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Features

- Double encapsulation (thin-film and TO package)
- High durability for rugged operation
- Very high sensitivity
- Room temperature operation
- Sapphire window

Applications

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

Electrical and optical characteristics

Type No.	Active area [mm x mm]	Peak responsivity S [V/W]	
		Тур.	Min.
PbS005005TO5	0.5 x 0.5	16 · 10 ⁵	10 · 10 ⁵
PbS010010TO5	1 x 1	8 · 10 ⁵	5.6 · 10 ⁵
PbS020020TO5	2 x 2	4 · 10 ⁵	2.8 · 10 ⁵
PbS030030TO5	3 x 3	3 · 10 ⁵	1.8 · 10 ⁵
PbS060060TO8	PbS060060TO8 6 x 6		0.9 · 10 ⁵
PbS010050TO5* 1 x 5		3.5 · 10⁵	2 · 10 ⁵



- Measured with 1550 nm LED, incident power 16 μ W/cm²
- Measured in a voltage divider circuit with 50 V/mm
- Photo responsivity and detectivity are measured with constant load resistance ($R_L = 1 \text{ M}\Omega$) and calculated for matched resistance

Element	Peak wave-	20% cut-off	Peak D*		Time	Dark resistance R _D
temperature	length λ₽	wavelength	(620 Hz, 1 Hz)		constant	[MΩ]
[°C]	[µm]	λ _c [μm]	[cm·Hz½/W]		[µs]	
	Тур.	Тур.	Тур.	Min.	Тур.	
22	2.7	2.9	$1.1 \cdot 10^{11}$	$0.8 \cdot 10^{11}$	200	0.3 - 3

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

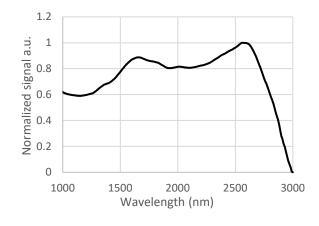
PbS near-infrared detector

Single-Pixel double encapsulated in TO package

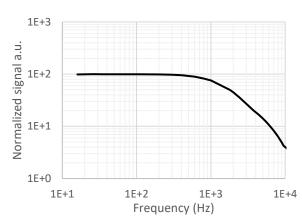


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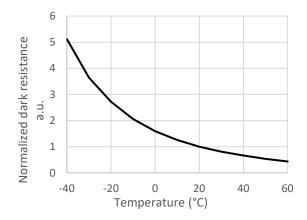
Typical spectral response



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

- Ensure dust-free environment for device handling
- Operating temperature: -30°C to +70°C

Options

- Custom windows and filters
- 1-stage or 2-stage Thermoelectric cooler (TEC) including thermistor
- Built-in internal LED for illumination and detection
- Custom packages upon request
- **Evaluation Kit available**

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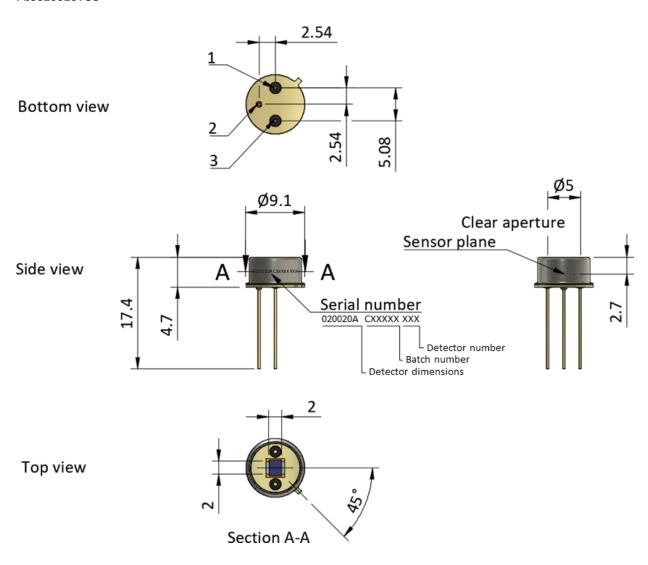
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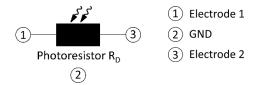
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TO5 exemplary package outlines (mm)

PbS020020TO5



Schematic



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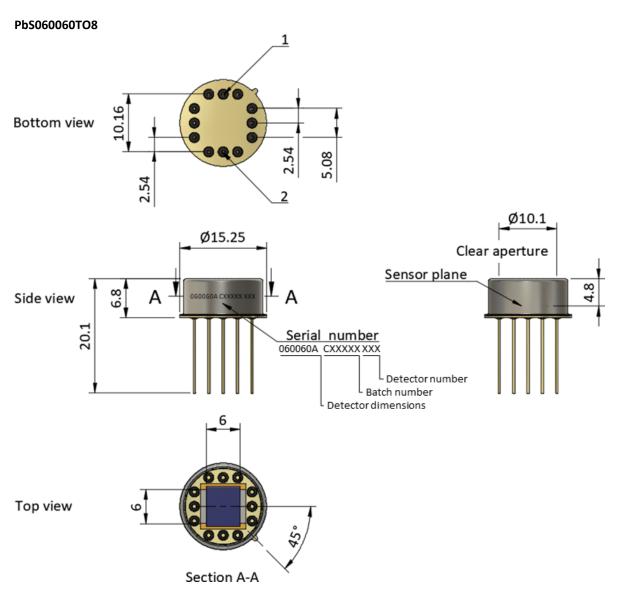
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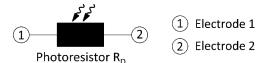


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TO8 exemplary package outlines (mm)



Schematic



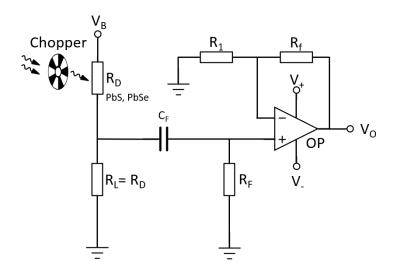
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Exemplary circuit



Bias voltage Output voltage

Dark resistance of the detector

 R_L : Load resistor Filter capacitor Filter resistor Feedback resistor R_f : 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.