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 selenide devices (PbSe) 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 Automated Chemical Processing (ACP) PbSe detectors.

<table>
<thead>
<tr>
<th>Element Size (mm)</th>
<th>Resistance (MΩ)</th>
<th>Time Constant (µ sec)</th>
<th>D^*BB (500K, 1KHz, 1) (cm•Hz^{1/2}•W^{-1})</th>
<th>D* (cm•Hz^{1/2}•W^{-1})</th>
<th>Responsivity (PK, 1KHz) (V/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0X1.0</td>
<td>0.2 - 5.0</td>
<td>5</td>
<td>3X10^8</td>
<td>2X10^9</td>
<td>7500</td>
</tr>
</tbody>
</table>

Mechanical Features

Detectors are typically manufactured on 0.020” - 0.030” thickness 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.
Response of PbSe Detectors

The typical room temperature response for PbSe operates in the 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.