PbSe near-infrared detector Multi-Pixel thin-film encapsulated



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Features

- Bondable electrode for COB mounting
- High durability for rugged operation
- Suitable for automated wire-bonding
- Room temperature operation

Applications

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

Electrical and optical characteristics per pixel

Element	Peak wave-	20% cut-off	Peak D*		Time constant	Dark resistance R _D
temperature	length λ _P	wavelength λ_{C}	(620 Hz, 1 Hz)		[µs]	[MΩ]
[°C]	[µm]	[µm]	[cm·Hz ^½ /W]			
	Тур.	Тур.	Тур.	Min.	Тур.	
22	3.8	4.5	$1.8\cdot10^{10}$	1 · 10 ¹⁰	4	0.3 - 20*

*depends on pixel geometry

- Measured with 500K blackbody •
- Measured in a voltage divider circuit with 50 V/mm •
- Photo responsivity and detectivity are measured with constant load resistance ($R_L = 1 M\Omega$) and calculated • for matched resistance

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Possible mechanical characteristics

- Number of lines 1 - 4 •
- 2 16 Number of pixels
- 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



Pixel width

Chip lenght



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Schematic



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Exemplary mechanical characteristics

Type No.	Number	Number	Pixel	Pixel	Pixel	Operating
	of lines	of pixels	pitch	width	height	temperature
			[µm]	[µm]	[µm]	[°C]
PbS_MP_01x12_0200_0180x1800	1	12	200	180	x 1800	-30 to +70

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 +90°C

Storage

- Storage temperature: -55°C to +90°C
- Exposure to UV light results in permanent damage
- Prevent exposure to UV and visible light

Wire-bonding

- Electrodes are optimized for room temperature Al-wire-bonding
- Element temperature should never exceed +90°C

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 +90°C

Options

- Individual housing
- Bonding onto PCB
- Integrated optics
- Evaluation-Kit available

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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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