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#### **Features**

- Double encapsulation (thin-film + TO package)
- High durability for rugged operation
- Room temperature operation
- Sapphire window

#### **Applications**

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

Type No.	Active area [mm x mm]	Peak responsivity S [V/W]	
		Тур.	Min.
PbSe010010T05	1 x 1	$4.5 \cdot 10^{4}$	$2.3 \cdot 10^{4}$
PbSe020020T05	2 x 2	$4 \cdot 10^{4}$	2 · 10 <sup>4</sup>
PbSe030030T05	3 x 3	$1.5 \cdot 10^4$	8 · 10 <sup>3</sup>
PbSe060060T08	6 x 6	8 · 10 <sup>3</sup>	4 · 10 <sup>3</sup>



- 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<sub>L</sub> = 1 MΩ) and calculated for matched resistance

Element temperature	Peak wave- length λ <sub>P</sub>	20% cut-off wavelength $\lambda_c$	Peak D* (620 Hz, 1 Hz)		Time constant [µs]	Dark resistance R <sub>D</sub> [MΩ]
[°C]	[µm]	[µm]	[cm·Hz <sup>½</sup> /W]			
	Тур.	Тур.	Тур.	Min.	Тур.	
22	3.8	4.5	$1.8 \cdot 10^{10}$	$1.2 \cdot 10^{10}$	4	0.1 - 3

#### Storage

- Storage temperature: -55°C to +90°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 +90°C



#### **Electrical and optical characteristics**

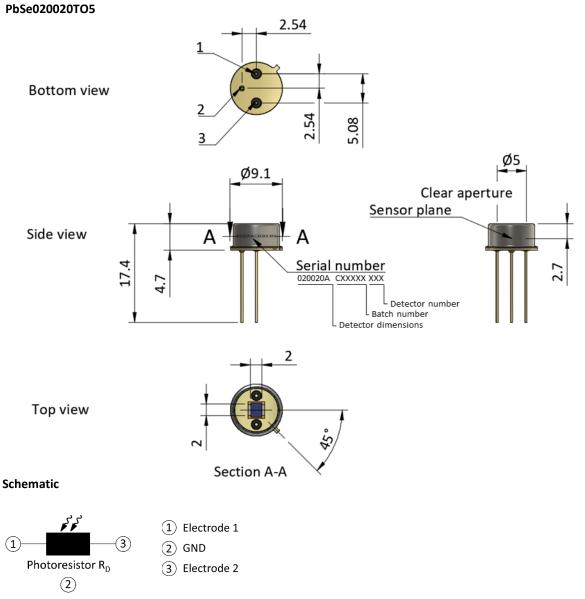


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## **Options**

- 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

## **TO5 exemplary package outlines (mm)**



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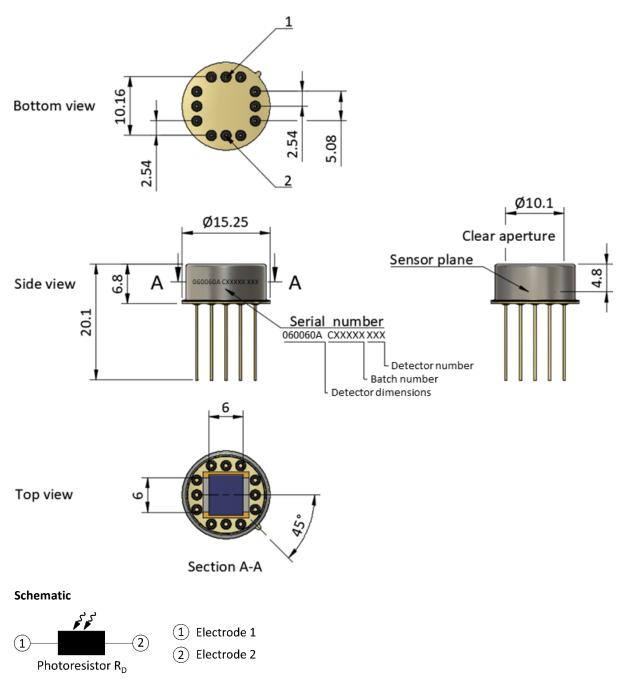
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#### **TO8 exemplary package outlines (mm)**

PbSe060060TO8



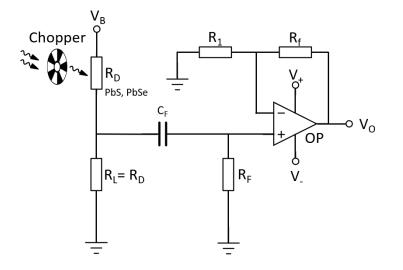
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# **Exemplary circuit**



- V<sub>B</sub>: Bias voltage
- V<sub>o</sub>: Output voltage
- R<sub>D</sub>: Dark resistance of the detector
- R<sub>L</sub>: Load resistor
- C<sub>F</sub>: Filter capacitor
- R<sub>F</sub>: Filter resistor
- R<sub>f</sub>: Feedback resistor
- R<sub>1</sub>: Gain resistor

#### Regulatory

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

For automotive applications Hertzstück<sup>™</sup> PbS and PbSe infrared photodetectors fall under ELV exemption.

