

# SMD DIGITAL IR SENSOR



Exploiting Pyreos' unique MEMS Pyroelectric Technology



A range of configurable surface-mount digital sensors is available from Pyreos. This family of highly integrated pyroelectric infrared sensors offers an I2C digital interface making it ideally suited for today's IoT's challenges.

### KEY FEATURES & BENEFITS

- World's smallest SMD pyroelectric sensor
- Highly integrated, ultra-low power
  - High speed I<sup>2</sup>C Bus digital interface
  - Four fully configurable channels
  - Current consumption well below 100uA
  - Low power modes down to less than 1uA
  - Configurable wake-up by signal (gesture and motion) feature
- High quality sensor elements
  - Class leading responsivity
  - Fast response
  - Large dynamic range

## A RANGE OF APPLICATIONS



- Industrial
- Home & Office
- Personal



- Consumer
- Industrial
- Wearables



- Smart Home
- Smart Building
- Smart City



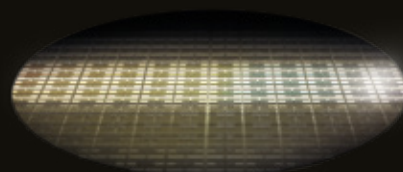
- Industrial
- Home & Office

### A RANGE OF APPLICATIONS

The unique thin-film pyroelectric technology owned and perfected by Pyreos enables the fabrication of excellent infrared sensors utilising semiconductor industry standard leading processes. The initial technology was developed over many years by Siemens GmbH and the products have been commercialised and productionised by Pyreos using standard processes from the semiconductor industry.

### THIN-FILM PYROELECTRIC TECHNOLOGY

Pyreos's own thin-film pyroelectric sensor elements enable us to produce excellent infrared sensors. Our packaged sensor range has all the benefits of the core technology. All devices offer thermal performance and mechanical strength on a complex yet simple MEMS structure.



# SMD SENSORS

Today we see ever more demanding requirements for intelligence in devices and systems, which makes sensors a crucial source of data. But many sensor technologies can only provide a crude output of basic information. Pyreos has addressed this short-coming by developing a custom ASIC linked to our fast and highly sensitive proprietary IR sensors. The ASIC offers a digital interface with four separate channels which can be individually configured to communicate via I2C. Now, offered in a small surface mount package and ideally suited to high volume applications such as Motion Sensing and Gesture Recognition, the opportunity to process and make sense of the data has finally arrived. The ultra-low power consumption of these highly integrated sensors enables long-term use in battery or solar operated devices.

Two package alternatives, one with a large filter aperture for applications where a wide Field of View (FoV) is required such as Flame Detection and a second with a small filter aperture where targeted sensing is required, for example in Gesture Recognition.

## SELECTION TABLE

PART NUMBER	PIXEL	APETURE	FILTER p.m	FILTER BW nm	GAS	FLAME	MOTION		GESTURE
ePY12111	1	L	5.00	Long Pass		Human motion rejection			
ePY22111	1	L	5.00	Long Pass			Motion		
ePY22114	2x2	L	5.00	Long Pass				Motion & Direction	Standard Power
ePY11114	2x2	S	5.00	Long Pass					Low Power
ePY12211	1	L	3.91	90	Ref	Rejection channel			
ePY12221	1	L	3.30	160	CH4				
ePY12231	1	L	4.26	180	CO2				
ePY12241	1	L	4.64	180	CO	Flame channel (wide FoV)			
ePY12251	1	L	4.48	620		Flame channel (main detector)			
ePY12261	1	L	5.30	180	NO				

By careful choice of filter wavelength, and number of sensor pixels (1 or 2x2) a wide variety application requirements are fulfilled with several examples shown in the table above.

