PbS near-infrared detector Multi-Single-Pixel thin-film encapsulated



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Features

- Wire-bonded on PCB
- High durability for rugged operation
- Very high sensitivity
- Room temperature operation

Applications

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

Type No.	Active area [mm x mm]	Peak responsivity S [V/W]	
		Тур.	Min.
PbS005005BC	0.5 x 0.5	16 · 105	10 · 10 ⁵
PbS010010BC	1 x 1	8 · 10⁵	5.6 · 10 ⁵
PbS020020BC	2 x 2	4 · 10 ⁵	2.8 · 10 ⁵
PbS030030BC	3 x 3	3 · 10⁵	$1.8 \cdot 10^{5}$
PbS060060BC	6 x 6	1.4 · 10 ⁵	$0.9 \cdot 10^{5}$
PbS100100BC	10 x 10	0.6 · 10 ⁵	0.4 · 10 ⁵
PbS010050BC*	1 x 5	3.5 · 10⁵	2 · 10 ⁵

Electrical and optical characteristics per pixel

* Dark resistance $R_D[M\Omega] = 0.05 - 1$

- Measured with 1550 nm LED, incident power 16 $\mu W/cm^2$
- Measured in a voltage divider circuit with 50 V/mm
- Photo responsivity and detectivity are measured with constant load resistance ($R_L = 1 M\Omega$) and calculated for matched resistance

Element temperature [°C]	Peak wave- length λ⊦ [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]
	Тур.	Тур.	Тур.	Min.	Тур.	
22	2.7	2.9	$1 \cdot 10^{11}$	$0.8 \cdot 10^{11}$	200	0.3 - 3

Mechanical characteristics

٠	Number of lines	1 - 3
٠	Number of pixels	2 - 8

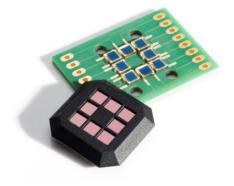
- $\bullet \qquad \mbox{Minimum pixel width} \qquad 1000\,\mu\mbox{m}$
- Minimum pixel height 1000 μm

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

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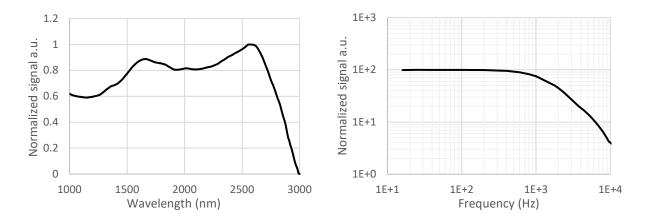
Release Date: April 14th, 2020 ver. 1.7



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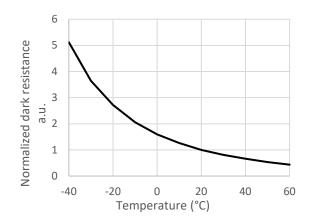


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Typical spectral response per pixel Typical frequency response per pixel

Typical resistance change over temperature



Storage

- Storage temperature: -55°C to +70°C
- Exposure to UV light results in permanent damage
- Prolonged exposure to visible light results in temporary low dark resistance

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

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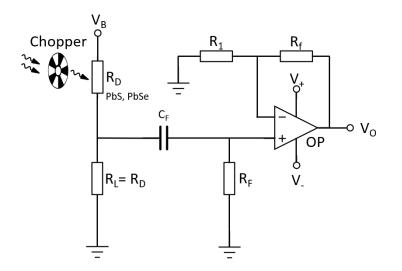


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Options

- Individual housing
- Integrated filters
- Individual PCB
- Evaluation Kit available

Exemplary circuit



- V_B: Bias voltage
- V_o: Output voltage
- R_D: Dark resistance of the detector
- R_L: Load resistor
- C_F: Filter capacitor
- R_F: Filter resistor
- R_f: Feedback resistor
- R₁: Gain resistor

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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