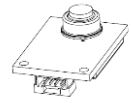


**16x16 Thermopile Array Module**

**OTPA-16PM4S-CI25**

Revision Date: 2019/04/29 (Rev.00)



The OTPA-16PM4S-CI25 is a 16x16 thermopile array module having a digital output through I2C interface for ease of infrared image processing. The application of OTPA-16PM4S-CI25 includes occupancy sensing, gesture control, home security and smart appliance.

The OTPA-16PM4S-CI25 is ideal for customers who require their products that can meet time to market with a moderate startup cost.

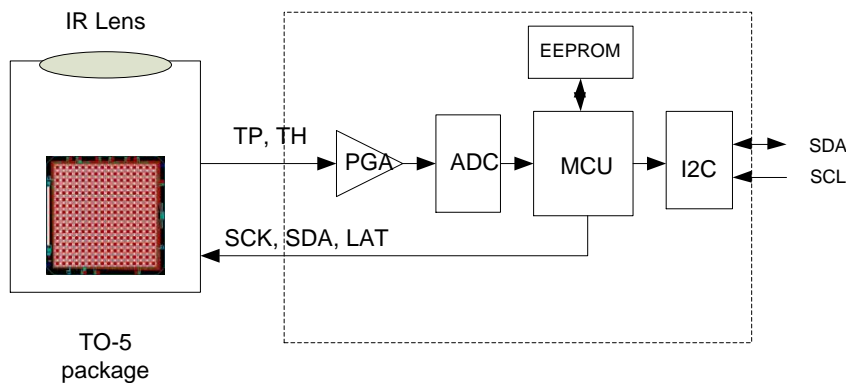
**Features and Benefit**

- Factory pre-calibrated
- Low cost and small footprint
- Integrated with infrared optics
- Output reading in °C unit directly

**Application Examples**

- White goods
- Energy management
- Building automation
- Intrusion detection

**Functional Block Diagram**



**Absolute Maximum Ratings**

Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
Storage temperature	T <sub>Storage</sub>	-40		100	°C	
Power supply	V <sub>Max</sub>			6.5	V	
I/O pin	V <sub>SCL</sub> V <sub>SDA</sub>	-0.3		6.5	V	
ESD (Human Body Mode)	ESD <sub>H</sub>			2	kV	
ESD (Machine Mode)	ESD <sub>M</sub>			200	V	

**Electrical and Mechanical Characteristic**

Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
<b>Operating Conditions</b>						
Operating voltage	V <sub>D</sub>	4.5	5	5.5	V	
Operating current	I <sub>D</sub>	-	8.0	-	mA	V <sub>DD</sub> = 5.0 V, with I2C communication.
<b>Data Communication</b>						
Electrical interface			I2C			
Interface speed			100		KHz	
Slave address			68		hex	7 bits addressing
<b>Physical Interface</b>						
Physical connection interface			SM04B-GHS-TB(JST) connector			

**Thermopile Array Characteristic**

Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
Effective number of pixels			256		pixels	16 x 16 = 256 pixels
NETD			0.4		°C	@0.5fps (-CI25 model)
Frame rate			0.5	4	fps	
Field of view	FOV <sub>X</sub> FOV <sub>Y</sub>		72 72		degrees	

**Thermometer Sensing Characteristics**

Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
<b>Ambient Temperature Reading Characteristics</b>						
Temperature range	T <sub>Amb_rge</sub>	-20		85	°C	
Resolution of reading	T <sub>Amb_res</sub>		0.05		°C	T <sub>amb</sub> =25°C
<b>Object Temperature Reading Characteristics</b>						
Temperature range	T <sub>Obj_rge</sub>	-20		120	°C	
Resolution of reading	T <sub>Obj_res</sub>		0.05		°C	T <sub>obj</sub> =25°C
<b>Temperature Calibrated Range</b>						
Object temperature accuracy <sup>*1</sup>	T <sub>Acc</sub>	--	±2		°C	T <sub>amb</sub> =25°C, T <sub>obj</sub> =80°C Distance to blackbody: 20cm Emissivity: 95%

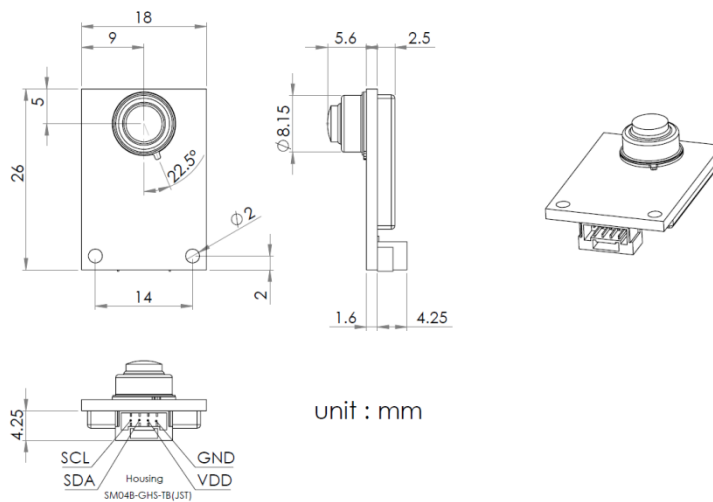
Note

- \* 1: It is applicable to the sensor area of the center four pixels.
- \* 2: The calibration distance can be customized to meet specific application.

## Data Communication

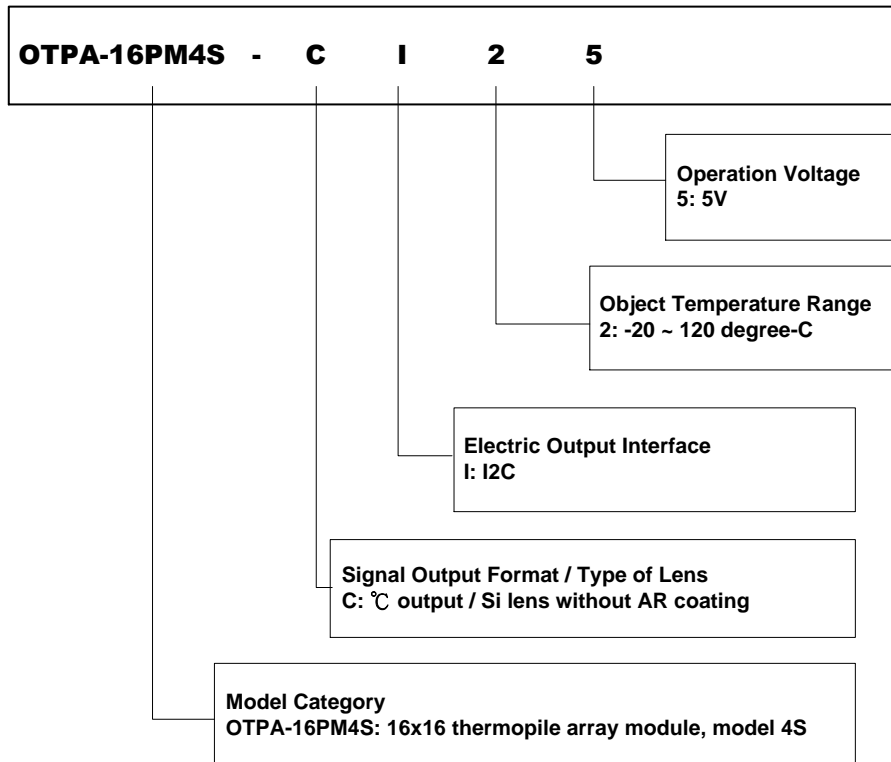
Please see application note “OTPA-AN-007 Data communication protocol for OTPA-16PM4 series” for more detail.

## Mechanic Drawing and Pin Assignment



## Ordering Information

## OTPA model number example

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Liability Policy

The contents of this document are subject to change without notice. Customers are advised to consult with Oriental System Technology sales representatives before ordering.

Customers considering the use of Oriental System Technology thermopile devices in special applications where failure or abnormal operation may directly affect human lives or cause physical injury or property damage, or where extremely high levels of reliability are demanded, are requested to consult with Oriental System Technology sales representatives before such use. The company will not be responsible for damage arising from such use without prior approval.