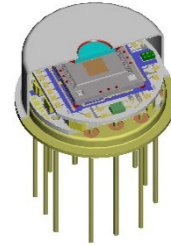


XFP-3137-005

PbSe photoresistor with tunable FPF

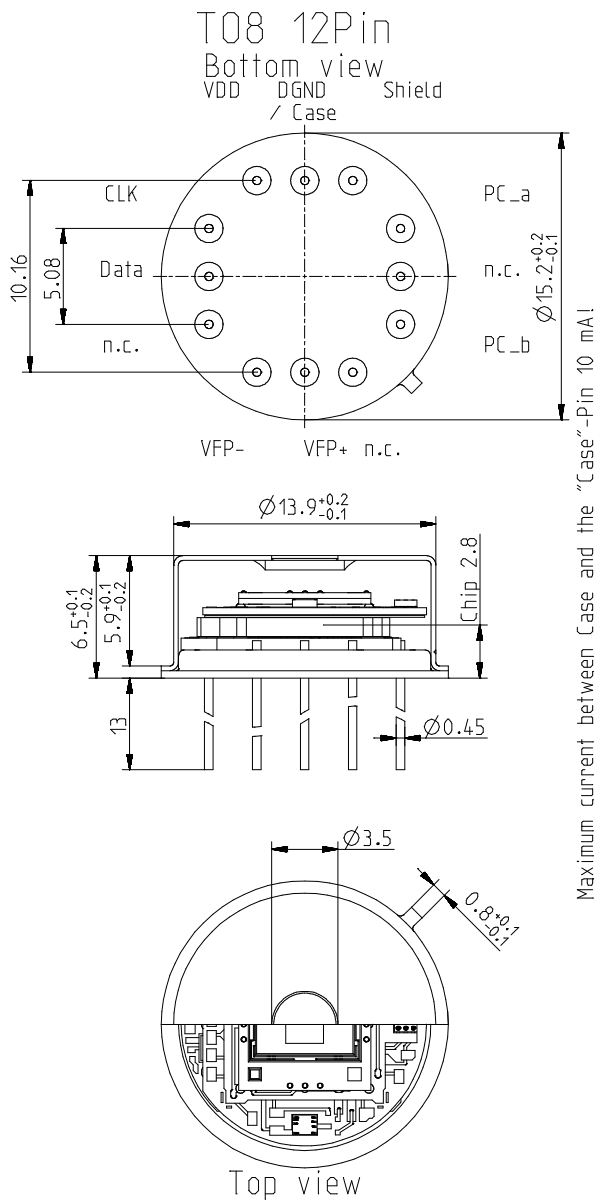
Description: PROTOTYPE

variable color; TO8 housing;
 IR detector with integrated Ø1.8 mm micromachined tunable Fabry-Pérot filter;
 Tuning range 3.1 ... 3.7 µm, 4th interference order, spectral bandwidth 25 nm,
 integrated temperature sensor and EEPROM for storage of calibration data;
 Optimized design with low acceleration sensitivity

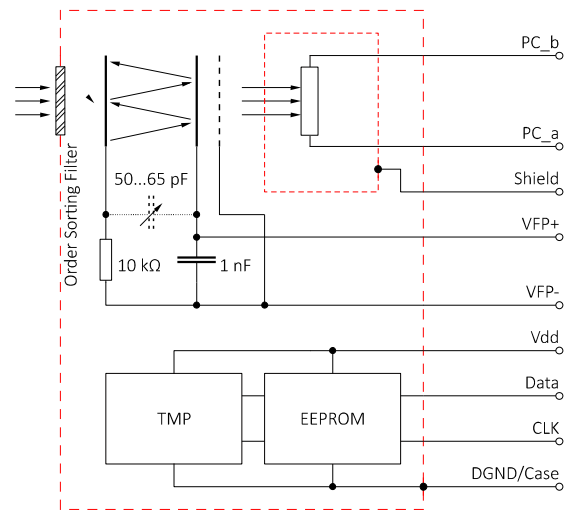


InfraTec Part number: P10703

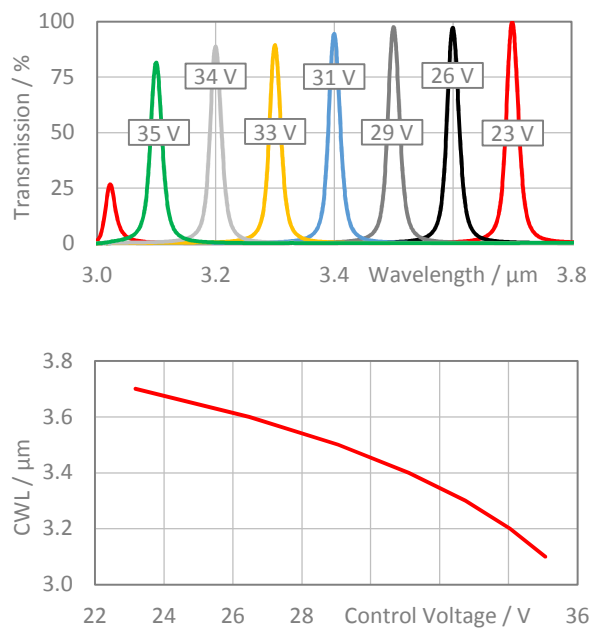
Housing:



Pin Assigment:



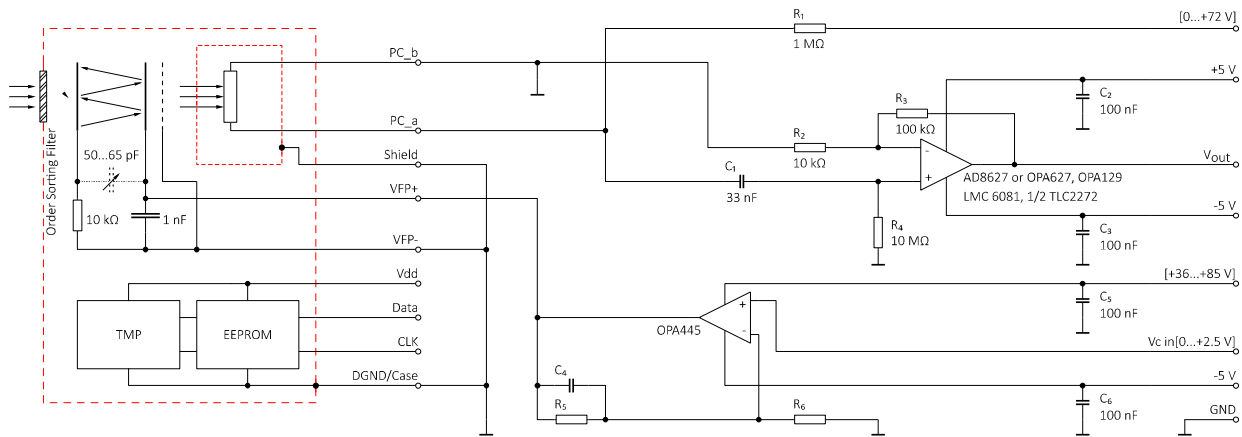
FPI Wavelength Response:



XFP-3137-005

PbSe photoresistor with tunable FPF

Test Circuit:



Parameters:

Fabry-Pérot filter	nom	FPF prototype 2B
Filter Aperture size		ø1.8 mm
Mirror drive mechanism	nom	Electrostatic, 1 nF load, <0.05 µA leakage current
Guaranteed tuning range	nom	3.1 ... 3.7 µm
Spectral bandwidth @ 50 % of transmission peak ^{1,2}	nom	25 nm
Control voltage Vc+ - Vc ref @ 3.0 µm ³	typ	Please refer to the individual inspection certificate
Max Allowable control voltage ⁴		Please refer to the individual inspection certificate
CWL shift by gravity when turning upside down ²	max	1 nm
Accuracy of calibration stored in EEPROM (+15 ... +50 °C, without influence of gravity)	typ	±5 nm
Digital interface (detector)		3.3 V, I2C, 400kHz
Order sorting filter	nom	Si WBP
Out of band blocking UV to	min	11 µm
Element size / type	nom	2.0 × 2.0 mm ² uncooled PbSe photoresistor
Voltage responsivity (rms) {400 °C, 10 ... 1000 Hz, 25 °C}	typ	12 V/W @ CWL = 3.5 ±0.05 µm
Noise density (rms) {10 Hz, BW 1 Hz, 25 °C}	typ	1 µV/√Hz
Noise density (rms) {100 Hz, BW 1 Hz, 25 °C}	typ	0.3 µV/√Hz
Noise density (rms) {1 kHz, BW 1 Hz, 25 °C}	typ	0.2 µV/√Hz
Detectivity {400 °C, 10 Hz, 25 °C}	typ	3E+06 cmVHz/W @ CWL = 3.5 ±0.05 µm
Detectivity {400 °C, 100 Hz, 25 °C}	typ	9E+06 cmVHz/W @ CWL = 3.5 ±0.05 µm
Detectivity {400 °C, 1 kHz, 25 °C}	typ	2E+07 cmVHz/W @ CWL = 3.5 ±0.05 µm
Operating temperature ⁵	nom	+15 ... +50 °C
Storage temperature	nom	-25 ... +85 °C

¹ Spectral measurement conditions: FTIR (resolution 4 cm⁻¹; cone angle ±3°; AOI 0°)

² typical variation within the tuning range (see application note)

³ Different value for each detector

⁴ Limited by pull-in effect, excess may cause irreversible damage to filter

⁵ Calibrated temperature range

InfraTec reserves the right to change these specifications at any time without notification.