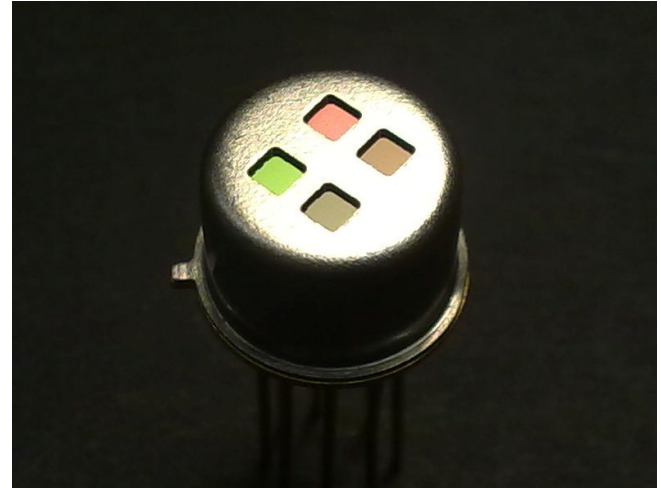


## MINIATURE FOUR CHANNEL PYROELECTRIC DETECTOR

### Introduction

Unlike other pyroelectric materials, the Pyreos thin film pyroelectric sensors can be reduced in physical size without any reduction in sensitivity, allowing Pyreos to offer a unique, highly stable miniaturised four element detector in **TO5 package**. This current mode high response detector offers excellent performance in a small footprint and at low cost. The four channel detector uses two internal cmos dual channel transimpedance amplifiers, with 10GΩ feedback resistors and 0.5pF capacitors within a current mode circuit design. A range of IR filters are available, or we can fit your filters to customize the product to your specific requirements.



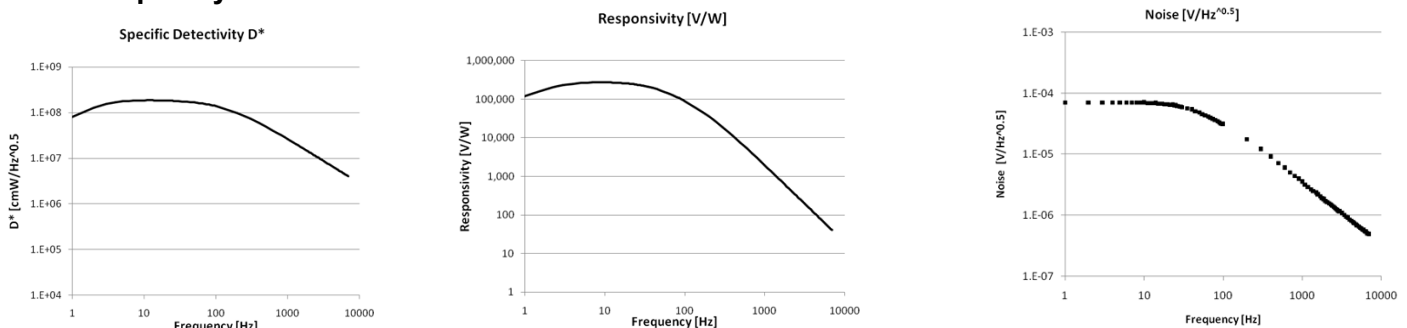
### Sensor Information

Filter aperture	1.4 mm square
Element size	700 x 325 μm
Microphonics	$S_{vib} \sim 1 \mu V / g$ at 10Hz
Time Constant	~10 ms
Crosstalk	~<3%
Op amp with 10G Ohm feedback resistor	
Responsivity <sup>1</sup>	<b>100,000 V/W</b>
$D^* \text{ }^1$	<b><math>1.5 \times 10^8 \text{ cm} \sqrt{\text{Hz}} / \text{W}</math></b>
Noise <sup>1</sup>	<b>40 <math>\mu V \sqrt{\text{Hz}}</math></b>

<sup>1</sup> 10Hz normalized without window & optics

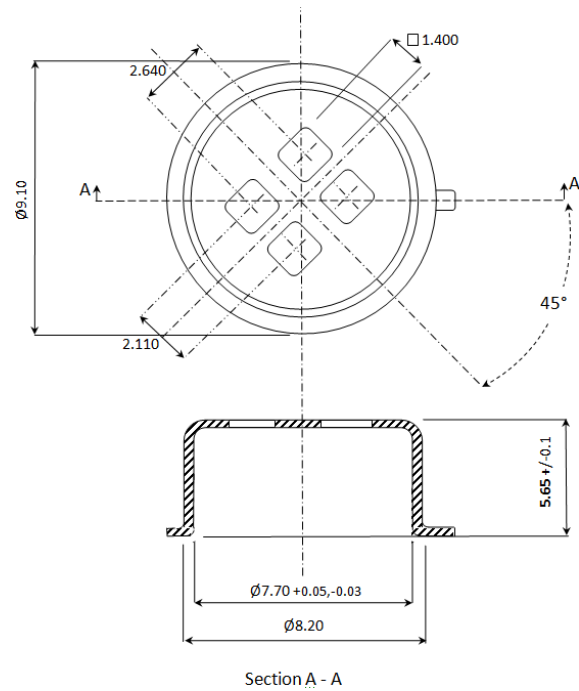
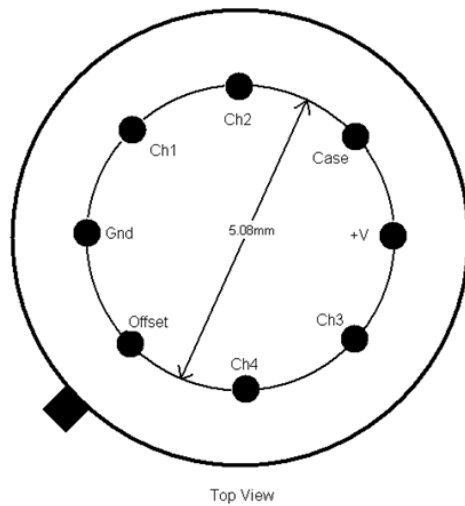
Max. Voltage (+V)	5.0V <sup>2</sup>
Min. Voltage (+V)	2.7V <sup>2</sup>
Recommended Offset V	$(+V / 2)$ <sup>2</sup>
Offset V max	$(+V) - 0.1V$ <sup>2</sup>
Offset V min	0.1V <sup>2</sup>
<sup>2</sup> With reference to Gnd	
Package	TO5
Filters	Customer choice
Operating Temperature -20 to +70 C	
Storage Temperature -20 to +110 C	

### Frequency Characteristics



**Please note:** the information contained in this document is subject to change without further notification. Pyreos reserves the right to alter the performance and any resulting specification. Pyreos may choose not to supply any engineering sample devices as a commercial product. No responsibility is accepted for any consequential loss incurred.

## Package Information:

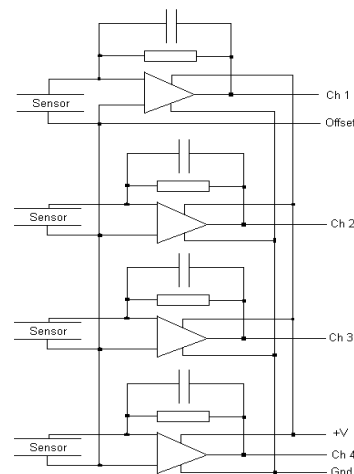
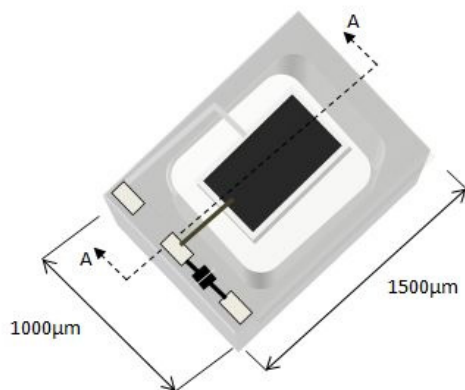


## Filters Available

Pyreos has a range of standard filters for all typical gases. Your local sales contact can provide detailed filter transmission plots. We can also access libraries of filters for your customized four channel solution. Some typical performance values for standard filters are shown.

Filter	CO <sub>2</sub>	HC	Methane
Centre bandwidth	4.26µm	3.375µm	3.30µm
Responsivity V/W (500K, 10Hz)	2780	2680	1980
Noise 10Hz uV√Hz	40	40	40

## Sensor Design & Circuit Diagram



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Page 2 of 2