

## General Description

The SSG11DF33 family of integrated thermopile sensor for NDIR (Infrared gas detection) is a single channel thermopile sensor having an output signal voltage directly proportional to the incident infrared (IR) radiation power. An infrared narrow band pass filter in front of the sensor makes the device sensitive to target gas concentration.

The SSG11DF33 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:  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Anti-electromagnetic interference

## Applications

- NDIR gas sensing
- In door air quality
- Greenhouse
- Home appliance

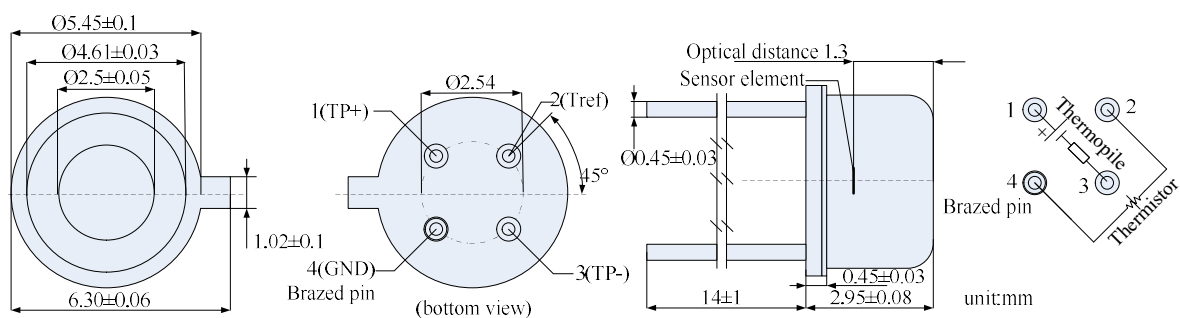
## Electrical Characteristics (TA = +25°C, unless otherwise noted.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
CWL	Center wavelength	Reference channel	3315	3375	3435	nm
HPB	Half pass band		140	160	180	nm
R <sub>TP</sub>	Thermopile resistance		120	135	150	KΩ
R	Responsivity	500K, with filter cut-on 5.5 um	328	383	438	V/W
τ	Time constant		13	15	17	ms
V <sub>N</sub>	Noise voltage		44.5	47.2	49.8	nV/Hz <sup>1/2</sup>
D*	Specific detectivity		3.45*10 <sup>8</sup>	4.05*10 <sup>8</sup>	4.65*10 <sup>8</sup>	cmHz <sup>1/2</sup> /W

### Thermistor

R <sub>th</sub>	Thermistor resistance	95	100	105	KΩ
β	B-value	3930	3950	3970	

## Mechanical Drawings



## Revision History

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