

Thin Film Pyroelectric Flame Sensor

Introduction

The Pyreos thin film pyroelectric infrared 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 10G Ω 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 1 | 150,000 V/W | | | |
| D* 1 | 3.5 x 10 ⁸ cm√Hz/ W | | | |
| Noise ¹ | Mean 70 µV√Hz | | | |
| Field of View | Typical 100° ² | | | |
| | | | | |

¹10 Hz, 500 K, room temperature, without window and optics

| Electrical Characteristics | | | | | | |
|---|-------------------------------------|--|--|--|--|--|
| Max. Voltage (+V) ³ | 8.0 V | | | | | |
| Min. Voltage (+V) | 2.7 V | | | | | |
| Output voltage normalised around mid-rail | | | | | | |
| Microphonics | S _{vib} ~2 µV/vHz 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

² With reference to filter used in PY0573 ³ Absolute maximum operating voltage



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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

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 µm bandpass | 3.91 µm bandpass | 4.35 µm bandpass | 4.48 µm bandpass | 4.55 µm band pass | 5.0 µm cut on | 5.5 µm cut on |
| Cut on wavelength typical (µm) | 3.295 | 3.865 | 4.05 | 4.17 | 4.34 | 5.0 | 5.5 |
| Cut off wavelength typical (µm) | 3.475 | 3.955 | 4.65 | 4.79 | 4.76 | - | - |

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

Search terms: current mode, voltage mode, infrared detector, infrared sensor, MIR, mid-IR, thermopile, photodiode

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