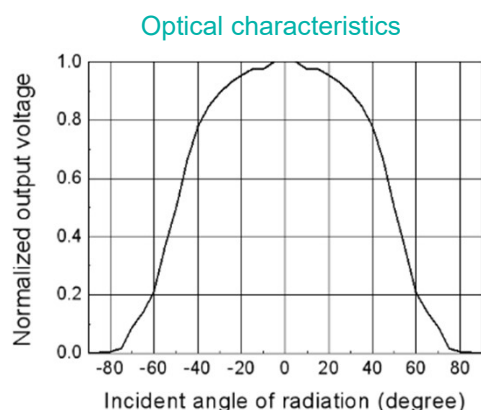
Applications

- Non-contact temperature measurement
- Pyrometer, Thermometer

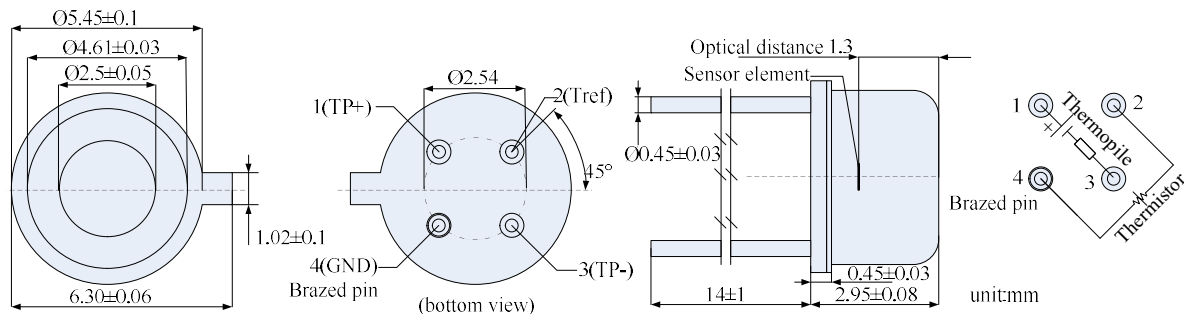
Electrical Characteristics($T_A = +25^{\circ}\text{C}$, unless otherwise noted.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R_{TP}	Thermopile resistance		120	135	150	K Ω
R	Responsivity	500K, with filter cut-on 5.5 μm	328	383	438	V/W
τ	Time constant		13	15	17	ms
V_N	Noise voltage	Johnson-noise	44.5	47.2	49.8	nV/Hz ^{1/2}
D^*	Specific detectivity		3.45×10^8	4.05×10^8	4.65×10^8	cmHz ^{1/2} /W
FOV	Field of View	At 50% intensity points	85	90	95	$^{\circ}$
TC_{RTP}	TC of resistance	$-40^{\circ}\text{C} \sim 100^{\circ}\text{C}$	200	300	400	ppm/K
Thermistor						
R_{th}	Thermistor resistance	25°C	95	100	105	K Ω
β	B-value		3930	3950	3970	

Optical Characteristics



Mechanical Drawings



Revision History

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