

## LME-541-#

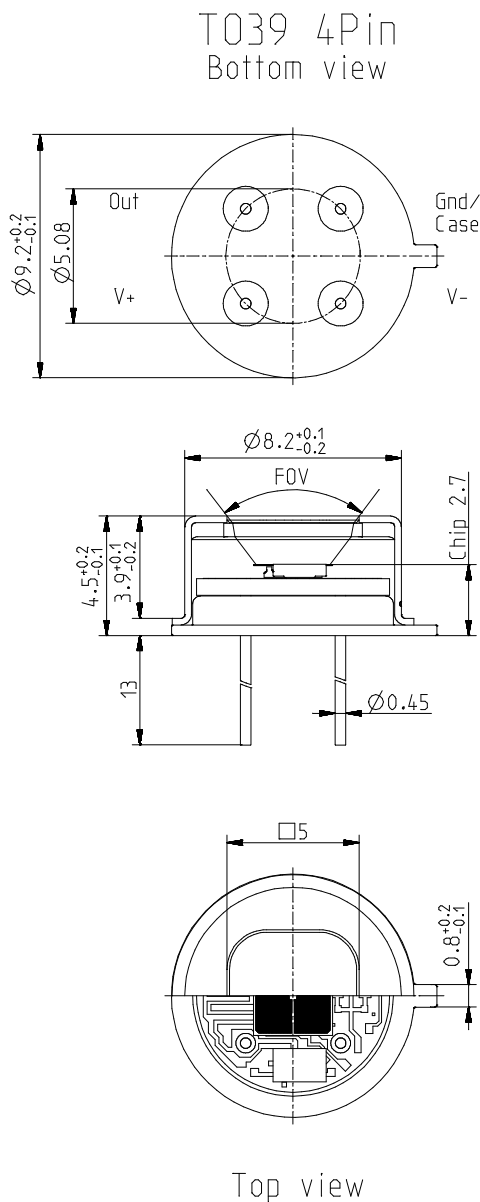
## Single channel pyroelectric detector

### Description:

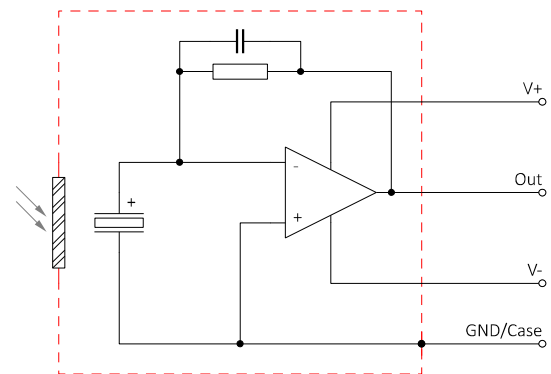
single channel; TO39 housing; large chip size; low Micro; OpAmp; current mode; feedback 24 GOhm;



### Housing:

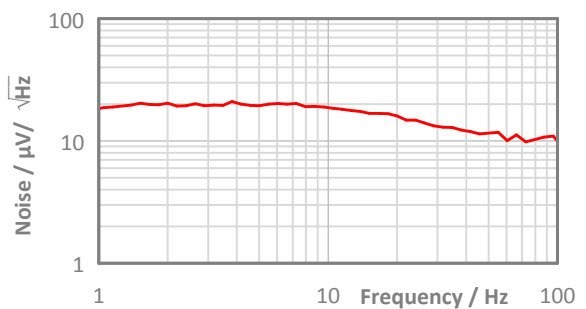
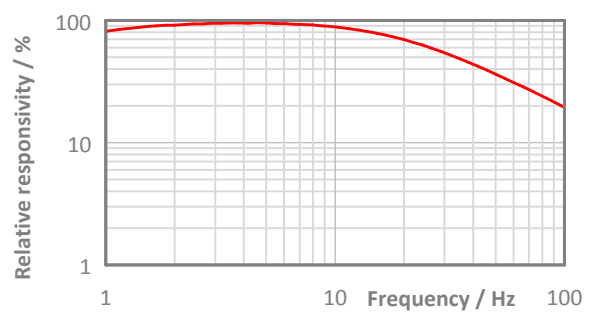


### Pin Assigment:



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

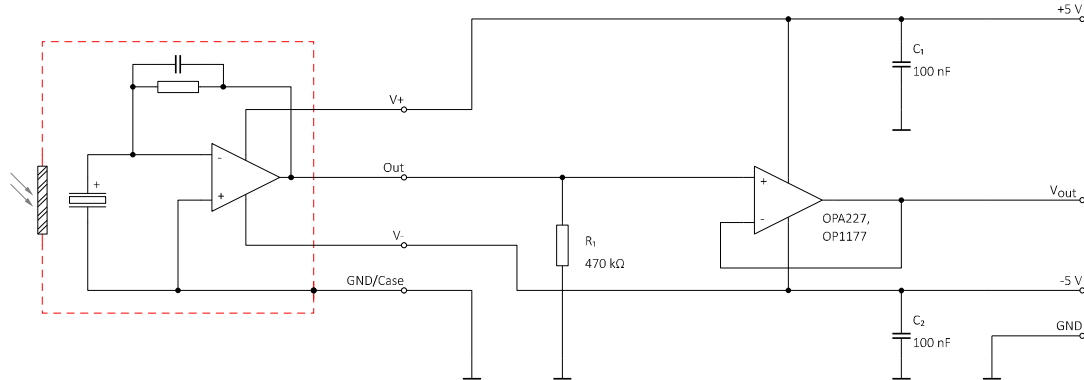
### Frequency Response:



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### Test Circuit:



### Parameters:

|  |     |   |
|--|-----|---|
| Aperture size  | nom | □ 5.0 mm  |
| Element size / type  | nom | 3.0 × 3.0 mm <sup>2</sup> lithium-tantalate with black layer  |
| Thermal time constant  | typ | 200 ms  |
| Feedback resistor  | nom | 24 GΩ ±10 %   |
| Feedback capacitor   | nom | 0.2 pF ±0.1 pF  |
| Polarity   | nom | Negative signal by positive IR flux change  |
| Voltage responsivity (rms)<br>{500 K, 10 Hz, 25 °C, without filter/window} | min | 28,000 V/W  |
| Noise density (rms)<br>{10 Hz, BW 1 Hz, 25 °C}                             | max | 25 μV/√Hz   |
| Detectivity<br>{500 K, 10 Hz, 1 Hz, 25 °C, without filter/window}          | typ | 4.7E+08 cmVHz/W   |
| Acceleration response {5 ... 200 Hz}                                       | typ | 300 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 | 470 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<br>Circular filters: ø6.5 mm ±0.1 mm<br>Standard thickness: 0.50 mm +0.2/-0.1 mm<br>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: 60°<br>Silicon substrate; 0.5 mm thick: 70°  |

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