

General Description

The STP10DF5901H is a digital infrared thermopile sensor that facilitates the non-contact temperature measurement. Housed in a small TO-5 package with digital interface, the sensor integrates thermopile sensor, amplifier, A/D, DSP, MUX and communication protocol.

The STP10DF5901H is factory calibrated in wide temperature ranges: -20°C~85°C for the ambient temperature and -40°C~380°C With $\pm 2^\circ\text{C}$ (0-100°C) or $\pm 2\%$ accuracy for the object temperature. The measured temperature value is the average temperature of all objects in the Field of View of the sensor.

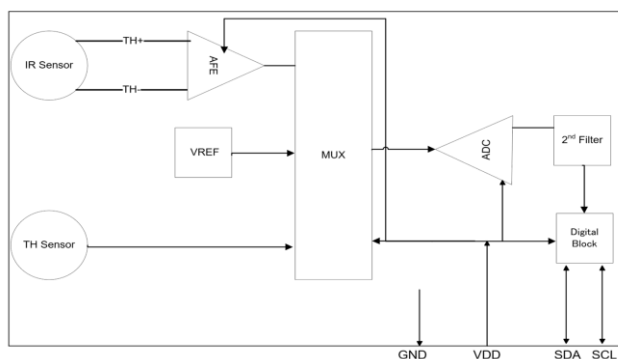
Features and Benefits

- Digital temperature output
- Factory calibrated in wide temperature ranges
- 2-Wire IIC Communication protocol and Easy integration
- Reduced system component
- Wide Supply Voltage Range
- Operating Temperature Range: -20°C to +85°C And Storage Temperature Range: -40°C-105°C

Applications

- Consumer electronic
- Household electrical appliances
- Human Body Temperature Detect

Block Diagram(Optional)



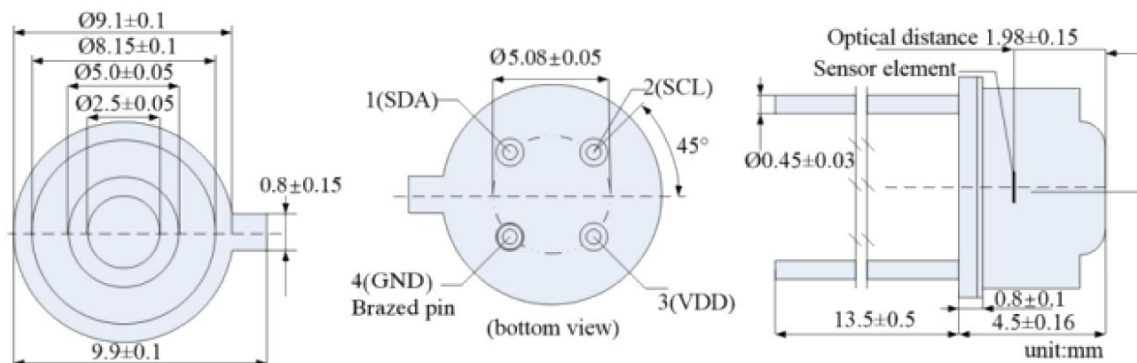
Electrical Characteristics($V_S = 3.3\text{V}$, $T_A = +25^\circ\text{C}$, unless otherwise noted.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
VDD	Supply voltage		3.0	3.3	5.0	V
IDD	Supply current	Continuous mode		1.8		mA
		Sleep Mode		1.8		μA
FOV	Field of View			110		Deg
I ² S	Interface speed			100	400	kHz
DRR	Data refresh rate			4		Hz
I _{leak}	SCL,SDA Leakage			0.1		μA
IICH	SDA Output logic low			VDD*0.2		V
IICI	SDA Output logic high			VDD*0.9		V

Thermometer Sensing Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
T _{amb_range}	Ambient reading range	VDD=3.3V	-20		85	°C
T _{amb_res}	Ambient resolution			0.1		°C
T _{obj_range}	Object temperature range	VDD=3.3V	-40		380	°C
T _{obj_res}	Object resolution			0.1		°C

Mechanical Drawings



Pin Definitions and Descriptions

Pin Name	Pin	Pin Type	Functions description
SDA	1	IO	IIC Serial Data Input/Output
SCL	2	IO	IIC Serial Clock Input/Output
VDD	3	P	Connect to VDD
GND	4	P	Connect to GND

Revision History

Revision Number	Release Date	Description
Rev1	2022/10/09	Initial Release