

General Description

The STP10DF55P2 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. With the anti-electromagnetic interference design, STP10DF55P2 allows reliable measurement even under harsh RF radiation environment.

The STP10DF55P2 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

- Anti-electromagnetic radiation
- High responsivity, High Signal-Noise ratio
- Small size, high reliability, 4-pin metal housing TO-46
- Operating Temperature Range: -40°C to +125°C

Applications

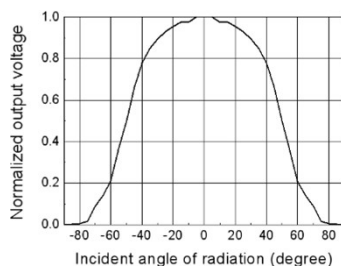
- Non-contact temperature measurement
- Pyrometer, Thermometer

Electrical Characteristics (TA = +25°C, unless otherwise noted.)

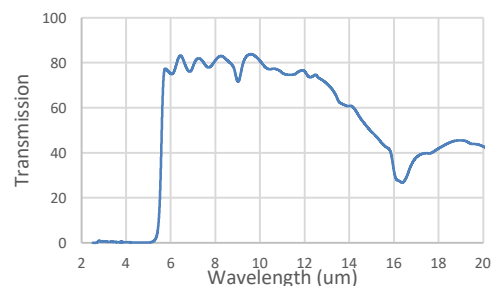
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R _{TP}	Thermopile resistance		85	105	125	KΩ
R	Responsivity	500K, with filter cut-on 5.5 μm	52	67	82	V/W
τ	Time constant			15		ms
V _N	Noise voltage	Johnson-noise		43		nV/Hz ^{1/2}
D*	Specific detectivity			1.02*10 ⁸		cmHz ^{1/2} /W
FOV	Field of View	At 50% intensity points	85	90	95	°
TC _{RTP}	TC of resistance	-40°C ~100°C	200	300	400	ppm/K
<i>Thermistor</i>						
R _{th}	Thermistor resistance	25° C	97	100	103	KΩ
β	B-value		3930	3950	3970	

Optical Characteristics

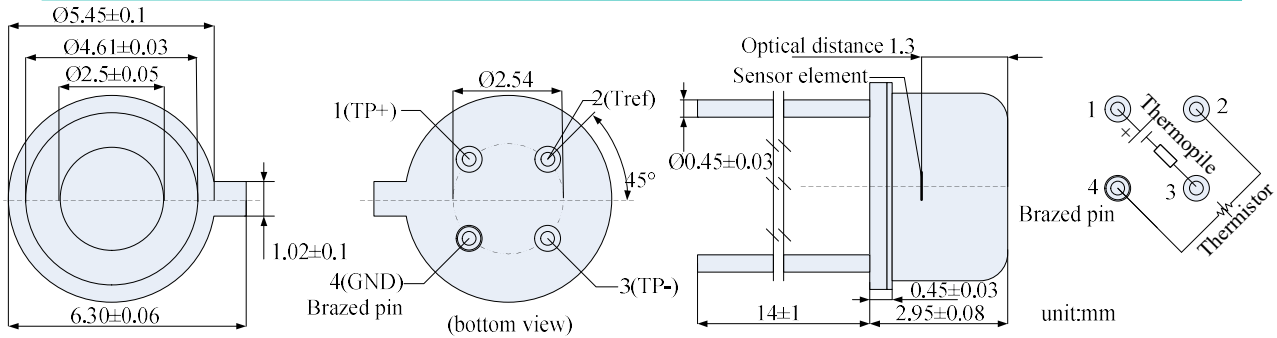
Optical characteristics



Filter parameters



Pin Configurations & Package Outlines



Revision History

Revision Number	Date	Notes
Rev1	2021/7/23	Initial Release

Draft