

PRELIMINARY

LFP-3144C-337

pyroelectric detector with tunable FPF

PARAMETERS:

Fabry-Pérot filter	nom	FPF 3.1 ... 4.4 μm , first order
Filter Aperture size		\varnothing 1.9 mm
Mirror drive mechanism	nom	electrostatic, 1 nF load, <0.05 μA leakage current
Guaranteed tuning range	nom	3.1 ... 4.4 μm
Spectral bandwidth @ 50 % of transmission peak ^{1,2}	typ	55 ... 70 nm
Filter Mechanical time constant ² (T_{63})	typ	2 ... 20 ms
CWL shift by gravity when turning upside down ² , open loop	typ	\pm 15 ... 35 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 3 nm
CWL error by detector board {25 °C}	typ	\pm 2 nm
Control accuracy { \leq 10 g, \leq 10Hz}	typ	\pm 0,5 nm/g
Settling time (closed loop)	typ	5 ... 10 ms
Required supply voltages	nom	3.3V, \pm 5V, 12V, 30...90V
Digital interface		UART, 1MBd, 3.3 V
Order sorting filter	nom	WBP
Out of band blocking UV to	min	25 μm
Pyroelectric detector	nom	LME-337 based type
Element size / type	nom	2.0x2.0 mm ² lithium-tantalate with black layer
Thermal time constant	typ	150 ms
Feedback resistor	nom	100 GOhm \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} @ CWL = 4 \pm 0.05 μm	typ	1,000 V/W
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} @ CWL = 4 \pm 0.05 μm	typ	3.6E+06 cm($\sqrt{\text{Hz}})/\text{W}$
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.