

**Digital Infrared Temperature Sensor
OTI-301 T420**

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The OTI-301 series products combine an object temperature detection sensor, an ambient temperature detection sensor and an application-specific circuit in a compact TO-5 package. The OTI-301 series products are factory calibrated sensors with digital I2C output so the users can develop their own non-contact thermometer to accelerate time to market.

Features and Benefit

- Easy to integrate
- Output reading in °C unit directly
- Customizable PWM output

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	
Operation temperature	T _{Operation}	-20		85	°C	
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	3.2	3.3	3.4	V	
Supply current (operation)	I _D	-	2.0	-	mA	V _{DD} = 3.3 V
Supply current (sleep)	I _{Sleep}	-	0.7	-	μA	V _{DD} = 3.3 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

Thermometer Sensing Characteristics

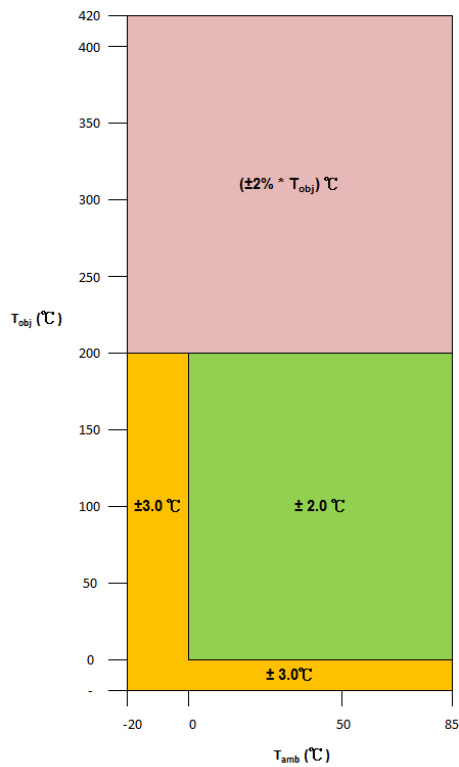
Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
T420						
Ambient temperature range	T _{Amb}	-20		85	°C	The ambient temperature display range can be up to 100°C.
Object temperature range	T _{Obj}	-20		420	°C	
Resolution of T _{Amb} reading	T _{Res_amb}	-	0.01	-	°C	T _{Amb} = 25°C

INFRARED SENSOR

OTI- 301 series

Resolution of T _{obj} reading	T _{Res_obj}	-	0.01	-	°C	T _{Amb} = 25°C
Accuracy of TObj reading *1	TAcc	--	±2.0	±2% * Tobj	°C	Please see performance graph below.

Performance Graph of T420 model

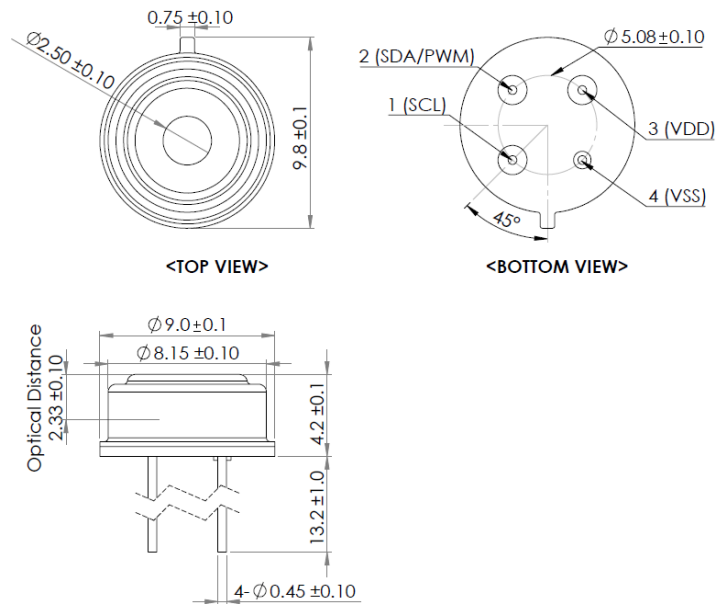


Note:

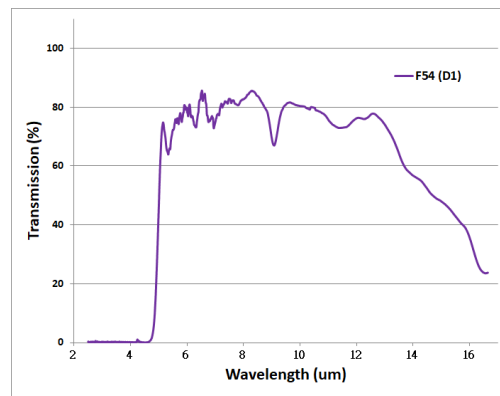
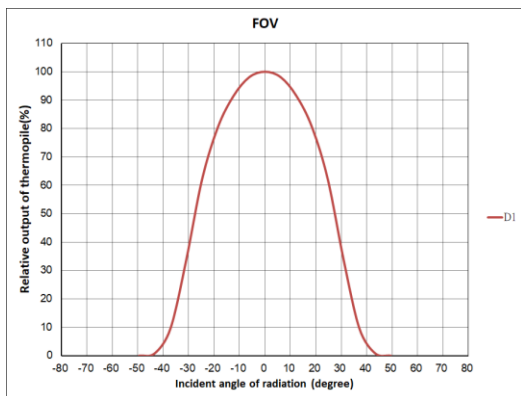
- All accuracy specifications apply under settled isothermal conditions only. Furthermore, the accuracy is only valid if the object fills the FOV of the sensor completely
- Test condition
 - Distance from sensor to blackbody: 3 cm
 - Blackbody size: 15 cm in diameter
 - Blackbody emissivity: 0.95

Mechanical Drawing

- D1 model



Optical Characteristics



Ordering Information

- OTI-301 T420 D1

FOV 55°



Liability Policy

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