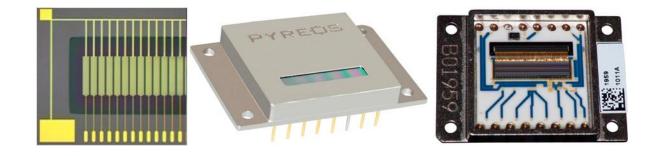


Thin Film Pyroelectric Linear 128 Element Line Sensor Array

With Integrated Read-Out Electronics

Introduction

The Pyreos line sensor array utilises our unique thin-film pyroelectric PZT material to offer class leading resolution and performance across a wide wavelength range at a very affordable price. The ASIC readout electronics output is a multiplexed, amplified and filtered analogue signal for each sensor element. The sensor is housed in a low profile hermetic metal package along with a temperature sensor, and is fitted with a linear variable filter or a broadband filter.



Product Features				
Wavelength range	0.1 to 100 µm ¹			
Operating temperature	Un-cooled operation			
Number of pixels	128 sensor elements			
Pixel sizes	60 µm x 500 µm; 100 µm pitch			
Pixel operability	96% with no more than 2 bad in any 10			
Dynamic range	>75 dB			
Scan speed	10-1000 Hz			

Applications	
General IR spectroscopy	Portable, robust spectral engines
Lubricating oil monitoring	Quality, wear, adulteration,
Foodstuffs	Constitution, adulteration
Process monitoring	Wind turbine, petrochemical, pharmaceutical
Temperature measurement	Non-contact line scanning measurement
Imaging	Line scanning

¹Choice of filter windows available

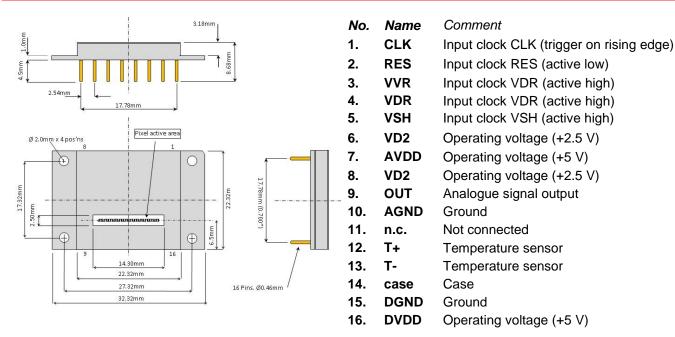
Filters Available

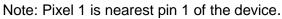
Part Number	PY0722	PY0738	PY1499
Filter Material	Silicon	LVF	LVF
Filter type	Broadband	Linear Variable filter	Linear Variable Filter
Transmission wavelength (µm)	-	5.5 to 11 (CWL 2%)	2.5 to 5 (CWL 2%)
Transmission wavenumbers (cm ⁻¹)	-	1818 to 909	4000 to 2000

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PYRE

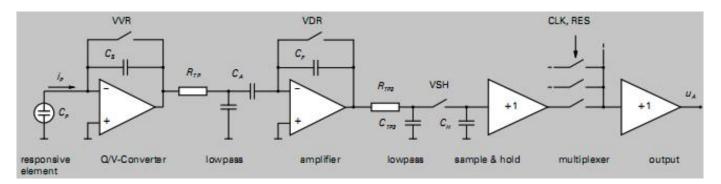
Package Information





Circuit Diagram

The amplification circuit consists of low-noise preamplifiers for each individual sensor elements, analogue switches and an output amplifier. The pre-amplifiers transform the signal charges measured at each sensor element into a conditioned voltage. The amplified signal is then passed to sample and hold, multiplexer output buffer for the read-out process. The digital inputs are CMOS compatible. A 10k NTC thermistor is integrated within the package to monitor the line sensor temperature.



Thermistor is NTC, 1%. For more details check ERTJZEG103FA Datasheet on Industrial Panasonic website.

Order Information

Please quote PYxxxx for your desired option of this product. Contact: sales@pyreos.com

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Clock Parameters

Similar to all pyroelectric sensors, the Pyreos thin-film pyroelectric line sensor array responds to and detects a change in infrared radiation intensity. It therefore requires a pulsed source of infrared radiation for measurement purposes.

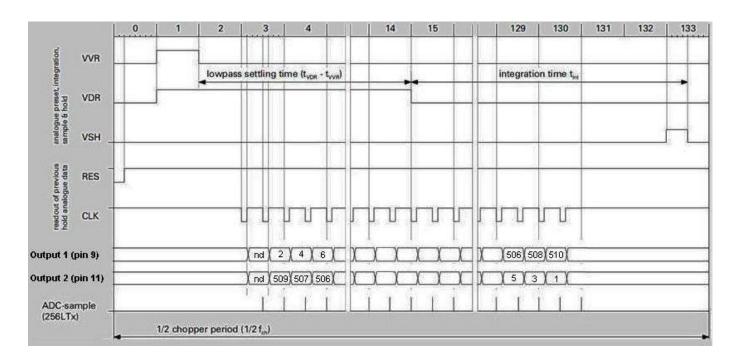
Parameter ¹	Relative Value	Min. Values	Recommended Value
Chopping Frequency ² fch		10 Hz	128 Hz
Read-out Clock CLK f _{CLK} = 2* f _{Ch} *268	1/tclk	5.36 KHz	69 KHz
Reset clock low-impulse duration tRES	1/2 t _{СLК}	1.8 µs	7.5 µs
Clock VVR high-impulse duration tvvR	2 tськ	7.5 µs	30 µs
Clock VDR high-impulse duration t_{VDR}	28 t _{CLK}	200 µs	400 µs
Clock VSH high-impulse duration tvsH	1 tськ	3.5 µs	15 µs

Maximum Settling Time at output t_{out} is 1 μ second

¹ All values for VDD = 5 V, VD2 = 2.5V

² $t_{Ch low} = t_{Ch high}$

Clock Diagram



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