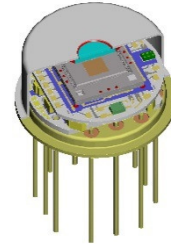


XFP-3137-005

PbSe photoresistor with tunable FPF

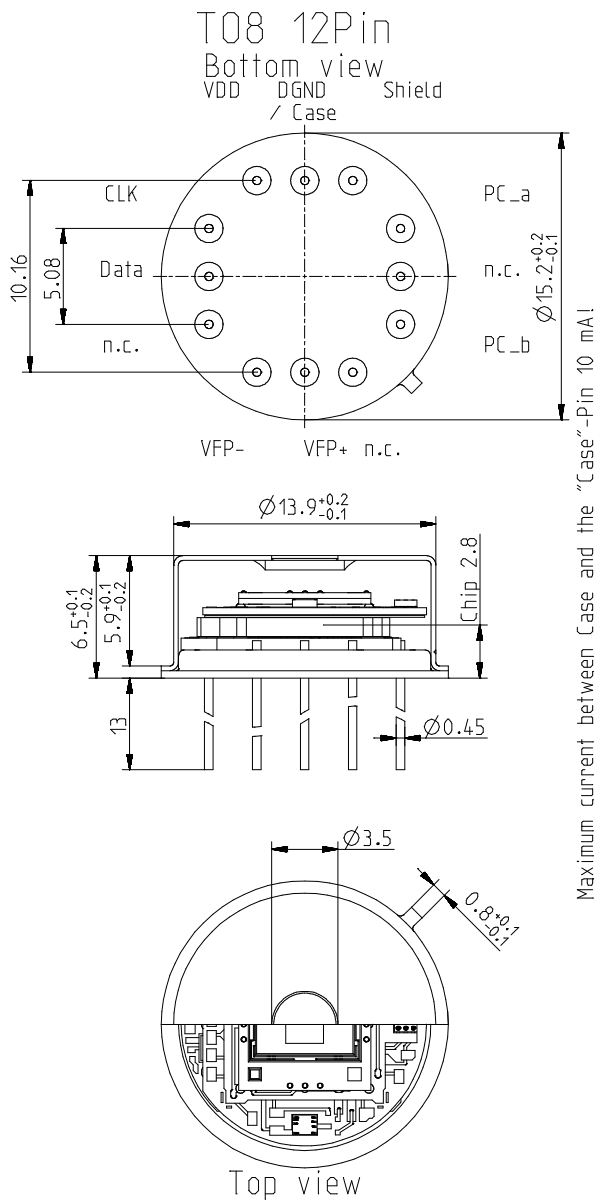
Description: PROTOTYPE

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

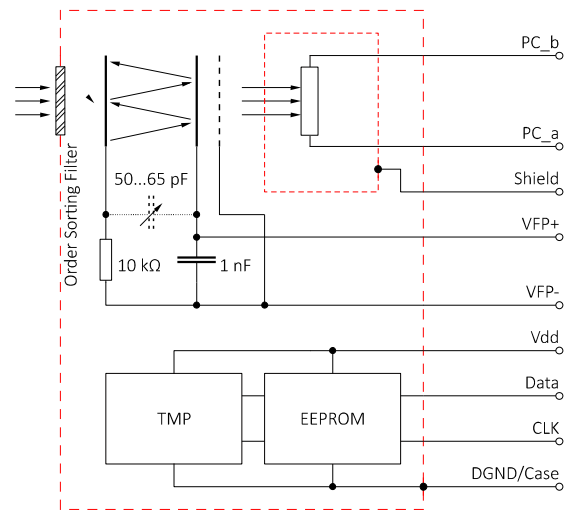


InfraTec Part number: P10703

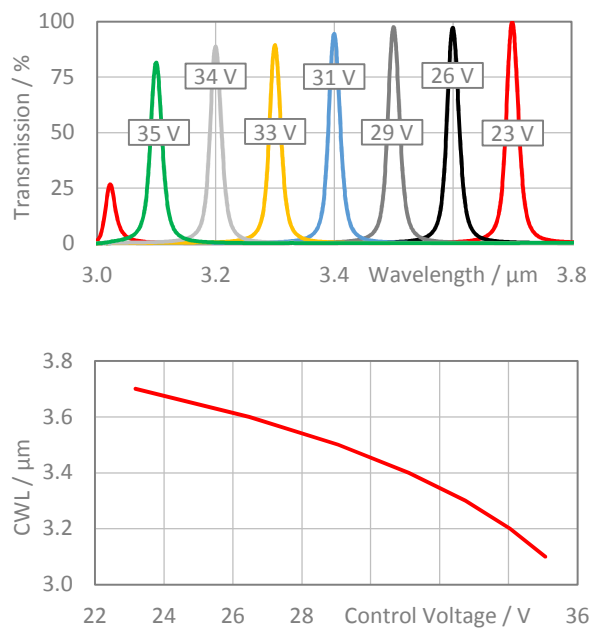
Housing:



Pin Assigment:



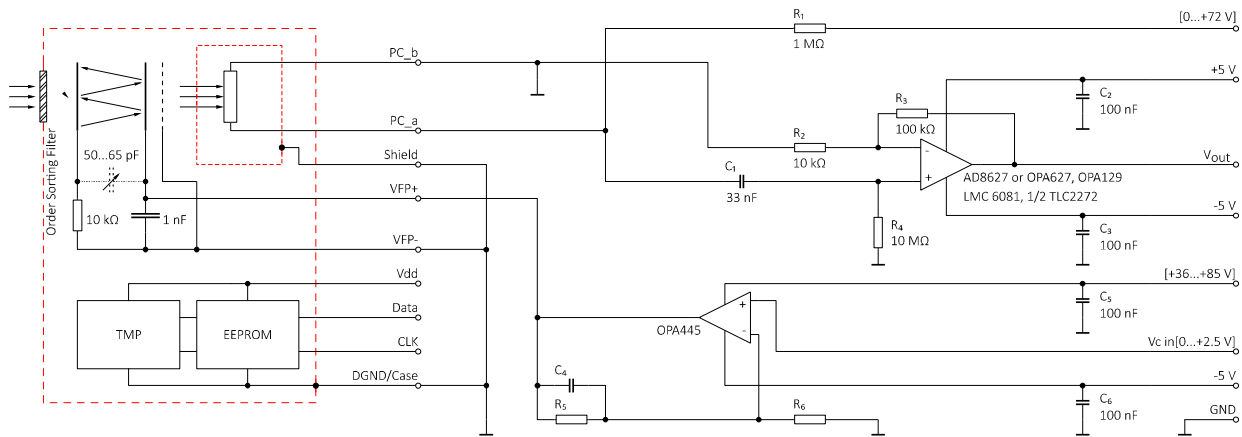
FPI Wavelength Response:



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.