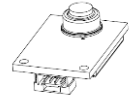


16x16 Thermopile Array Module

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.

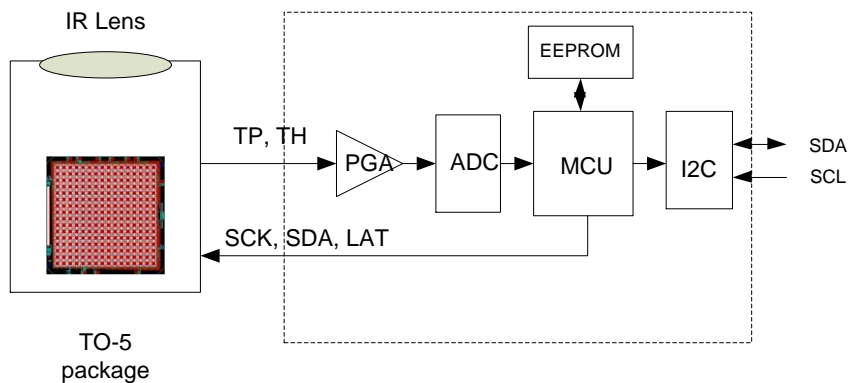
Features and Benefit

- 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	$T_{Storage}$	-40		100	°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
<b>Operating Conditions</b>						
Operating voltage	$V_D$	4.5	5	5.5	V	
Operating current	$I_D$	-	8.0	-	mA	$V_{DD} = 5.0$ 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	$FOV_x$ $FOV_y$		72 72		degrees	

**Thermometer Sensing Characteristics**

Parameter	Symbol	Min	Typ	Max	Unit	Remarks / Conditions
<b>Ambient Temperature Reading Characteristics</b>						
Temperature range	$T_{Amb\_rge}$	-20		85	°C	
Resolution of reading	$T_{Amb\_res}$		0.05		°C	$T_{amb}=25^{\circ}C$
<b>Object Temperature Reading Characteristics</b>						
Temperature range	$T_{Obj\_rge}$	-20		120	°C	
Resolution of reading	$T_{Obj\_res}$		0.05		°C	$T_{obj}=25^{\circ}C$
<b>Temperature Calibrated Range</b>						
Object temperature accuracy <sup>*1</sup>	$T_{Acc}$	--	±2		°C	$T_{amb}=25^{\circ}C$ , $T_{obj}=80^{\circ}C$ Distance to blackbody: 20cm Emissivity: 95%

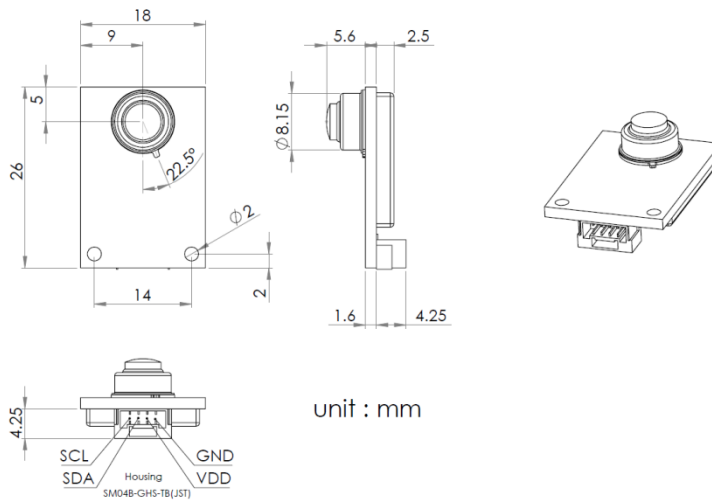
Note

- \* 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**

