Lead Selenide Infrared (PbSe) Detector Array

(2 - 5 microns)

DATASHEET

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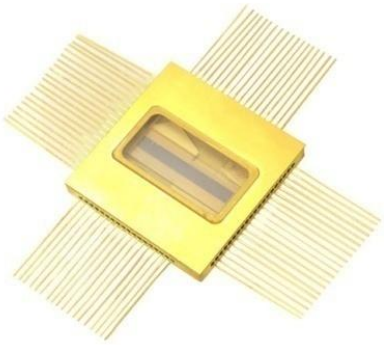

Agiltron manufactures state-of-the-art lead sensitivity Selenide devices (PbSe) for room temperature operation as well as thermoelectrically cooled operation for spectroscopy from 1 to 5 microns. We offer custom array design and package to meet application requirements. The device can be supplied with integrated optical filters. They can be connected with pre-amplifiers or multiplexed amplifiers for applications. Thermoelectronic cooler and thermistor can be built in for temperature stabilization.

Listed below is typical 64 element electrical characteristics of PbSe Array of Agiltron Automated Chemical Processing (ACP) detectors.

Due to their high sensitivity to electrostatic discharge, warranty coverage applies only to fully metal covered modules the benchtops, which include proper protection. Other versions of the lasers and photodetectors are not covered by any warranty. Please use them with great caution.

Features

- • New Automated Chemical Processing (ACP) produces higher yield at lower cost.
- • Extremely high reliability under extreme conditions.
- • Long shelf life.
- • Hermetically sealed package to completely eliminate humidity attack on detection area.
- • Wide range of electrical characteristics available.
- • Wide range of sizes available.
- • 100% tested.
- • State of the art microelectronics fabrication capability.
- • Specializing in high density arrays. 64/128 element, etc.

Specifications

Parameter	Min	Typical	Max	Unit
Operating Wavelength Range (PbSe)	2		5	μm
Number of Elements		64		
Resistance	0.3		0.5	MΩ
Response Time		5		μs
Peak Detectivity (without cooling)	D*:1x10^{10} (cm•Hz^{½}•W^{-1})			

Applications

Rev 11/28/25

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Mechanical Features

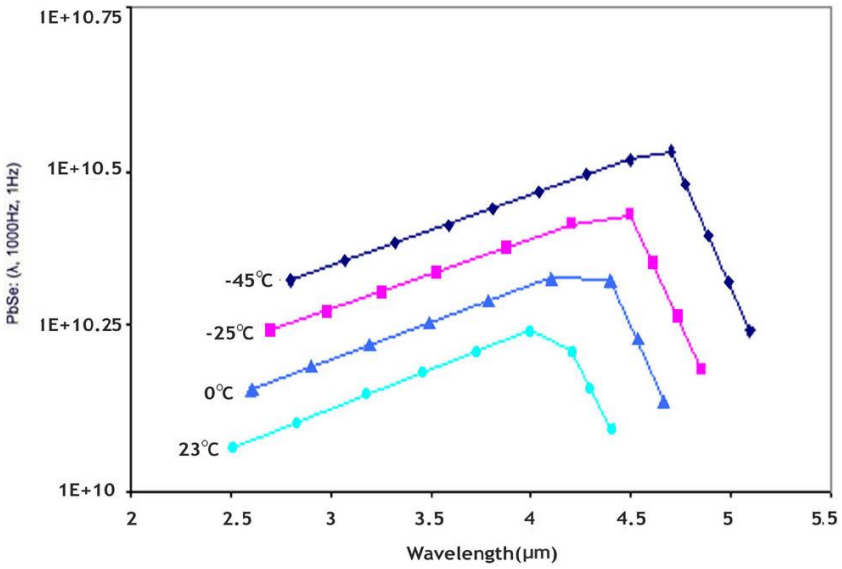
PbSe Detector array is typically manufactured on quartz substrate. Devices can be supplied integrated with optical condenser elements, thermoelectric (TE) coolers, and processing electronics, all in a miniature package.

Aging Characteristics

All stock detector arrays undergo a minimum four week aging period. Experience with detectors manufactured by the advanced process, including the above aging period, has shown the electrical characteristics to be stable to within 10% for over a year.

Response of Detectors

The typical response for PbSe operates in 2 to 5 micron spectral region with time constants below 5 µsec. TE-cooled packages are available with a response in the 1 to 5 micron region with increased D*. Typical spectral response of standard PbSe detector is shown below.



Ordering Information (Part Number)

	□□□	□□□	□□□	□□□	□	□
Prefix	**Elements**	**Pixel Width**	**Pixel Length**	**Pixel pitch**	**TEC**	**Package**
PBEA-	4 = 004 6 = 006 10 = 010 … 128 = 128	15µm = 015 115µm = 115 260µm = 260	15µm = 015 115µm = 115 260µm = 260	15µm = 015 115µm = 115 260µm = 260	No = 1 Yes = 2	Toxx = 1 Square A = 2 Square B = 3

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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