PbS near-infrared detector
Single-Pixel double encapsulated in TO-housing

HERTZSTÜCK™

Features

- Double encapsulation (thin-film and TO5)
- High durability for rugged operation
- Very high sensitivity

Applications

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

Electrical and optical characteristics

Type No.	Active area [mm x mm]	Peak responsivity S [V/W]	
		Typ.	Min.
PbS005005TO5	0.5 x 0.5	$16 \cdot 10^5$	$10 \cdot 10^5$
PbS010010TO5	1 x 1	$8 \cdot 10^5$	$5.6 \cdot 10^5$
PbS020020TO5	2 x 2	$4 \cdot 10^5$	$2.8 \cdot 10^5$
PbS030030TO5	3 x 3	$3 \cdot 10^5$	$1.8 \cdot 10^5$
PbS060060TO8	6 x 6	$1.4 \cdot 10^5$	$0.9 \cdot 10^5$
PbS010050TO5*	1 x 5	$3.5 \cdot 10^5$	$2 \cdot 10^5$

- 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

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	$1.1 \cdot 10^{11}$	$0.8 \cdot 10^{11}$	200	0.3 – 3

* Dark resistance R_D [MΩ] = 0.05 - 1

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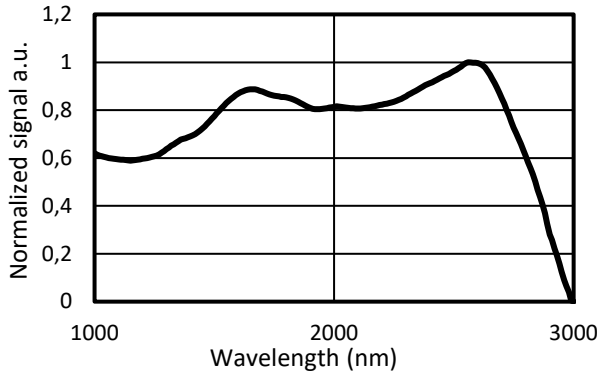
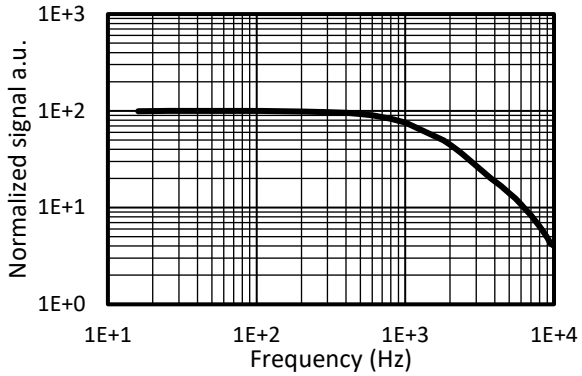
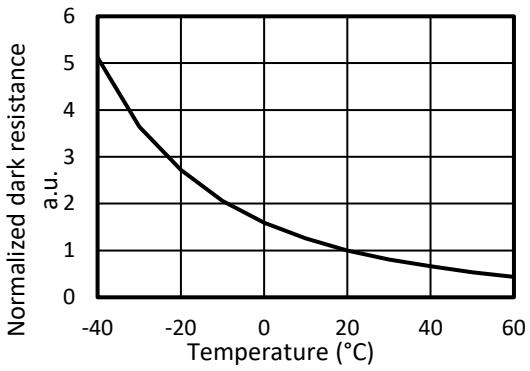
Typical spectral response



Typical frequency response



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

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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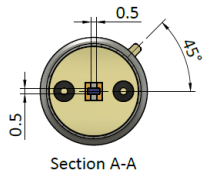
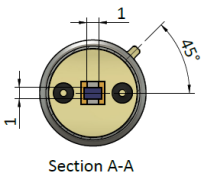
TO5 List of mechanical outlines (dimensions in mm)

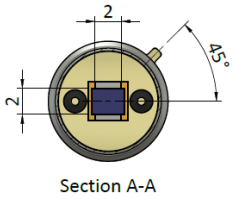
PbS005005TO5



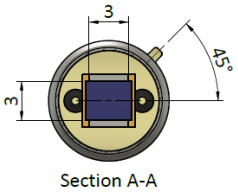
PbS010010TO5

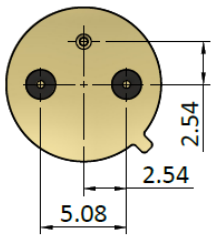


PbS020020TO5

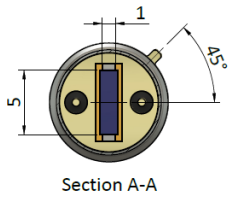


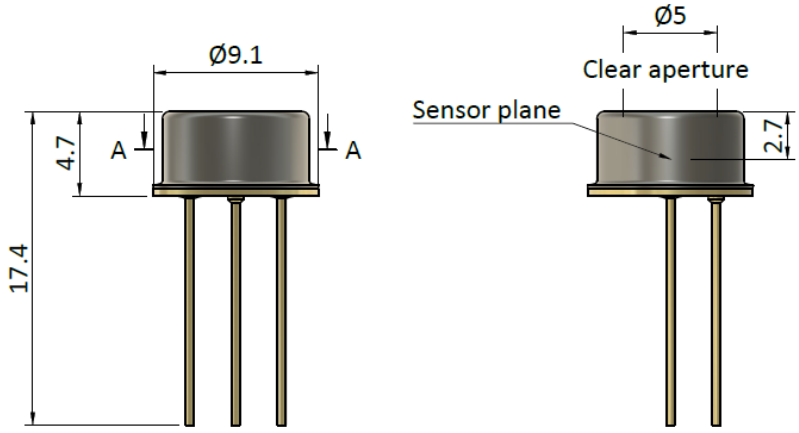
PbS030030TO5





PbS010050TO5





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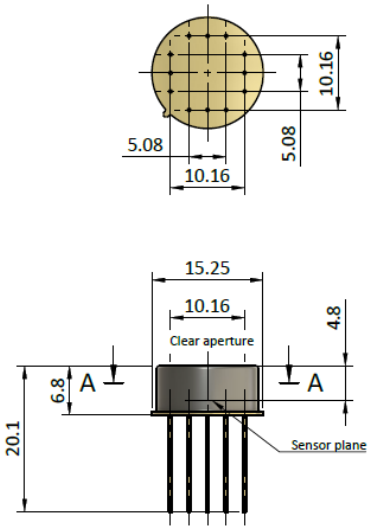
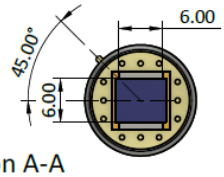
TO8 mechanical outlines (dimensions in mm)

PbS060060TO8





Section A-A

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