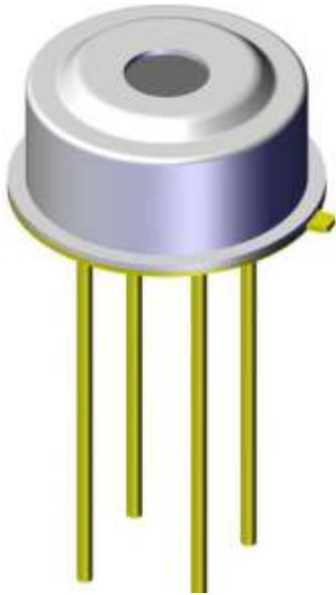# Infrared Thermopile Digital Temperature Sensor

MTP10-DX7

Feature：
- Digital temperature output
- Calibrated over a wide temperature range
- Helps reduce system component parts
- Working temperature range: -20℃~+85℃

Application：
- Consumer Electronics
- Household Appliances
- HVAC
- Internet of Things

Description:

The MTP10-DX7 is a single-channel digital infrared temperature thermopile sensor that facilitates integration into non-contact temperature measurement applications. The sensor is packaged in a small TO39 and integrates a thermopile temperature sensor, PGA, A/D, DSP, MUX and communication protocol. The MTP10-DX7 is factory calibrated in a wide range, and can work normally in the environment of -20℃~85℃, and measure the temperature of objects in the range of -20℃~300℃.

Limit parameters

parameter	value	unit
Working temperature	-20~85	℃
Storage temperature	-40~100	℃

Electrical Characteristics

symbol	parameter	condition	minimum	typical	maximum	unit
V_{DD}	Voltage		2.4	3.3	3.6	V
I_{DD}	Current	Continuous mode		600		uA
		Sleep mode		5.0		uA
T_{obj}	Temperature range		-20	-	300	℃
T_{Res}	Resolution			0.1		℃
FOV	Field of view			62		°

Optical properties
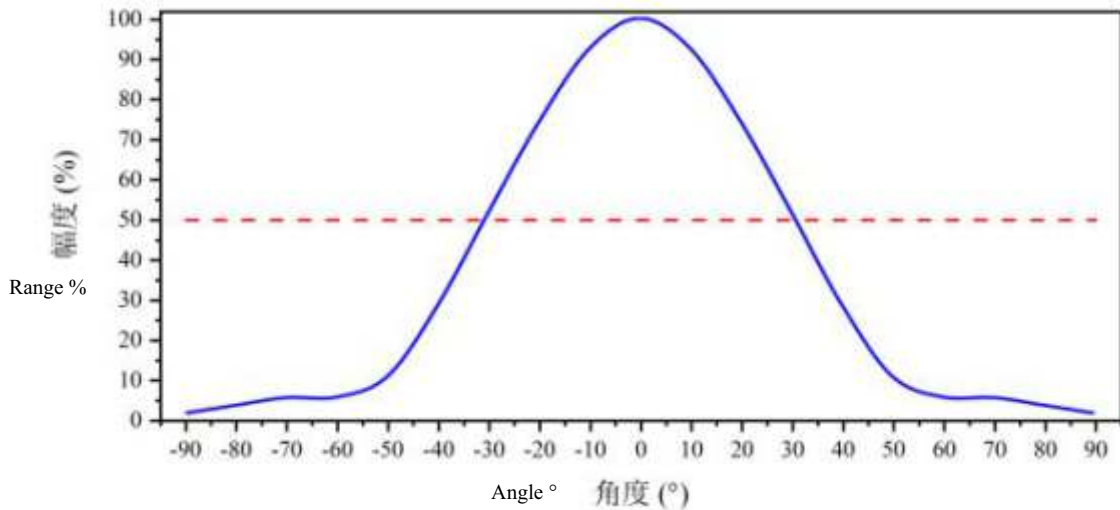
Filter parameters

parameters	value	unit	condition
Transmission wavelength range	5.5~14	um	Long wave pass
Average transmittance	≥80	%	5.5~14um
Average cutoff rate	1	%	<5um
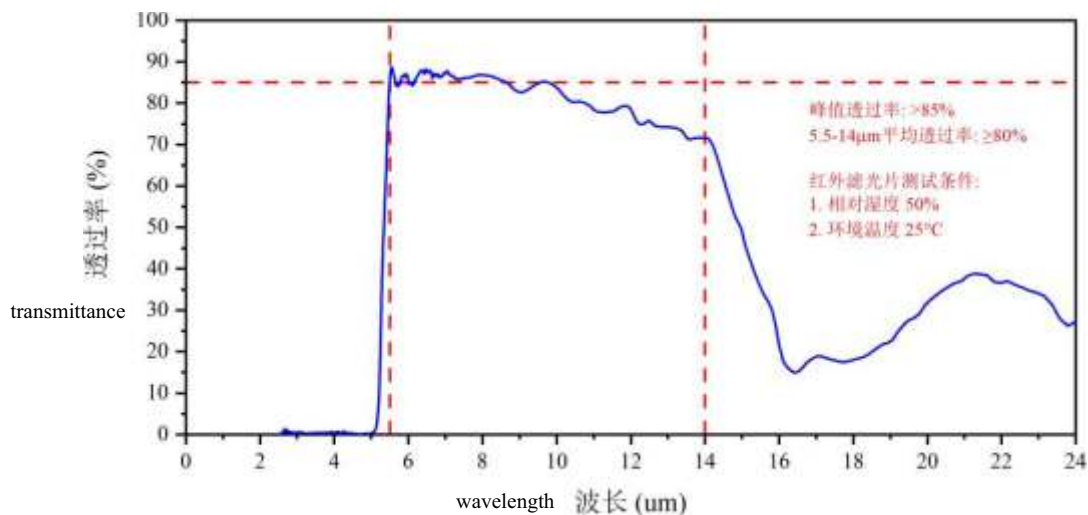
Tobj Measurement accuracy	±2℃/±2%*Tobj	The accuracy is as shown below

Performance graph
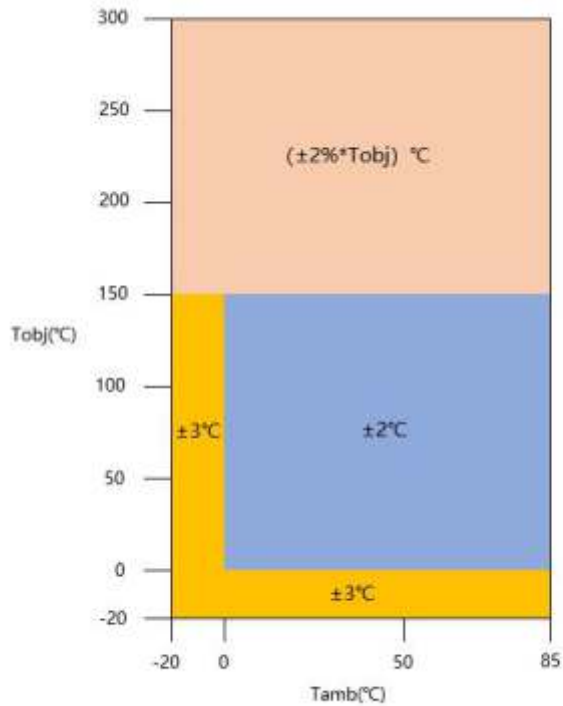
Remark：

1. During the test, the sensor and the ambient temperature are equal and fixed, and the object to be tested is full of the FOV field of view
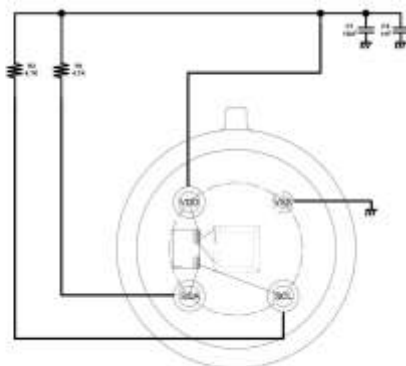
2. Conditions
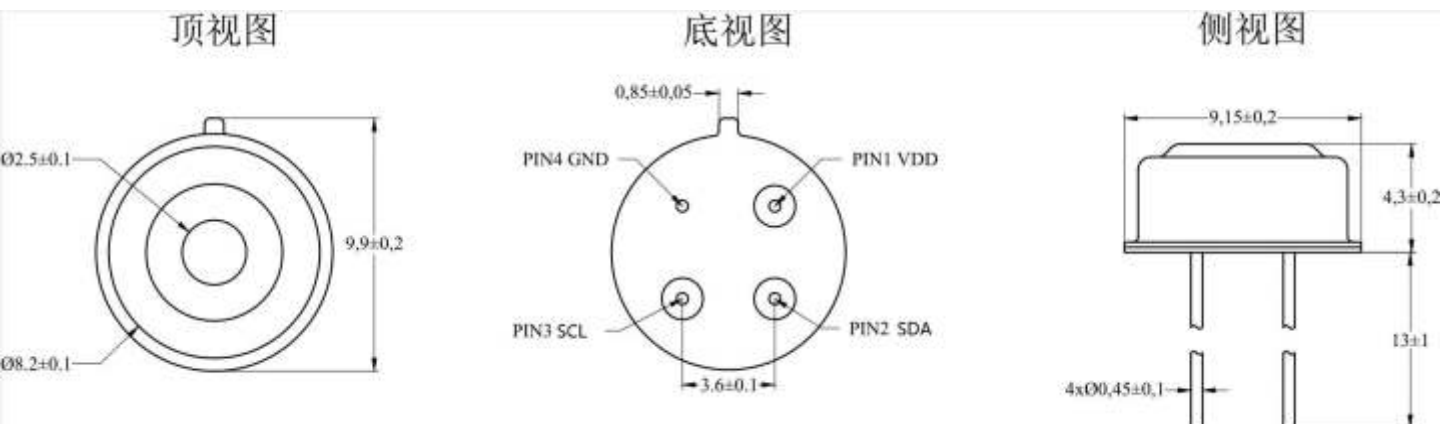
  - Measuring distance：10cm

  -Measured object size: 15cm

Pin definition:

symbol	pin	pin type	description
VDD	1	P	power supply VDD
SDA	2	IO	IIC data line
SCL	3	IO	IIC clock line
GND	4	P	power ground

Wiring diagram for reference

Dimensions

顶视图   底视图   侧视图

Revision history

version number	date	description
V1.0.0	2022/11/15	initial release

Shenzhen MemsFrontier Electronics Co. Ltd.

深圳市美思先端电子有限公司

Address: 301, B2 Building, Zhaoshangju Technology Park, Fenghuang street, Guangming District, 518107, Shenzhen, China.

Website: www.memsf.cn

Tel: +86-0755-21386871