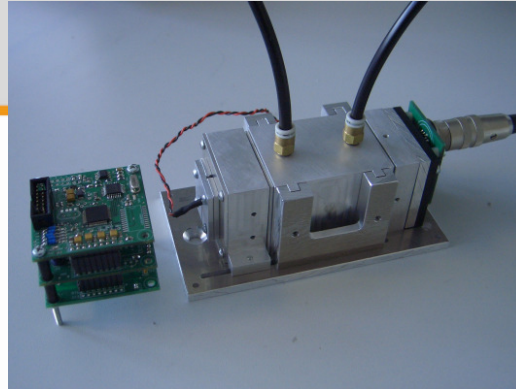


MICRO FPI SPECTROMETERMODUL



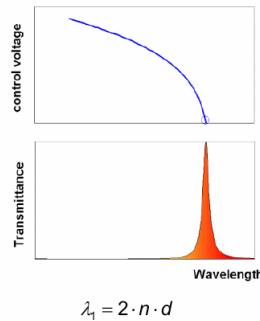
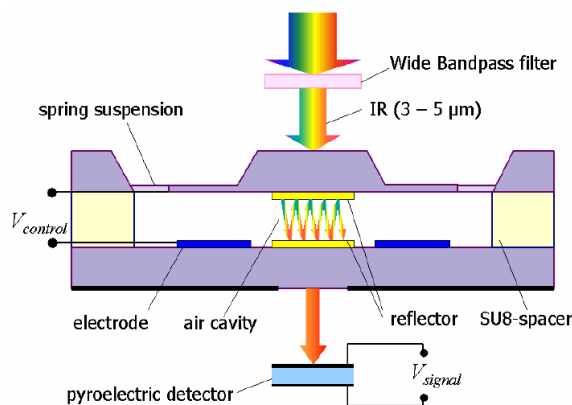
Description:

2x2 mm micro machined tuneable Fabry-Perot filter with integrated fast pyroelectric IR detector. Available tuning ranges 1...12 μm ; spectral bandwidth 90nm; low spring stiffness; thermal compensation; ultra low



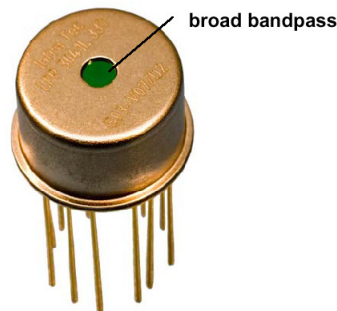
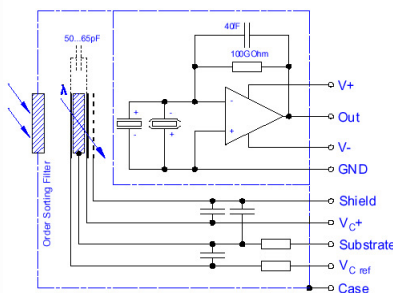
microphonic effect; ; current mode operation with advanced CMOS trans-impedance amplifier (TIA) for 1Hz to 100 Hz modulation frequency range; feedback: R 100GOhm//C 40 fF (very high gain).

Fabry-Perot Filter Design:



- Bulk Micromachinig -> thick reflector carriers
- stiff reflectors -> high finesse with large aperture
- direct or SU-8 bonding
- electrostatic actuation

Detector Design:



- thick film technology ceramic wiring board
- LiTaO3 2x2qmm, antiparallel temperature compensated
- current mode, low noise and low power CMOS op-amp, Cfb "on board"
- pyroelectric chips and the input of the TIA completely shielded
- TO-8 housing with bandpass

Parameters:

spectral range	3.000 up to 12.000 nm
available ranges / μm	3.0-4.3 / 3.9-5.0 / 8.0-12
detector	Un-cooled IR pyroelectric FPI
resolution / step size	max 10 nm
gravity shift/ accuracy	max 35 nm
input	SMA or direct
settling time	150 ms
order sorting filter	Si WBP
signal dynamic	14 Bit
detectivity	typ. $4.5 \cdot 10^6 \text{ cmHz}^{-1/2}/\text{W}$
scan time	max 20 ms per step
light source control	integrated
detector control	integrated
computer interface	USB 2.0 / Ethernet
cooling	NO
power supply.	115/230V ~, 1 A
operating temperature	-25 bis +80°C
spectrometer size	On applications demand

Applications:

- Gas detection (CO, CO₂, ...)
- Gas analyzing
- Detection of plastic
- Industrial Quality control
- Transmission Measurements
- Reflection Measurements
- Analysing of Liquid
- MIR Spectroscopy