

## LME-392-#

## Special single channel pyroelectric detector

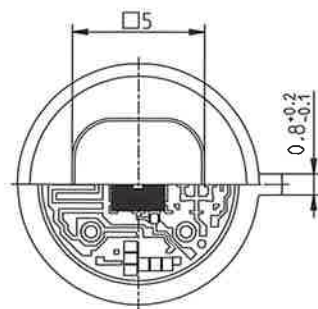
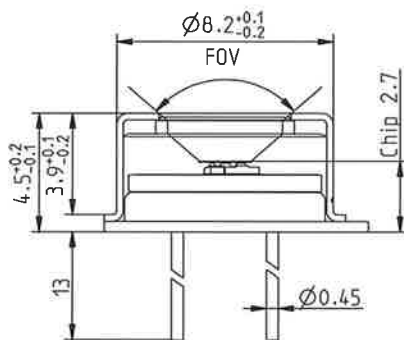
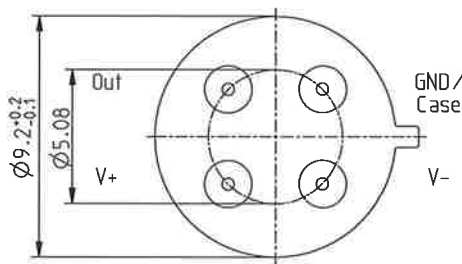
### Description:

single channel; TO39 housing; medium chip size; low Micro;  
OpAmp; current mode; feedback  $2\text{ G}\Omega$ ;  
advanced transimpedance amplifier (TIA) for 1 Hz to 750 Hz modulation frequency range;  
frequency response flat from 10 Hz up to 500 Hz



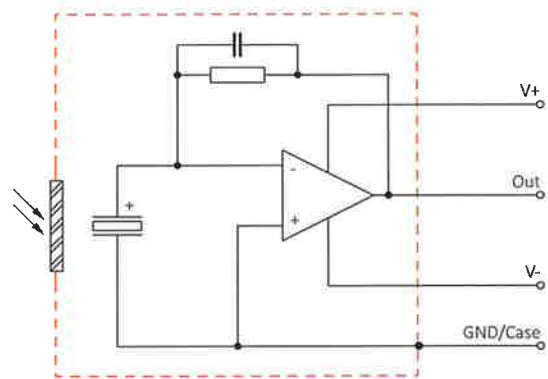
### Housing:

TO39 4Pin  
Bottom view



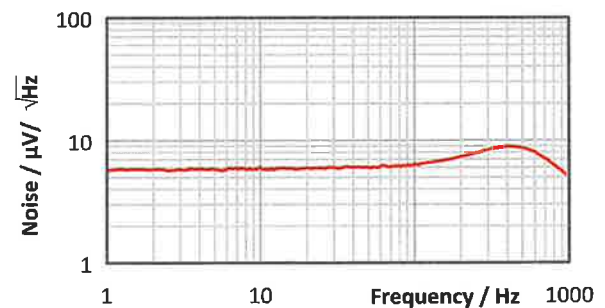
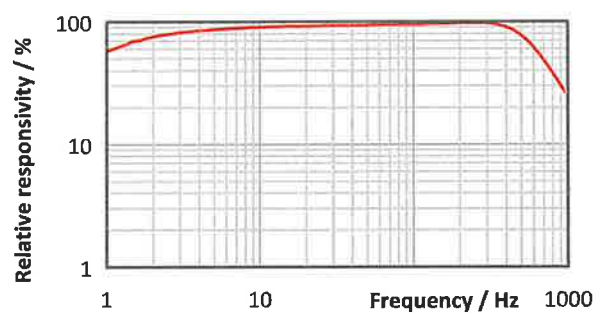
Top view

### Pin Assignment:



Maximum current between Case and the "Case"-Pin 10 mA!

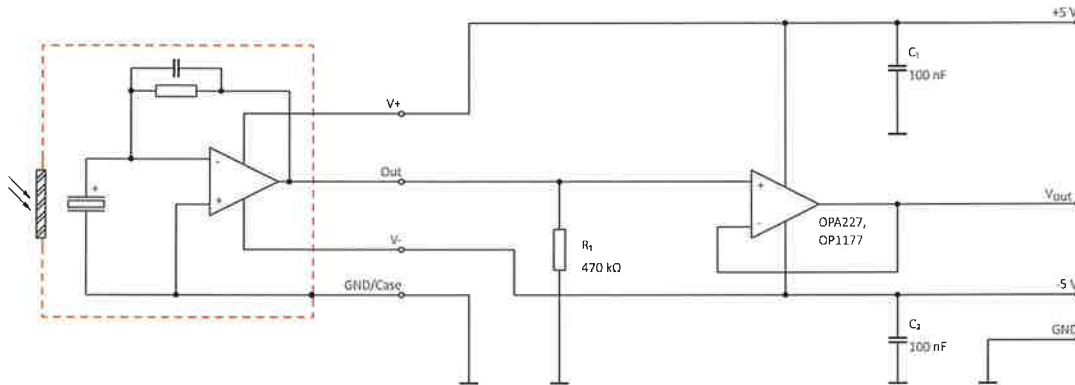
### Frequency Response:



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### Test Circuit:



### Parameters:

Aperture size	nom	□ 5.0 mm
Element size / type	nom	2.0 × 2.0 mm <sup>2</sup> lithium-tantalate with black layer
Thermal time constant	typ	150 ms
Feedback resistor	nom	2 × 1 GΩ ±10 %
Feedback capacitor	nom	180 fF ±50 fF
Polarity	nom	Negative signal by positive IR flux change
Voltage responsivity (rms) {500 K, 100 Hz, 25 °C, without filter/window}	min	3,000 V/W
Roll-off [-3 dB / -6 dB]	typ	550 Hz / 700 Hz
Noise density (rms) {100 Hz, BW 1 Hz, 25 °C}	max	7 μV/√Hz
Detectivity {500 K, 100 Hz, 1 Hz, 25 °C, without filter/window}	typ	1.1E+08 cmVHz/W
Acceleration response @ 100 Hz	typ	30 μV/g; g = 9.81 m/s <sup>2</sup>
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 1 MΩ}	max	150 μA
Offset voltage {25 °C; output load 1 MΩ}		-5 mV ... +5 mV
Optimal output load	nom	330 kΩ
Absolute output current	max	±0.4 mA
Operating / Storage temperature	nom	-40 ... +85 °C
IR filter		All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.
Filter sizes	nom	Rectangular filters: (5.25 × 5.25) mm +0/-0.05 mm Circular filters: ø6.5 mm ±0.1 mm Standard thickness: 0.50 mm +0.2/-0.1 mm Thickness range 0.70 ... 1.10 mm on request
Field of View	min	CaF <sub>2</sub> or BaF <sub>2</sub> ; 0.4 mm thick: 80° Silicon substrate; 0.5 mm thick: 90°

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