Single channel pyroelectric detector

**Description:**
- single channel; TO18 housing; small chip size;
- JFET; voltage mode;

**Housing:**
- TO18 3+1Pin
- Bottom view

**Pin Assignment:**
- Drain
- Source
- GND
- Case

**Frequency Response:**
- Relative responsivity / %
- Noise / nV/

**Graphs:**
- Relative responsivity vs. Frequency / Hz
- Noise vs. Frequency / Hz
Test Circuit:

```
GND

Vout

V

GND

Source

GND

Resistor

10 kΩ

V

GND

C1

10 nF

P2

5 Ω

C2

10 nF

Vin

GND

C1

10 nF

Vin

GND

C2

10 nF

P2

5 Ω

\[ V_{out} = \frac{V_{in}}{10} \]
```

Parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aperture size</td>
<td>ø2.3 mm</td>
</tr>
<tr>
<td>Element size / type</td>
<td>1.4 × 1.0 mm² lithium-tantalate with black layer</td>
</tr>
<tr>
<td>Thermal time constant</td>
<td>typ 150 ms</td>
</tr>
<tr>
<td>Electrical time constant</td>
<td>typ 2 s</td>
</tr>
<tr>
<td>Polarity</td>
<td>Positive signal by positive IR flux change</td>
</tr>
<tr>
<td>Voltage responsivity (rms) (500 K, 10 Hz, 25 °C, without filter/window)</td>
<td>min 900 V/W</td>
</tr>
<tr>
<td>Noise density (rms) (10 Hz, BW 1 Hz, 25 °C)</td>
<td>max 350 nV/√Hz</td>
</tr>
<tr>
<td>Detectivity (500 K, 10 Hz, 1 Hz, 25 °C, without filter/window)</td>
<td>typ 4.0E+08 cmVHz/W</td>
</tr>
<tr>
<td>Offset voltage (opt. Drain current = 10 ... 100 µA)</td>
<td>nom 0.4 ... 1.5 V</td>
</tr>
<tr>
<td>Drain source voltage</td>
<td>max 18 V</td>
</tr>
<tr>
<td>Potential of detector case</td>
<td>Selectable potential between -24 ... +24 V to Ground (EMC requires low-impedance coupling)</td>
</tr>
<tr>
<td>Operating / Storage temperature</td>
<td>nom -25 ... +85 °C</td>
</tr>
<tr>
<td>IR filter</td>
<td>All InfraTec windows and filters are available (except KBr and CsI). Customized filters upon request.</td>
</tr>
<tr>
<td>Filter sizes</td>
<td>Rectangular filters: (2.70 × 2.70) mm +0/-0.05 mm</td>
</tr>
<tr>
<td></td>
<td>Circular filters: ø3.3 mm ±0.1 mm</td>
</tr>
<tr>
<td></td>
<td>Standard thickness: 0.50 mm ±0.2/-0.1 mm</td>
</tr>
<tr>
<td></td>
<td>Thickness range 0.70 ... 1.10 mm on request</td>
</tr>
<tr>
<td>Field of View</td>
<td>CaF2 or BaF2; 0.4 mm thick: 40°</td>
</tr>
<tr>
<td></td>
<td>Silicon substrate; 0.5 mm thick: 45°</td>
</tr>
</tbody>
</table>

If visible light can penetrate the glass-metal seal in the detector socket, a small signal caused by light leakage may occur. InfraTec reserves the right to change these specifications at any time without notification.