PbS near-infrared detector
Line array bare chip thin-film encapsulated

trinamiX

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Features

- Thin-film encapsulation
- Very high sensitivity
- Suitable for automated wire-bonding

Applications

- NIR spectroscopy
- Fire and spark detection
- Flame and moisture monitoring

Electrical and optical characteristics per pixel

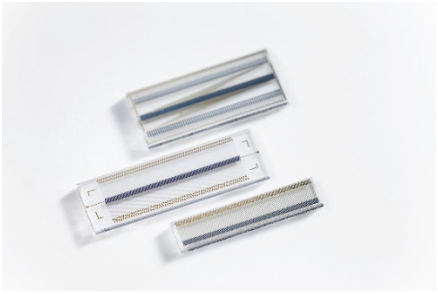
Element temperature [°C]	Peak wave-length λ_P [µm]	20% cut-off wavelength λ_C [µm]	Peak D* (620 Hz, 1 Hz) [cm·Hz^{½}/W]		Time constant [µs]	Dark resistance R_D [MΩ]
	Typ.	Typ.	Typ.	Min.	Typ.	
22	2.7	2.9	$1 \cdot 10^{11}$	$0.5 \cdot 10^{11}$	200	3 - 30*

- Measured with 1550 nm LED, incident power 16 µW/cm²
- 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

*depends on pixel geometry

Possible mechanical characteristics

- Number of pixels 1 - 512
- 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

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ver. 1.4

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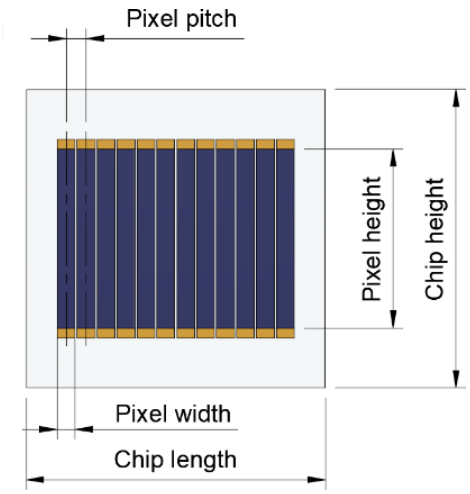
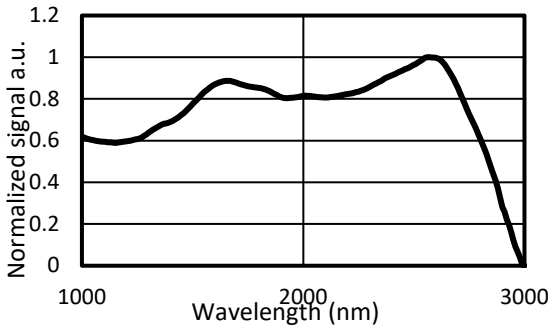
Exemplary mechanical characteristics

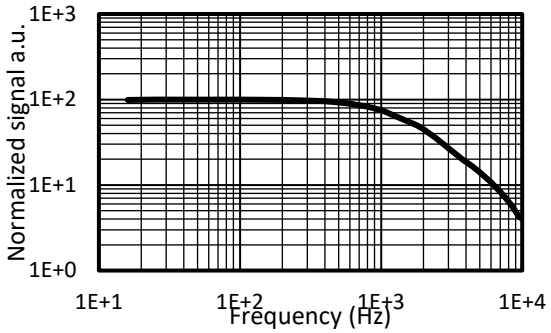
Type No.	Number of Pixels	Pixel pitch [µm]	Pixel width [µm]	Pixel height [µm]	Operating temperature [°C]
PbS_Arr_256_0050_0040x0380	256	50	40 x	380	-30 to +70



Typical spectral response per pixel



Typical frequency response per pixel



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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 +70°C

Wire-bonding

- Electrodes are optimized for room temperature Al-wire-bonding
- Element temperature should never exceed +70°C

Options

- Individual housing
- Bonding onto PCB
- Integrated optics

Storage

- Storage temperature: -55°C to +70°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 +70°C

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.

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