

PRODUCT BRIEF

LEAD SULFIDE INFRARED DETECTORS (1 - 3 microns)

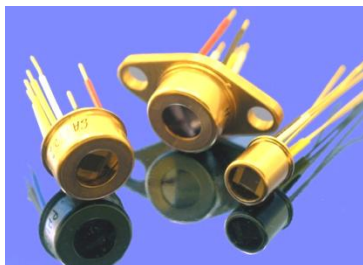
Advantages

- 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.
- Immediate delivery.
- Compact integrated filter/detector combinations.
- 100% tested.
- State of the art microelectronics fabrication capability.
- Specializing in high density arrays.

Overview

Agiltron manufactures state-of-the-art lead sulfide devices (PbS) for room temperature operation as well as enhanced sensitivity thermoelectrically cooled operation. These devices can be supplied with integrated optical filters, pre-amplifiers or multiplexed amplifiers for high density arrays.

Listed below are typical room temperature electrical characteristics of Agiltron Automated Chemical Processing (ACP) PbS 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.

Element Size	Resistance (MΩ)	Time Constant (μ sec)	D* (λ, 200, 1) x 10 ¹¹ (cm•Hz ^{1/2} •W ⁻¹)	D* (λ, 620, 1) x 10 ¹¹ (cm•Hz ^{1/2} •W ⁻¹)	D* (λ, 2000, 1) x 10 ¹¹ (cm•Hz ^{1/2} •W ⁻¹)
1x1mm	0.5 - 2.0	200-400	0.5 - 0.6	0.7 - 1.0	0.6 - 0.8

Mechanical Features

Detectors are typically manufactured on 0.020" - 0.030" quartz substrates. Devices can be supplied integrated with optical condenser elements, thermoelectric (TE) coolers, and processing electronics, all in a miniature package.

Aging Characteristics

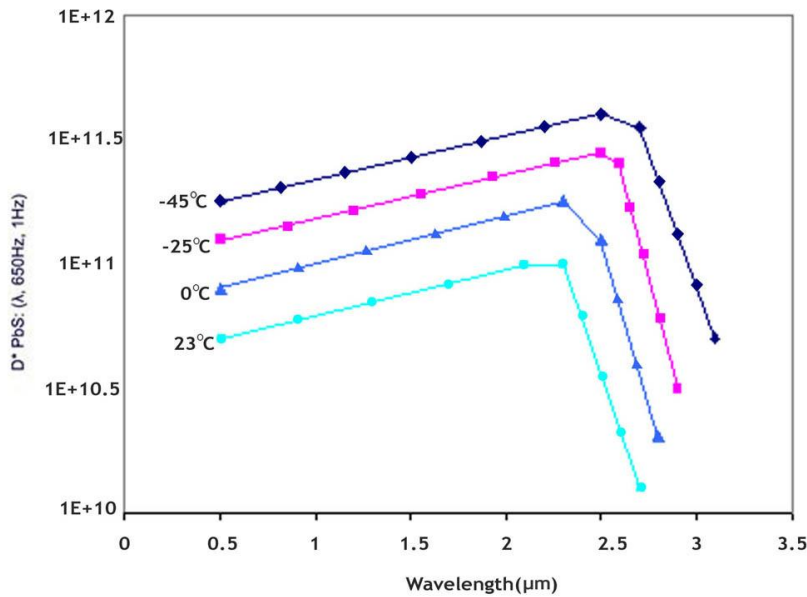
All stock detectors undergo a minimum four week aging period. Experience with detectors manufactured by the proprietary process, including the above aging period, has shown the electrical characteristics to be stable to within 10% for over a year.



Revised on 11/28/25

Response of PbS Detectors

The typical response for PbS operates in 0.5 to 3 micron spectral region with time constants below 400 μsec. TE-cooled packages are available with a response in the 0.5 to 3 micron region with increased D*. Typical spectral response of standard PbS detector is shown below.



Ordering Information

AMBIENT DETECTOR

PBAD-	☐	☐ ☐	☐	☐	☐	☐	☐ ☐
	Material Type	Type	Package	Element size	Window	AR Coated	Temperature Sensor
Ambient Detector	2=Lead Sulfide (PbS)	00=Flat Plate 01=Packaged IP=Integrated preamp.	0=special 1=TO-18 5=TO-5 7=TO-37 8=TO-8 9=TO-39	0=Special 1=1x1mm 2=2x2mm 3=3x3mm 4=4x4mm 5=5x5mm 6=6x6mm	0=Special 1=Spectral Filter 2=Quartz 3=Sapphire 4=Germanium 5=Silicon	0=No 1=Yes	00=No Thermistor TH=Thermistor TC=Thermistor Calibrated

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

PBCD-	☐	☐ ☐	☐	☐	☐	☐	☐ ☐
	Material Type	T.E.Cooled Type	Package	Element size	Window	AR Coated	Temperature Sensor
T.E.Cooled Detector	2=Lead Sulfide (PbS)	00=Special 01=1 stage 02=2 stage 03=3 stage IP=Integrated preamp.	0=special 5=TO-5 7=TO-37 8=TO-8 9=TO-39	0=Special 1=1x1mm 2=2x2mm 3=3x3mm 4=4x4mm 5=5x5mm 6=6x6mm	0=Special 1=Spectral Filter 2=Quartz 3=Sapphire 4=Germanium 5=Silicon	0=No 1=Yes	00=No Thermistor TH=Thermistor TC=Thermistor Calibrated



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