

PbSe Detectors PB45-Series

Description

The PB45 series is a collection of uncooled polycrystalline biased single element PbSe detectors that operate at room temperature with a 20% cut-off of 4.7 μm . This series has been designed for demanding analytic, medical and radiometric applications.

Features

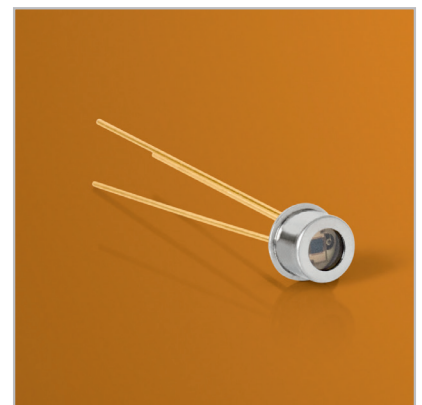
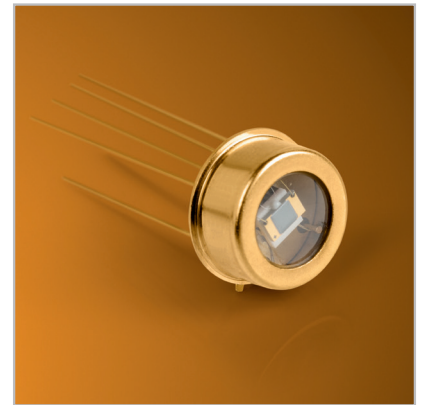
- Spectral range from 1 to 4.7 μm
- State of the art performance
- 100% test data

Applications

- Non-dispersive infrared gas analysis
- Medical CO₂ detection
- Non-contact temperature measurement
- Flame detection
- Moisture monitoring

Versions

- TO-can (TO-46, TO-39, TO-8)
- Sapphire window as standard
- Custom versions available



Basic Characteristics, Specifications @ 23 °C

Part Number	Element Size [mm]	Aperture Size [mm]	Features	20% Cut-off Wavelength [μm] ^b	Peak Wavelength [μm] ^b	Peak Responsivity [V/W] ^{ac}		Time Constant [μs] ^b		Optional Package Versions
				Typ.	Typ.	Min.	Typ.	Typ.	Max.	
PB45S10104S	1.0 x 1.0	dia. 3.00	TO-46	4.7	4.0	21000	42000	4	10	TO-39, short cap
PB45S20209S	2.0 x 2.0	dia. 6.35	TO-39, short cap	4.7	4.0	10500	21000	4	10	Medium cap
PB45S30309S	3.0 x 3.0	dia. 6.35	TO-39, short cap	4.7	4.0	7000	14000	4	10	Medium cap
PB45S50508M	5.0 x 5.0	dia. 9.53	TO-8, medium cap	4.7	4.0	4200	8400	4	10	-
PB45S60608M	6.0 x 6.0	dia. 9.53	TO8, medium cap	4.7	4.0	3500	7000	4	10	-

Further Versions in progress

Notes:

^a Measured with 500 K blackbody. Bias is 50 V/mm with 1 MOhm load in series.
Chopping frequency is 1 kHz.

^b Parameter not 100% tested.

^c Without filter/window

Electro-Optical Characteristics, Specifications @ 23 °C

Part Number	Element Size [mm]	Noise Density (rms) [μV/Hz ^{1/2}] ^a		Peak D* [cm Hz ^{1/2} /W] ^{abc}		Peak D* [cm Hz ^{1/2} /W] ^{ac}		Dark Resistance [MOhm/square]		
		@ 90 Hz ^b	@ 1 kHz	@ 90 Hz	@ 90 Hz	@ 1 kHz	@ 1 kHz	Min.	Typ.	Max.
		Typ.	Typ.	Min.	Typ.	Min.	Typ.			
PB45S10104S	1.0 x 1.0	2.1	0.7	4.0 E+09	6.0 E+09	1.2 E+10	1.8 E+10	0.1	0.8	2.5
PB45S20209S	2.0 x 2.0	2.1	0.7	4.0 E+09	6.0 E+09	1.2 E+10	1.8 E+10	0.1	0.8	2.5
PB45S30309S	3.0 x 3.0	2.1	0.7	4.0 E+09	6.0 E+09	1.2 E+10	1.8 E+10	0.1	0.8	2.5
PB45S50508M	5.0 x 5.0	2.1	0.7	3.0 E+09	4.0 E+09	0.9 E+10	1.2 E+10	0.1	0.8	2.5
PB45S60608M	6.0 x 6.0	2.1	0.7	3.0 E+09	4.0 E+09	0.9 E+10	1.2 E+10	0.1	0.8	2.5

Notes:

^a Measured with 500 K blackbody. Bias is 50 V/mm with 1 MOhm load in series.
Bandwidth of test setup is 1 Hz.

^b Parameter not 100% tested.

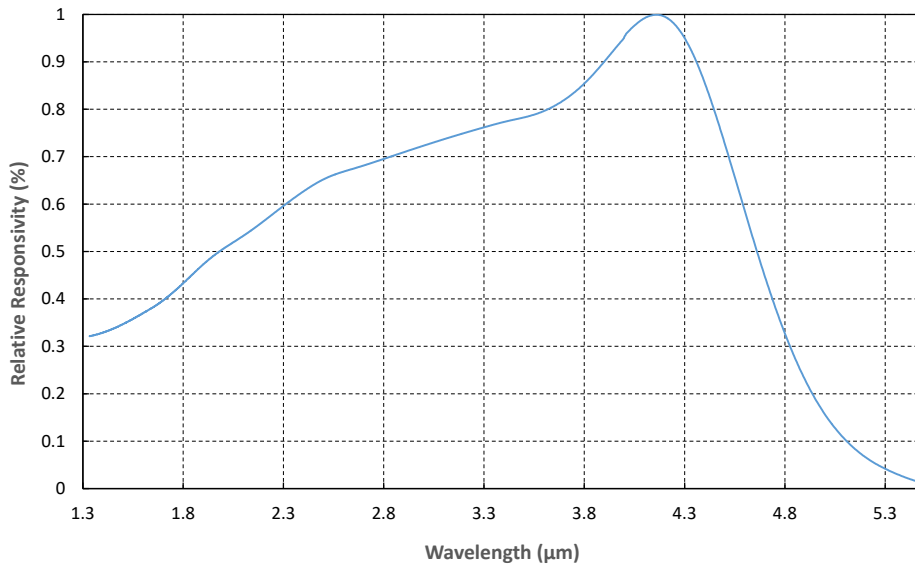
^c Without filter/window

Absolute Maximum Ratings

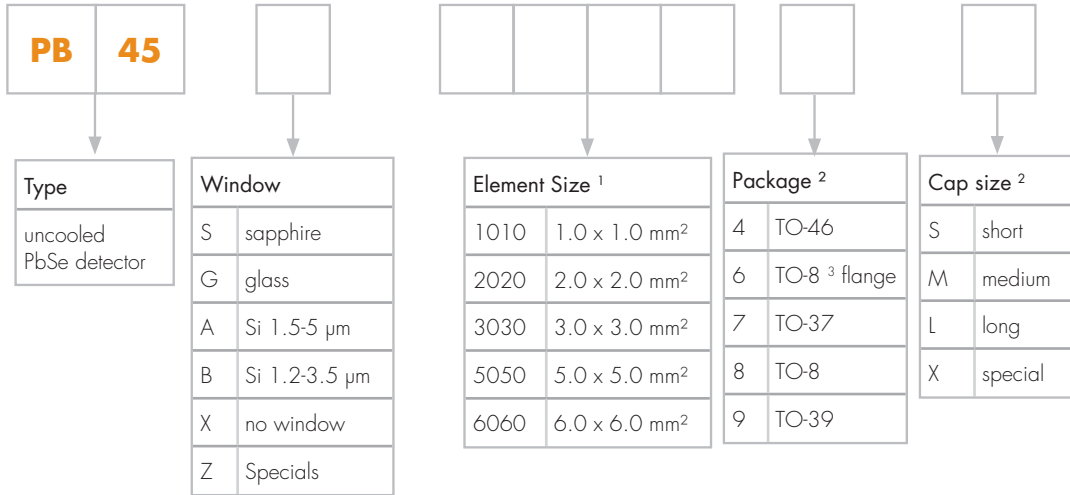
	Min	Max	Units
Storage temperature	- 70	+ 95	°C
Operating temperature	- 65	+ 90	°C
Soldering temperature (for 5 sec)		+ 250 (at pins only)	°C
ESD damage threshold (Human Body Model Class 3B*)	8000		V

*ANSI/ESD STN5. 1-2007

Spectral Response



Part Number Designations



¹ For rectangular elements: space between electrodes first.

² Please see supplementary datasheet "PbS-/PbSe-Detectors Package Drawings" for details.

³ TO-8 with copper flange (equal TO-66).

Package Drawings

All standard packages, dimensions and tolerances are shown in our supplementary datasheet „PbS- / PbSe Detectors - Package Drawings & Cooling Specifications“.

Product Changes

LASER COMPONENTS reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application.

Ordering Information

Products can be ordered directly from LASER COMPONENTS or its representatives. For a complete listing of representatives, visit our website at www.lasercomponents.com