PbSe near-infrared detector
Multi-Pixel thin-film encapsulated

Features
- Bondable electrode for COB mounting
- High durability for rugged operation
- Suitable for automated wire-bonding
- Room temperature operation

Applications
- Spectroscopy
- Gas detection and analysis
- Flame monitoring
- Flame and spark detection
- Temperature measurement
- Moisture measurement

Electrical and optical characteristics per pixel

<table>
<thead>
<tr>
<th>Element temperature [°C]</th>
<th>Peak wavelength λ₀ [µm]</th>
<th>20% cut-off wavelength λₚ [µm]</th>
<th>Peak D* (620 Hz, 1 Hz) [cm·Hz⁰.⁵/W]</th>
<th>Time constant [µs]</th>
<th>Dark resistance R₀ [MΩ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>3.8</td>
<td>4.5</td>
<td>1.8 \times 10^{10}</td>
<td>1 \times 10^{10}</td>
<td>4</td>
</tr>
</tbody>
</table>

*depends on pixel geometry

- Measured with 500K blackbody
- Measured in a voltage divider circuit with 50 V/mm
- Photo responsivity and detectivity are measured with constant load resistance (R_L = 1 MΩ) and calculated for matched resistance

Possible mechanical characteristics
- Number of lines 1 - 4
- Number of pixels 2 - 16
- Minimum pixel width 20 µm
- Minimum pixel height 20 µm
- Minimum pixel pitch 50 µm
- Minimal chip length 3000 µm
- Minimal chip height 3000 µm

Please contact us for an individual design: info@hertzstueck.de

Schematic
Exemplary mechanical characteristics

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Number of lines</th>
<th>Number of pixels</th>
<th>Pixel pitch [µm]</th>
<th>Pixel width [µm]</th>
<th>Pixel height [µm]</th>
<th>Operating temperature [°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PbS_MP_01x12_0200_0180x1800</td>
<td>1</td>
<td>12</td>
<td>200</td>
<td>180</td>
<td>x 1800</td>
<td>-30 to +70</td>
</tr>
</tbody>
</table>

Die attach

- Use clean, soft rubber tip for pick and place handling
- UV-curing is not suitable due to permanent damage by UV light exposure
- Element temperature should never exceed +90°C

Wire-bonding

- Electrodes are optimized for room temperature
- Al-wire-bonding
- Element temperature should never exceed +90°C

Storage

- Storage temperature: -55°C to +90°C
- Exposure to UV light results in permanent damage
- Prevent exposure to UV and visible light

Handling

- Active area is scratch sensitive, protect top surface from any mechanical contact
- Ensure dust-free environment for device handling
  Operating temperature: -30°C to +90°C

Options

- Individual housing
- Bonding onto PCB
- Integrated optics
- Evaluation-Kit available

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Exemplary circuit

Regulatory

For the use of Hertzstück™ PbS and PbSe infrared photodetectors in medical devices, monitoring and control instruments and consumer applications RoHS exemptions apply.

For automotive applications Hertzstück™ PbS and PbSe infrared photodetectors fall under ELV exemption.