SUNSTAR传感与控制 http://www.sensor-ic.com/ TEL:0755-83376549 FAX:0755-83376182E-MAIL: szss20@163.com

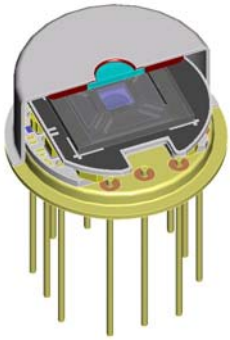
PRELIMINARY

LFP-80105-337

pyroelectric detector with tunable FPF

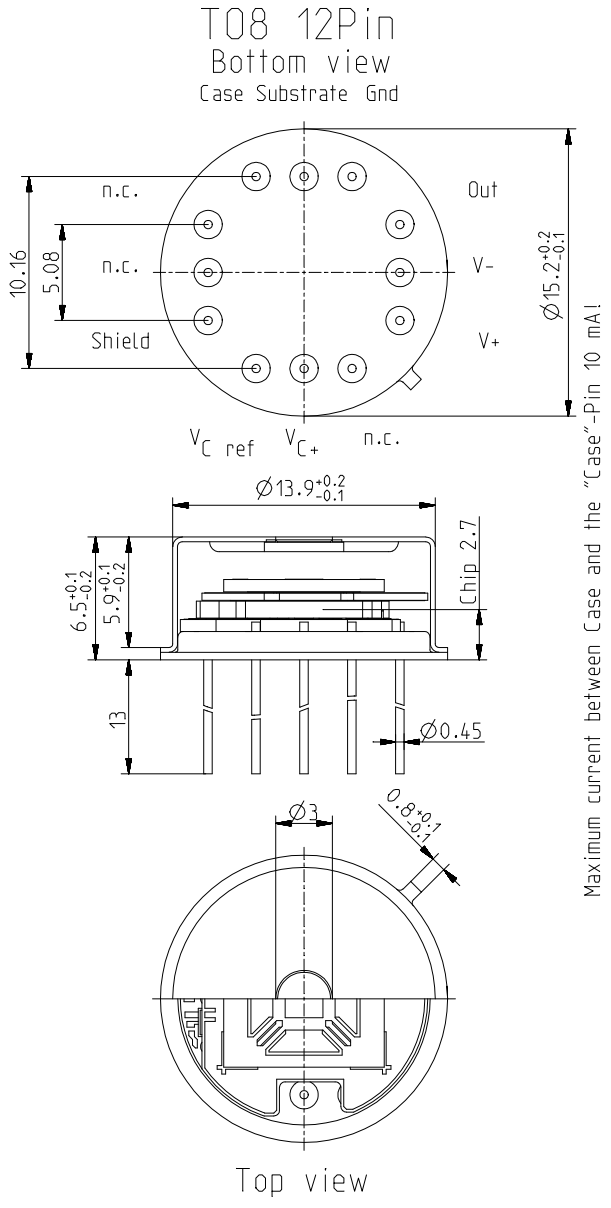
Description: **PROTOTYPE**

variable color; TO8 housing; medium chip size; thermal compensation; low Micro; OpAmp; current mode; feedback 100GOhm;
integrated ø1.9 mm micromachined tunable Fabry-Perot filter.
tuning range 8.0 ... 10.5 µm, spectral bandwidth 150 nm, advanced transimpedance amplifier (TIA) for 1 Hz to 100 Hz modulation frequency range

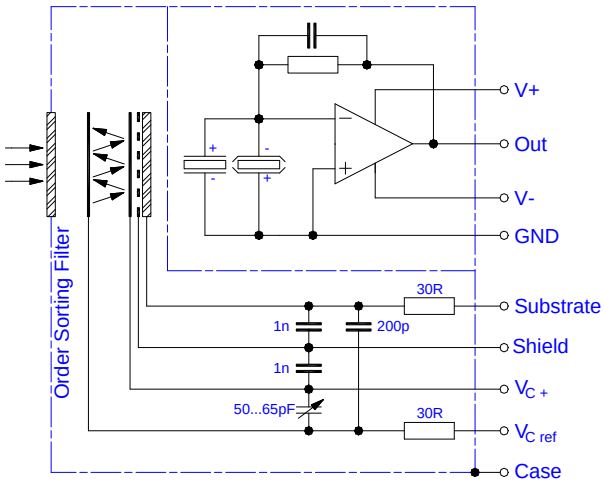


InfraTec Part number: S85468

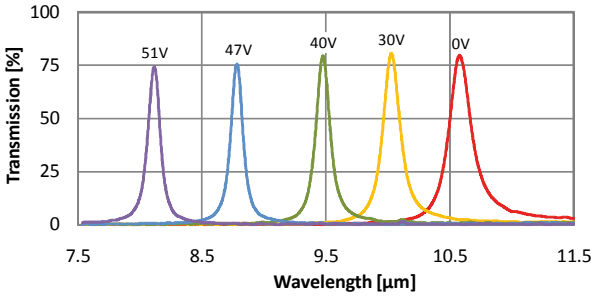
HOUSING:

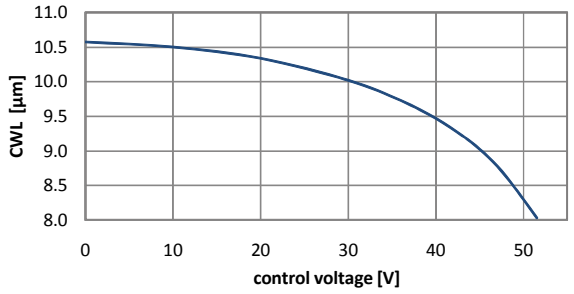


PIN ASSIGNMENT:



FPI WAVELENGTH RESPONSE:





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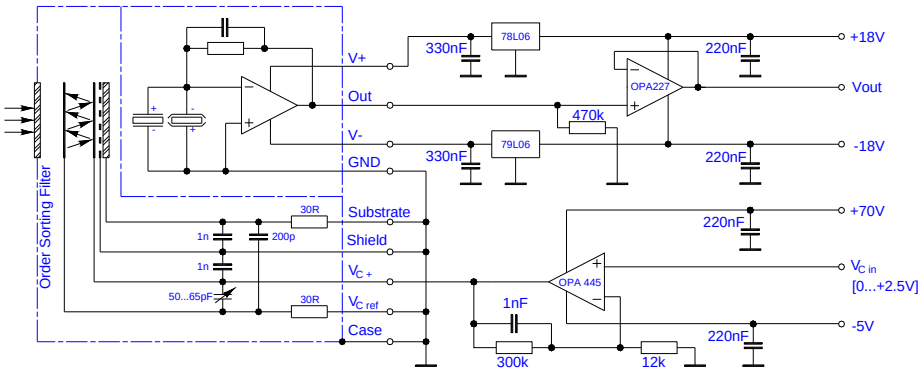
TEST CIRCUIT:



PARAMETERS:

Fabry-Perot filter	nom	FPF 8.0 ... 10.5 µm
Filter aperture size		ø1.9 mm
Mirror drive mechanism	nom	electrostatic, 1 nF load, <0.05 µA leakage current
Guaranteed tuning range	nom	8.0 ... 10.5 µm
Spectral bandwidth @ 50% of transmission peak	nom	150 nm ±30 nm
Control voltage Vc+ - Vc ref @ 8.0 µm	typ	+50 V (max +65 V)
Allowable control voltage (limited by pull-in effect)	max	(control voltage @ 8.0 µm) + 1.0 V
Settling time (from 10.5 µm to 8.0 µm by control voltage step; ±1nm)	max	500ms
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	2.0x2.0 mm² lithium-tantalate with black layer
Thermal time constant	typ	150 ms
Feedback resistor	nom	100 GOhm ±20%
Feedback capacitor	nom	50 fF ±10 fF
Polarity	nom	negative signal by positive IR flux change
Voltage responsivity (rms) {400°C, 10 Hz, 25 °C} @ Vc=0V	typ	1,000 V/W
Noise density (rms) {10 Hz, BW 1 Hz, 25 °C}	max	65 µV/(sqrt[Hz])
Detectivity {400°C, 10 Hz, 1 Hz, 25 °C} @ Vc=0V	typ	3.0E+06 cm(sqrt[Hz])/W
CMOS operational amplifier	nom	OpAmp2
Supply voltage V+ - V-	max	16 V
Operating supply voltage V+ / V-		+2.2 ... 8.0 V / -2.2 ... -8.0 V
Recommended supply voltage V+ / V-	nom	V+ = +5 V; V- = -5 V
Supply current {output load 1MOhm}	max	150 µA
Offset voltage {25 °C; output load 1MOhm}		-5 mV ... +5 mV
Optimal output load	nom	330 kOhm
Absolute output current	max	±0.4 mA
Operating / Storage temperature	nom	-25 ... +85°C
* Spectral measurement conditions		FTIR (resolution 4/cm; divergence angle ±4°; AOI 0°)

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