

Thin Film Pyroelectric Dual Channel Sensor

Introduction

Pyreos thin film pyroelectric IR sensors for gas detection and concentration measurement offer exceptionally high responsivity, low microphonics and class leading thermal and electrical stability. This high performance current mode sensor achieves a signal to noise of ~10,000 and offers a fast, stable response over a wide operating frequency range. The sensor elements are built into a low noise circuit that has an internal CMOS op amp, with a 10 GΩ feedback resistor outputting a voltage signal centred around half the supply rail.



Sensor Characteristics

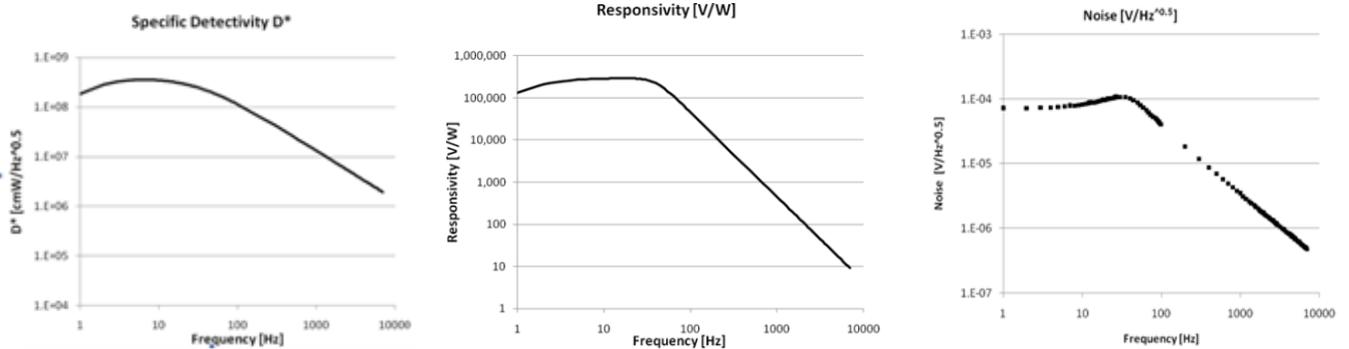
Filter aperture	2.6 mm square
Element size	1000 μm x 1000 μm
Package	TO39
Responsivity ¹	150,000 V/W
D* ¹	3.5 x 10 ⁸ cm√Hz/ W
Noise ¹	70 μV√Hz

Electrical Characteristics

Max. Voltage	8.0 V
Min. Voltage	2.7 V
Output voltage normalised around mid-rail	
Microphonics	S _{vib} ~2 μV/ g at 10Hz
Time Constant	~12 ms
Operating Temperature	-40 to +85 °C
Storage Temperature	-40 to +110 °C
Filters	See "Filters Available"

¹ 10 Hz, 500 K, room temperature, without window and optics

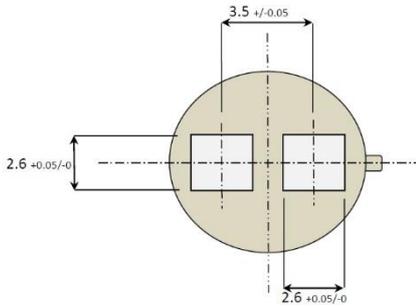
Frequency Characteristics



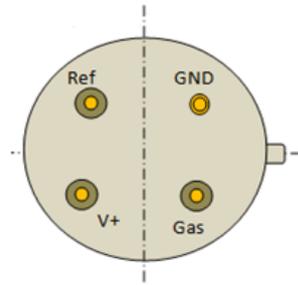
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Package Information

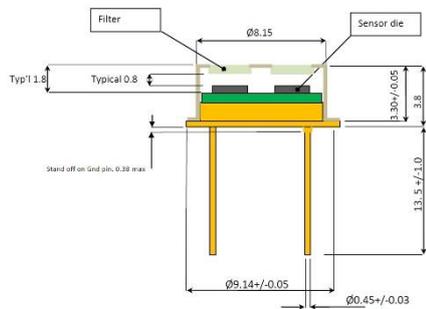
Filter window size



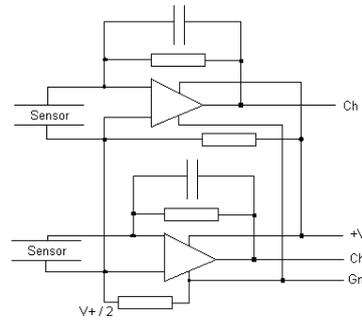
Top View



Bottom View

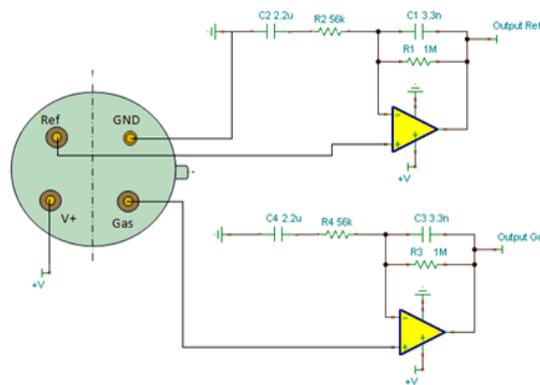


Package dimensions



Internal Schematic

Recommended Circuit Diagram



Filters Available

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Pyreos has a range of standard filters available.

Filter	Part number	Channel 1 - Ref CWL μm / (HPB nm)	Channel 2 – Gas (tab) CWL μm / (HPB nm)
CO ₂	PY0234	3.91 / (90)	4.26 / (180)
CO ₂ (Medical)	PY2343	3.70 / (110)	4.26 / (180)
CO	PY0305	3.91 / (90)	4.64 / (180)
CH ₄	PY0317	3.91 / (90)	3.30 / (160)
H-C	PY0261	3.91 / (90)	3.375 / (190)
SO ₂	PY0303	3.91 / (90)	7.30 / (200)
NO	PY0304	3.91 / (90)	5.30 / (180)
NO ₂	PY2055	3.91 / (90)	6.20 / (200)
CO ₂ (Narrow)	PY1943	3.91 / (90)	4.30 / (110)
CO ₂ (Special)	PY0238	3.91 / (90)	4.43 / (60)
CO (Narrow)	PY0259	3.91 / (90)	4.64 / (90)

Order Information

Please quote PY-ITV-DUAL-TO39(3+1) and your desired filter combination or quote specific part number PYXXX as per filter table. Contact: sales@pyreos.com

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