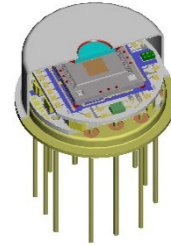


# XFP-3137-005

## PbSe photoresistor with tunable FPF

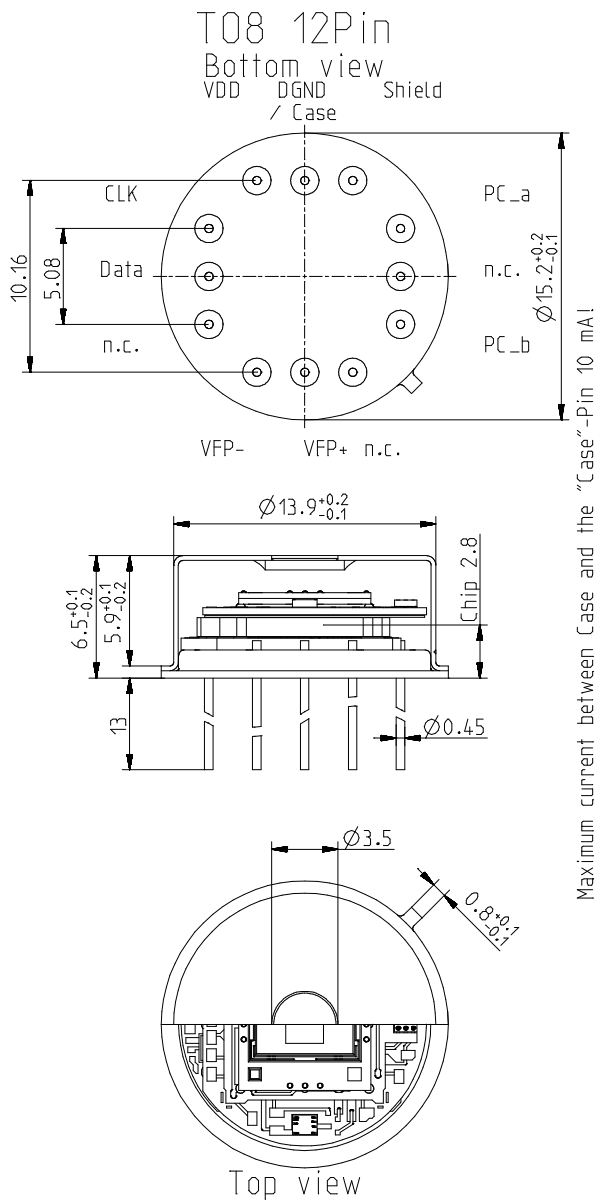
**Description:      PROTOTYPE**

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

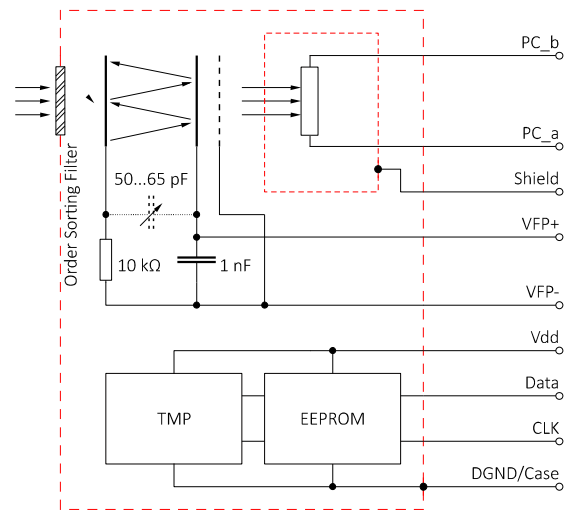


InfraTec Part number: P10703

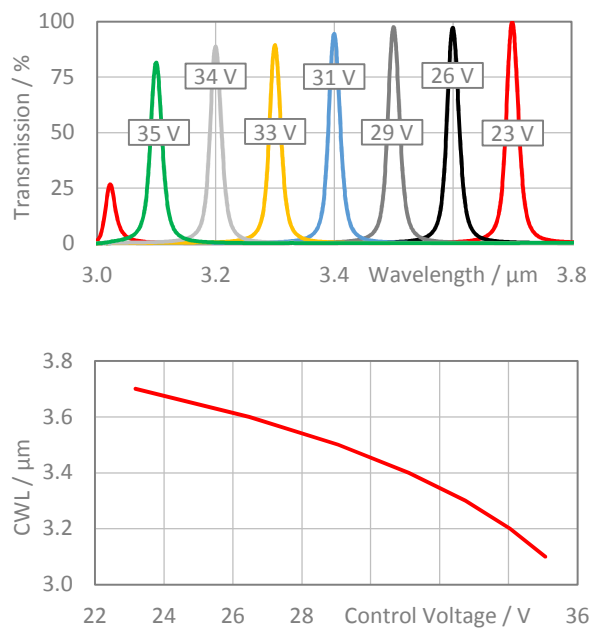
**Housing:**



**Pin Assigment:**



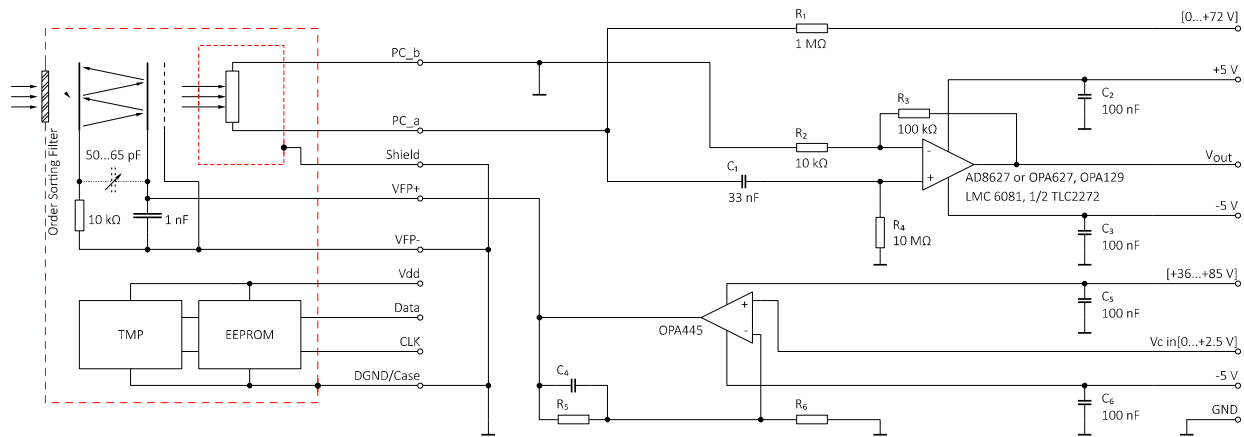
**FPI Wavelength Response:**



**XFP-3137-005**

PbSe photoresistor with tunable FPF

## Test Circuit:



## Parameters:

Fabry-Pérot filter	nom	FPF prototype 2B
Filter Aperture size		∅1.8 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 <sup>1,2</sup>	nom	25 nm
Control voltage Vc+ - Vc ref @ 3.0 µm <sup>3</sup>	typ	Please refer to the individual inspection certificate
Max Allowable control voltage <sup>4</sup>		Please refer to the individual inspection certificate
CWL shift by gravity when turning upside down <sup>2</sup>	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 <sup>2</sup> 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 <sup>5</sup>	nom	+15 ... +50 °C
Storage temperature	nom	-25 ... +85 °C

<sup>1</sup> Spectral measurement conditions: FTIR (resolution 4 cm<sup>-1</sup>; cone angle ±3°; AOI 0°)<sup>2</sup> typical variation within the tuning range (see application note)<sup>3</sup> Different value for each detector<sup>4</sup> Limited by pull-in effect, excess may cause irreversible damage to filter<sup>5</sup> Calibrated temperature range

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