Data Sheet

STP9CF59

Infrared Thermopile Sensor for Temperature Measurement

General Description

The STP9CF59 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, STP9CF59 is robust for all kinds of application environment.

The STP9CF59 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-5
- Operating Temperature Range: −40℃ to +125℃
- Anti-electromagnetic interference

Applications

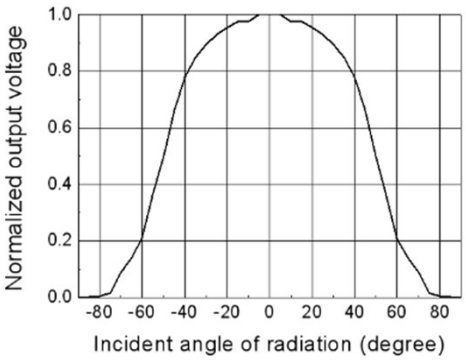
- Non-contact temperature measurement
- Pyrometer, Thermometer

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

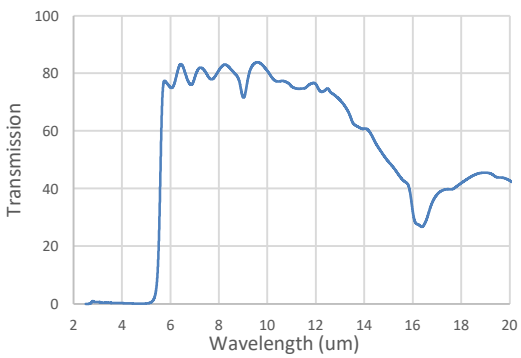
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R_{TP}	Thermopile resistance		55	75	95	KΩ
R	Responsivity	500K, with filter cut-on 5.5 um	160	210	260	V/W
τ	Time constant			15		ms
V_N	Noise voltage	Johnson-noise		35.2		$nV/Hz^{1/2}$
D*	Specific detectivity			$2.1*10^8$		$cmHz^{1/2}/W$
FOV	Field of View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

Optical Characteristics

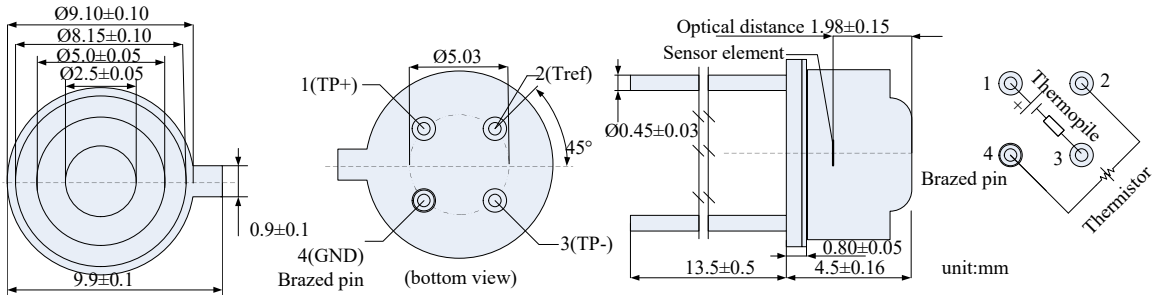
Optical characteristics



Filter parameters



Mechanical Drawings



Revision History

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