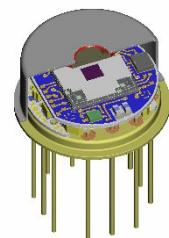


LFP-5580C-337

Spectrally tuneable pyroelectric detector

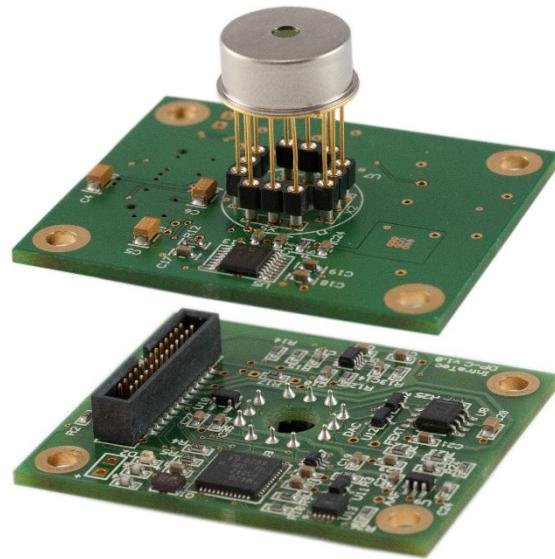
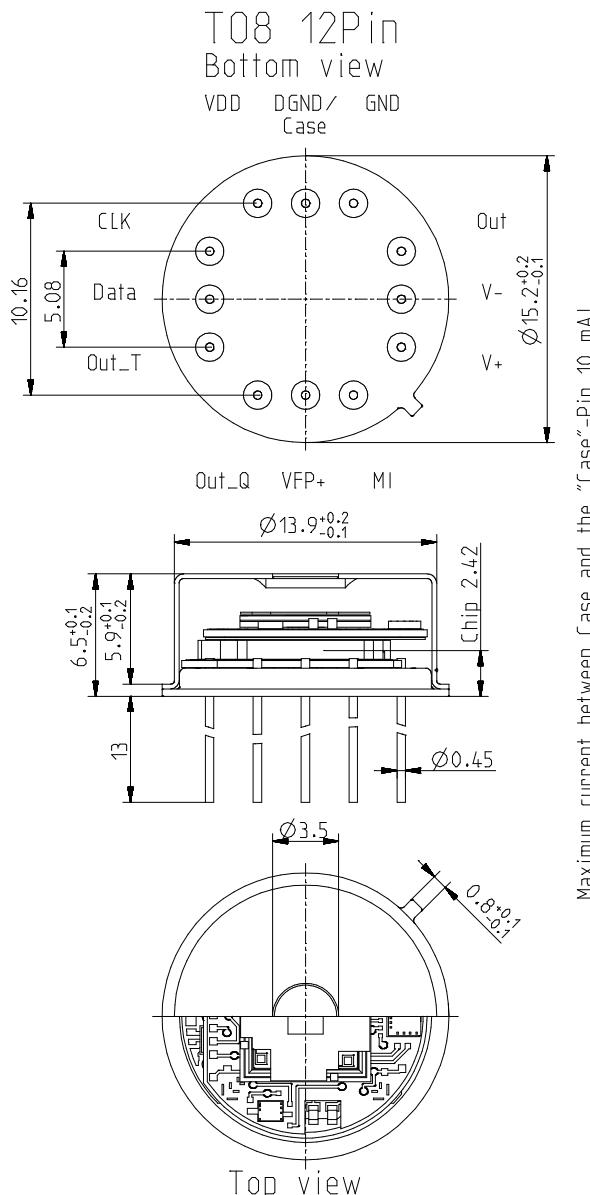
Description:

variable color; TO8 housing; medium chip size; thermal compensation; low Micro;
 OpAmp; current mode; feedback 100 GOhm;
 Pyroelectric IR detector with integrated $1.9 \times 1.9 \text{ mm}^2$ micromachined tunable Fabry-Perot filter.
 Tuning range 5.5 ... 8.0 μm , spectral bandwidth of about 130 nm, integrated ASIC and
 EEPROM for position measurement and storage of calibration data, advanced
 transimpedance amplifier (TIA) for 1 Hz to 100 Hz modulation frequency range



Detector works with individual PCB, referred to as detector board (S86744), for closed loop control.

InfraTec Part number: S87834

Housing:

LFP-5580C-337

Spectrally tuneable pyroelectric detector

Parameters:

Fabry-Pérot filter	nom	FPF 5.5 ... 8.0 μm , first order
Filter Aperture size		1.9 x 1.9 mm^2
Guaranteed tuning range	nom	5.5 ... 8.0 μm
Spectral bandwidth @ 50 % of transmission peak ^{1,2}	nom	130 \pm 40 nm
Filter Mechanical time constant ² (T_{63})	typ	2 ... 10 ms
CWL shift by gravity when turning upside down ² , open loop	typ	\pm 20 ... 60 nm
Accuracy of calibration stored in EEPROM (+15 ... 65 °C, without influence of gravity, open loop)	typ	\pm 10 nm
Accuracy of calibration stored in EEPROM (+15 ... 65 °C, closed loop)	typ	\pm 5 nm
CWL error by detector board {25 °C}	typ	\pm 2 nm
Control accuracy {≤10 g, ≤10Hz}	typ	\pm 2.5 nm/g
Settling time (closed loop)	typ	5 ... 10 ms
Required supply voltages (board)	nom	3.3V, \pm 5V, 12V, 30...90V
Digital interface (board)		UART, 1MBd, 3.3 V
Detector output signal, conditioned (board)		0 ... 3.3 V
Order sorting filter	nom	WBP
Out of band blocking UV to	min	17 μm
Pyroelectric detector	nom	LME-337 based type
Element size / type	nom	2.0 x 2.0 mm^2 lithium-tantalate with black layer
Thermal time constant	typ	150 ms
Feedback resistor	nom	100 G Ω \pm 20 %
Feedback capacitor	nom	50 fF \pm 10 fF
Polarity	nom	Negative signal by positive IR flux change
Voltage responsivity (rms) {400 °C, 10 Hz, 25 °C}	typ	1,600 V/W @ CWL = 7.5 \pm 0.05 μm
Noise density (rms) {10 Hz, BW 1 Hz, 25 °C}	max	75 $\mu\text{V}/\sqrt{\text{Hz}}$
Detectivity {400 °C, 10 Hz, 1 Hz, 25 °C}	typ	4.8E+06 cm VHz/W @ CWL = 7.5 \pm 0.05 μm
Operating / Storage temperature	nom	+15 ... 65 °C / -25 ... +85 °C

¹ Spectral measurement conditions: FTIR (resolution 4/cm; cone angle \pm 7°; AOI 0°)² typical variation within the tuning range (see application note)

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