

Infrared Temperature Sensing Module
OTM-422

Revision Date: 2019/10/24 (Rev.02)

The OTM-422 is an infrared thermopile sensor with a thermistor for ambient temperature compensation and with an ASIC for digital signal processing. The OTM-422 senses the thermal radiation emitted by objects and converts this to high resolution digits of temperature reading.

Features and Benefit

- Factory pre-calibrated
- Output reading in °C unit directly
- Easy to integrate

Application Examples

- High precision non-contact temperature measurement
- Home appliance with temperature control

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
Storage temperature	T _{Storage}	-40		100	°C	Avoid storage in humid environment.
Power supply	V _{Max}			6.5	V	
I/O pin	V _{SCL} V _{SDA}	-0.3		6.5	V	
ESD (Human Body Mode)	ESD _H			2	kV	
ESD (Machine Mode)	ESD _M			200	V	

Electrical and Mechanical Characteristic

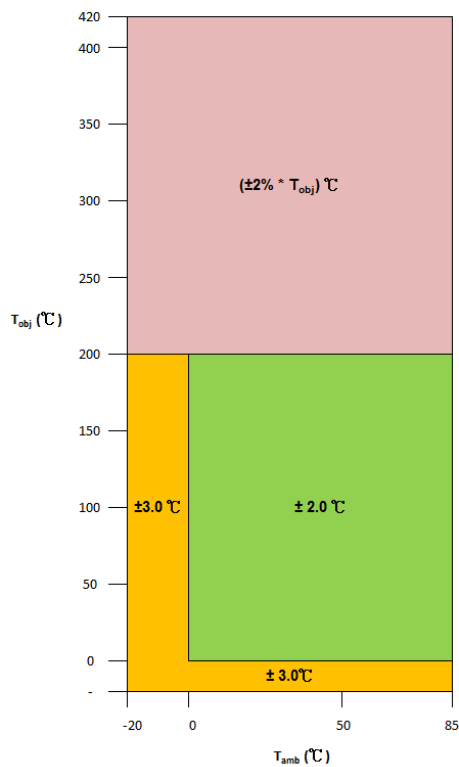
Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
Operating Conditions						
Operating voltage	V _D	4.5	5.0	5.5	V	
Operating current	I _D	-	2.0	-	mA	VDD = 5.0 V
Sleep current	I _{Sleep}	-	50	-	μA	VDD = 5.0 V
Wake up time	T _{Wake}		1		Sec.	
Data Communication						
Electrical interface			I2C			
Interface speed			100		KHz	
Data refresh rate			2		Hz	
Slave address			10		hex	7 bits addressing
Physical Interface						
Physical connection interface			292250-4 (AMP) connector			

Thermometer Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
Ambient temperature range *1	T _{Amb}	-20		85	°C	The ambient temperature display range can be up to 100°C.
Object temperature range	T _{Obj}	-20		420	°C	
Resolution of T _{Amb} reading	T _{Res_amb}	-	0.01	-	°C	T _{Amb} = 25°C
Resolution of T _{Obj} reading	T _{Res_obj}	-	0.01	-	°C	T _{Amb} = 25°C
Accuracy of T _{Obj} reading *1	T _{Acc}	--	±2.0	±2% * T _{Obj}	°C	Please see performance graph below.

Note

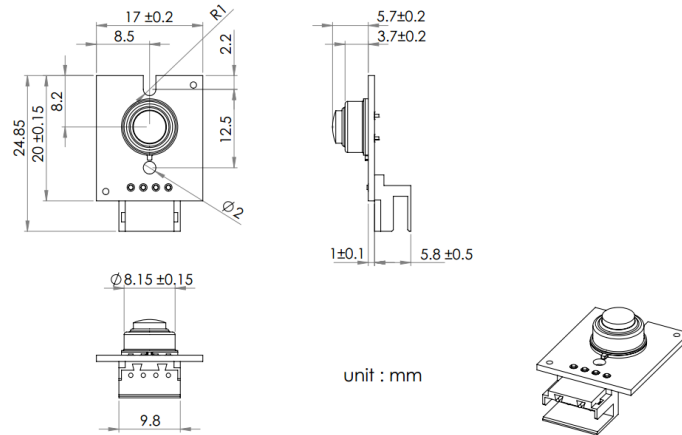
- * 1: When ambient temperature is up to 100°C, the functionality is still workable. However, if the ambient temperature is over 85°C, the object temperature accuracy is not guaranteed.

Performance Graph

Note:

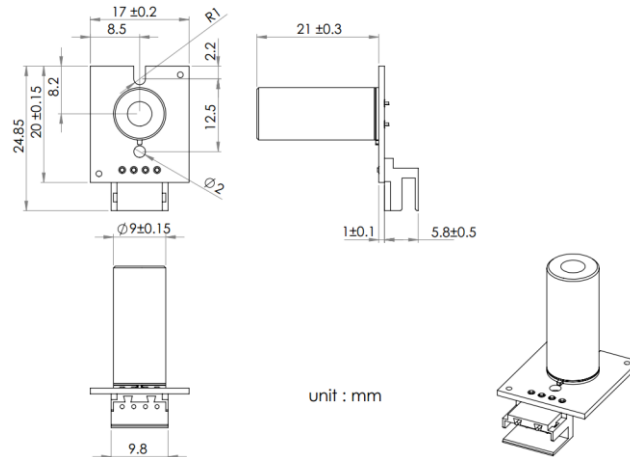
1. All accuracy specifications apply under settled isothermal conditions only. Furthermore, the accuracy is only valid if the object fills the FOV of the sensor completely
2. Test condition
 - Distance from sensor to blackbody: 5 cm (K05 type)
15 cm (K15 type)
25 cm (K25 type)
 - Blackbody size: 15 cm in diameter
 - Blackbody emissivity: 0.95

Mechanical Drawing

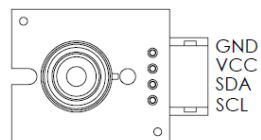
- D10 model



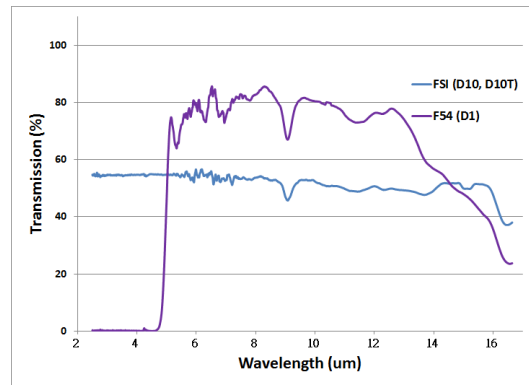
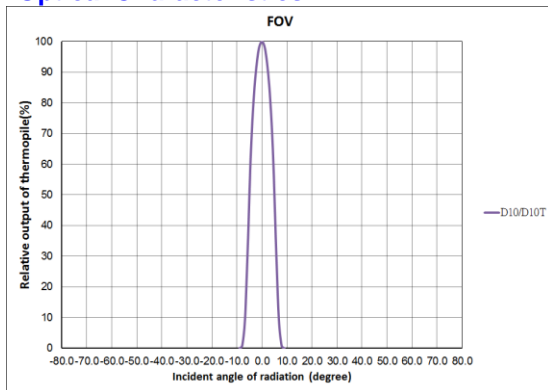
- D10T model



Connector Pin Assignment



Optical Characteristics



Ordering Information

- OTM-422 D10 Kxx*1,2 FOV 10°, for general purpose application
- OTM-422 D10T Kxx*1,2 FOV 10°, for general purpose application

Note *1: K05, K15, or K25
 *2: K05 is the typical type.

Liability Policy

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