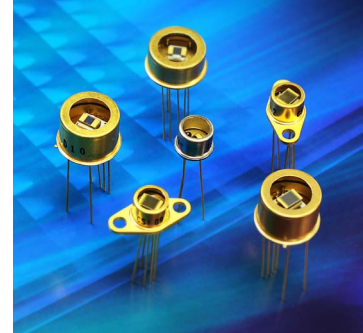


## SCD-13 High sensitivity PbS single channel detectors

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### Key Features:

- Highest sensitivity detectors covering 1-3 micron region
  - Provides high signal to noise performance for wide measurement dynamic range
- High durability ensures long operation in the field
  - Minimizes maintenance and repair costs
- Repeatable performance, promotes high manufacturing yields
  - Consistent results from batch to batch



Cal Sensors' SCD-13 (single-channel detector) product line integrates PbS technology with proven manufacturing processes to provide the highest sensitivity detectors across the one to three micron spectrum. In addition, SCD-13 products minimize maintenance costs and assure dependable operation with industry-leading reliability,

Many of today's demanding applications require levels of performance that stretch the limits of existing technologies. Cal Sensors meets these challenges by providing high sensitivity to detect trace elements, superior quality – consistent performance between lots and within a batch – and high durability.

Available in a variety of standard configurations, customers can choose from an assortment of options including, element size, cooling alternatives and package size to suit numerous system and application requirements. Cooled units provide additional sensitivity for very low level signal detection and enhanced stability for environments where temperatures are in constant flux.

Cal Sensors has been manufacturing and selling high performance PbS and PbSe infrared detectors for over 25 years. Having established a reputation for highly controlled manufacturing processes, customers can rely on consistent, repeatable performance and superior customer service. Cal Sensors works with customers from prototype to production to help deliver valuable instruments. Custom requirements can be addressed by contacting the Cal Sensors' sales team.

### Applications:

- Gas analysis
  - Medical
  - Industrial
- Emissions monitoring
- Spectroscopy
- Process control systems
- Thermal imaging
- Flame Monitoring and Detection

# SCD-13 Specifications

| Model #   | Part # | Element Size (mm) | Op. Temp. (°C) <sup>3</sup> | Wave-length (pk signal, μm) | D* (cm Hz <sup>1/2</sup> /W)                         |  | Responsivity (λpk, 650Hz, V/W) |                      | Dark Resistance (@23°C, MΩ/sq) | Time Constant (μs)   | ΔT at max cool (°C) | Std Pkg (TO) |
|---|--------|-------------------|-----------------------------|-----------------------------|--|--|--------------------------------|----------------------|--------------------------------|----------------------|---------------------|--------------|
|   |        |                   |                             |                             | (λ <sub>pk</sub> , 650Hz, 1Hz)                       | (500K, 650Hz, 1Hz)                                 | Min                            | Typ                  |                                |                      |                     |              |
| <b>AP Series - Ambient PbS detectors<sup>1,3</sup></b>                          |        |                   |                             |                             |  |  |                                |                      |                                |                      |                     |              |
| AP-15   | 40361  | 1x1               | +23                         | 2.4 typ                     | 8x10 <sup>10</sup> min<br>1x10 <sup>11</sup> typ     | 7.5x10 <sup>8</sup> min<br>9.4x10 <sup>8</sup> typ | 5.3 x10 <sup>5</sup>           | 8.0 x10 <sup>5</sup> | 0.5 - 2.0<br>1.0 typ           | 200 typ<br>400 max   | N/A                 | 5            |
| AP-18   | 40364  | 1x1               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AP-25   | 40128  | 2x2               |                             |                             |  |  | 5                              |                      |                                |                      |                     |              |
| AP-28   | 40365  | 2x2               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AP-35   | 40363  | 3x3               |                             |                             |  |  | 5                              |                      |                                |                      |                     |              |
| AP-38   | 40366  | 3x3               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AP-68   | 40368  | 6x6               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AP-103  | 40338  | 10x10             | 3                           |                             |  |  |                                |                      |                                |                      |                     |              |
| <b>AT1 Series - One-stage (1.2W) TE cooled PbS detectors<sup>1, 2, 3</sup></b>  |        |                   |                             |                             |  |  |                                |                      |                                |                      |                     |              |
| AT1-17T   | 40372  | 1x1               | -25                         | 2.5 typ                     | 1.0x10 <sup>11</sup> min<br>1.5x10 <sup>11</sup> typ | 1.0x10 <sup>9</sup> min<br>1.5x10 <sup>9</sup> typ | 1.3 x10 <sup>6</sup>           | 6.0x10 <sup>5</sup>  | 1.5 - 10.0<br>3.0 typ          | 800 typ<br>1600 max  | 45 min<br>50 typ    | 37           |
| AT1-18T   | 40374  | 1x1               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AT1-27T   | 40373  | 2x2               |                             |                             |  |  | 37                             |                      |                                |                      |                     |              |
| AT1-28T   | 40375  | 2x2               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AT1-37T   | 40147  | 3x3               |                             |                             |  |  | 37                             |                      |                                |                      |                     |              |
| AT1-38T   | 40342  | 3x3               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AT1-66T   | 40678  | 6x6               |                             |                             |  |  | 66                             |                      |                                |                      |                     |              |
| AT1-68T   | 40679  | 6x6               |                             |                             |  |  | 8                              |                      |                                |                      |                     |              |
| AT1-103   | 40680  | 10x10             | 3                           |                             |  |  |                                |                      |                                |                      |                     |              |
| <b>AT2S Series - Two-stage (2.5W) TE cooled PbS detectors<sup>1, 2, 3</sup></b> |        |                   |                             |                             |  |  |                                |                      |                                |                      |                     |              |
| AT2S-16T  | 40415  | 1x1               | -50                         | 2.7 typ                     | 2.0x10 <sup>11</sup> min<br>3.0x10 <sup>11</sup> typ | 2.2x10 <sup>9</sup> min<br>3.3x10 <sup>9</sup> typ | 1.4 x10 <sup>6</sup>           | 2.1 x10 <sup>6</sup> | 3.0 -20.0<br>6.0 typ           | 1750 typ<br>3500 max | 70 min<br>75 typ    | 66           |
| AT2S-18T  | 40411  | 1x1               | 8                           |                             |  |  |                                |                      |                                |                      |                     |              |
| AT2S-26T  | 40416  | 2x2               | 66                          |                             |  |  |                                |                      |                                |                      |                     |              |
| AT2S-28T  | 40412  | 2x2               | 8                           |                             |  |  |                                |                      |                                |                      |                     |              |
| AT2S-36T  | 40417  | 3x3               | 66                          |                             |  |  |                                |                      |                                |                      |                     |              |
| AT2S-38T  | 40029  | 3x3               | 8                           |                             |  |  |                                |                      |                                |                      |                     |              |
| AT2S-66T  | 40420  | 6x6               | 66                          |                             |  |  |                                |                      |                                |                      |                     |              |
| AT2S-68T  | 40156  | 6x6               | 8                           |                             |  |  |                                |                      |                                |                      |                     |              |

<sup>1</sup> Specifications apply at a bias voltage of 50 V/mm across a detector and 1Mohm load resistor (in series) or 25V/mm directly across the detector

<sup>2</sup> Specifications apply at max cooling with a heat sink at +25°C. Typical cooler power at max cooling: AT1 - 0.8V @ 2.0A, AT2S - 1.9V @ 1.4A

<sup>3</sup> Max rated element temperature is 65°C

