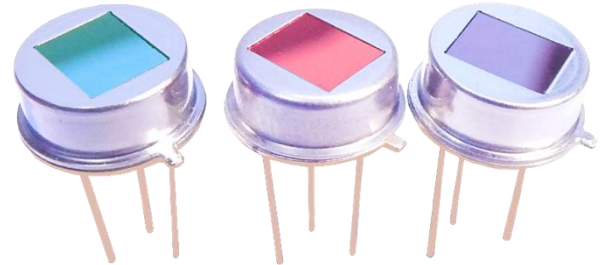


# Thin Film Pyroelectric Flame Sensor

## Introduction

The Pyreos thin film pyroelectric flame detectors offer exceptionally high responsivity, a wide field of view of typically 100° (\*subject to filter band pass specification) and class leading rapid recovery from thermal and electrical shocks (<1 second downtime). This current mode sensor has excellent signal to noise at the signature 8-10 Hz flicker range of a flame, and can provide accurate discrimination of flame sources in triple IR flame detection systems. The sensor element is built into a low noise circuit that has an internal CMOS op amp with a 10GΩ feedback resistor outputting a voltage signal centred around half the supply rail.



### Sensor Characteristics

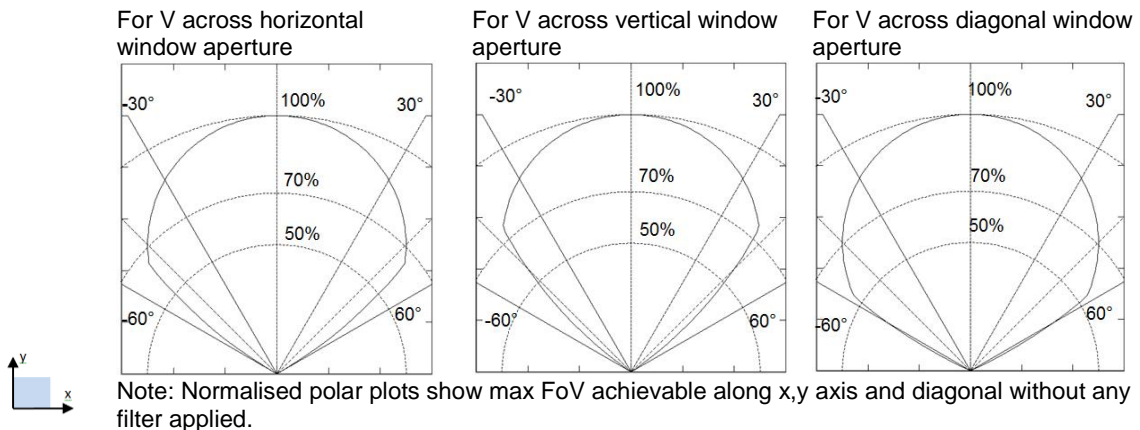
Filter aperture	5.2 mm x 4.2 mm
Element size	1000 μm x 1000 μm
Package	TO39
Responsivity <sup>1</sup>	150,000 V/W
D* <sup>1</sup>	3.5 x 10 <sup>8</sup> cm√Hz/ W
Noise <sup>1</sup>	Mean 70 μV√Hz
Field of View	Typical 100° <sup>2</sup>

<sup>1</sup>10 Hz, 500 K, room temperature, without window and optics  
<sup>2</sup>With reference to filter used in PY0573

### Electrical Characteristics

Max. Voltage (+V)	8.0 V
Min. Voltage (+V)	2.7 V
Output voltage normalised around mid-rail	
Microphonics	S <sub>vib</sub> ~2 μV/√Hz at 10 Hz
Time Constant	~12 ms
Operating Temperature	-40 to +85 °C
Storage Temperature	-40 to +110 °C
Op-Amp with 10 GΩ feedback resistor	
Filter	As per Filters Available table

## Frequency Characteristics



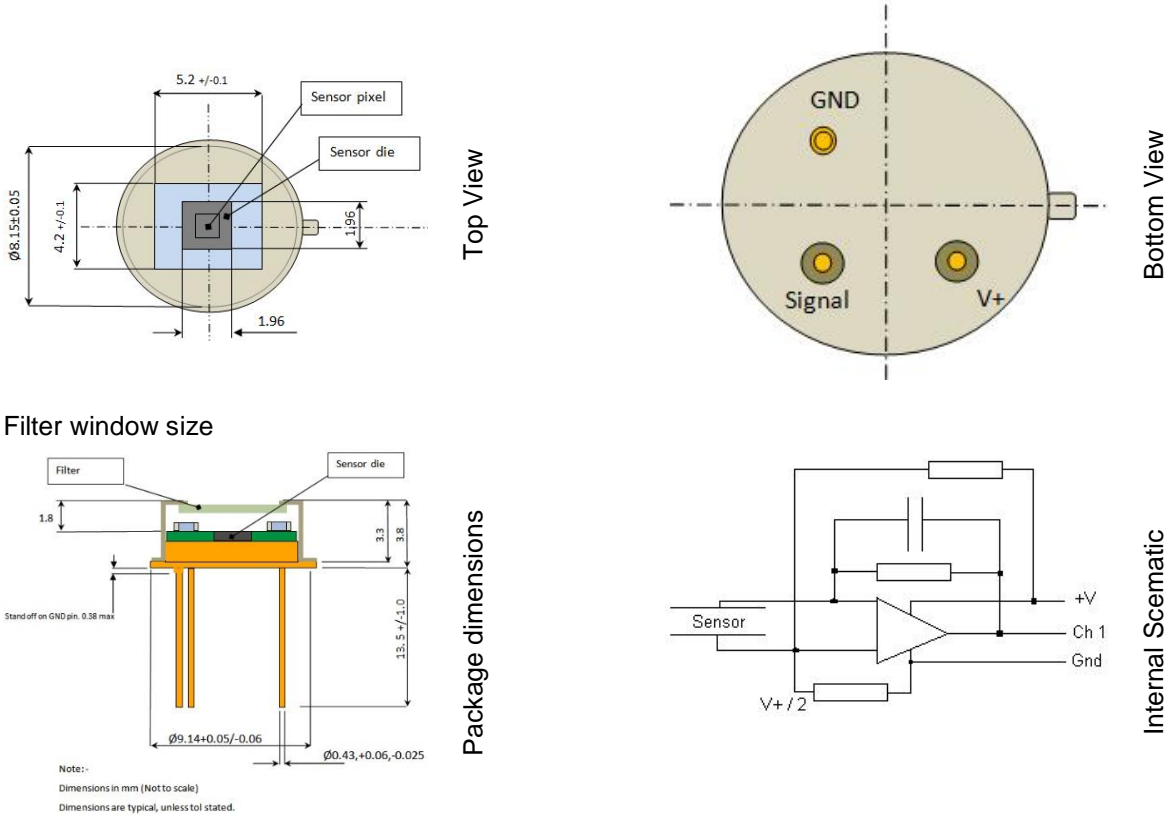
Please note: the information contained in this document is subject to change without further notification. Pyreos reserves the right to alter the performance and any resulting specification. Pyreos may choose not to supply any engineering sample devices as a commercial product. No responsibility is accepted for any consequential loss incurred. Pyreos Ltd, SMC, Alexander Crum Brown Road, Edinburgh EH9 3FF, UK. Tel: +441316507009, [www.pyreos.com](http://www.pyreos.com)

**Order Information**

Please quote PY-ITV-FLAME-TO39(2+1) and your desired filter combination or quote specific part number PYXXXX as per filter table.

Contact: [sales@pyreos.com](mailto:sales@pyreos.com)

**Package Information**



Note: Ensure that the sensor base is not in contact with the PCB in order to avoid shorts.

**Filters Available**

Part number	PY1580	PY0575	PY0573	PY1600	PY0574	PY1601	PY0576
Filter name	3.38 $\mu$ m bandpass	3.91 $\mu$ m bandpass	4.35 $\mu$ m bandpass	4.48 $\mu$ m bandpass	4.55 $\mu$ m band pass	5.0 $\mu$ m cut on	5.5 $\mu$ m cut on
Cut on wavelength typical ( $\mu$ m)	3.295	3.865	4.05	4.17	4.34	5.0	5.5
Cut off wavelength typical ( $\mu$ m)	3.475	3.955	4.65	4.79	4.76	-	-

Note: An additional window is required to provide high wavelength blocking (above 8.0  $\mu$ m) and thermal shielding.

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. Pyreos Ltd, SMC, Alexander Crum Brown Road, Edinburgh EH9 3FF, UK. Tel: +441316507009, [www.pyreos.com](http://www.pyreos.com)