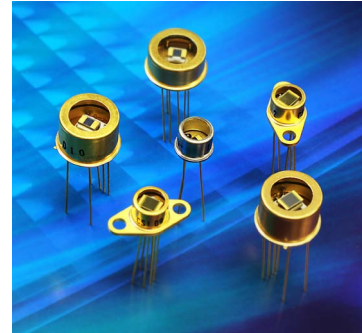


## SCD-15 High performance PbSe single-channel detectors

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### Key Features:

- Highest sensitivity detectors operating across 1-5 micron region
  - Provides high signal to noise performance for wide measurement dynamic range
- Fastest response speed for mid-IR applications
- High reliability for long life
- Best overall performance for the 1-5 micron spectrum
- Consistent repeatable results minimize testing



Cal Sensors' SCD-15 (single-channel detector) product line offers the best balance of performance and attributes for analyzing materials in the one to five micron spectrum. The combination of high sensitivity, fast response time, and industry leading reliability assure consistent performance where and when it is needed.

High sensitivity maximizes measurement dynamic range for applications with trace elements. Real-time measurements are easily supported with the SCD-15's fast response time. High durability and long life minimize repair and maintenance costs. With the goal of optimizing your system's performance, Cal Sensors is committed to providing high quality, reliable products.

Available in a number of configurations, customers can choose an assortment of options such as element size, cooling alternatives, and package type to suit a variety of 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. Supporting all stages of development, from early prototyping to high volume production, Cal Sensors is dedicated to helping customers develop market-leading instruments. Custom requirements can be addressed by contacting the Cal Sensors' sales team.

### Applications:

- Gas analysis – CO, CO<sub>2</sub>
  - Medical
  - Industrial
- Emissions monitoring
- Spectroscopy
- Process control systems
- Thermal imaging
- Defense and Security

# SCD-15 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 (Apk, 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>BXP Series - Ambient PbSe detectors<sup>1,3</sup></b>                        |        |                   |                             |                             |   |  |                                |                       |                                |                    |                     |              |
| BXP-15  | 40150  | 1x1               | +23                         | 3.8 typ                     | 7.0 x 10 <sup>9</sup> min<br>1.5x10 <sup>10</sup> typ | 1.0x10 <sup>8</sup> min<br>1.5x10 <sup>9</sup> typ | 1.5 x 10 <sup>4</sup>          | 3.0 x 10 <sup>4</sup> | 0.1 - 2.5<br>0.8 typ           | 2 typ<br>5 max     | N/A                 | 5            |
| BXP-18  | 40389  | 1x1               |                             |                             |   |  | 8                              |                       |                                |                    |                     |              |
| BXP-25  | 40135  | 2x2               |                             |                             |   |  | 5                              |                       |                                |                    |                     |              |
| BXP-28  | 40390  | 2x2               |                             |                             |   |  | 8                              |                       |                                |                    |                     |              |
| BXP-35  | 40354  | 3x3               |                             |                             |   |  | 5                              |                       |                                |                    |                     |              |
| BXP-38  | 40057  | 3x3               |                             |                             |   |  | 8                              |                       |                                |                    |                     |              |
| BXP-68  | 40393  | 6x6               | 8                           |                             |   |  |                                |                       |                                |                    |                     |              |
| BXP-103   | 40151  | 10x10             | 3                           |                             |   |  |                                |                       |                                |                    |                     |              |
| <b>BXT1 Series - One-stage (1.2W) TE cooled PbSe detectors<sup>1,2,3</sup></b>  |        |                   |                             |                             |   |  |                                |                       |                                |                    |                     |              |
| BXT1-17T  | 40394  | 1x1               | -25                         | 4.2 typ                     | 1.4x10 <sup>10</sup> min<br>2.8x10 <sup>10</sup> typ  | 1.9x10 <sup>9</sup> min<br>3.9x10 <sup>9</sup> typ | 4.0 x 10 <sup>4</sup>          | 6.0 x 10 <sup>4</sup> | 0.5 - 10.0<br>4.0 typ          | 6 typ<br>12 max    | 45 min<br>50 typ    | 37           |
| BXT1-18T  | 40396  | 1x1               |                             |                             |   |  | 8                              |                       |                                |                    |                     |              |
| BXT1-27T  | 40395  | 2x2               |                             |                             |   |  | 37                             |                       |                                |                    |                     |              |
| BXT1-28T  | 40059  | 2x2               |                             |                             |   |  | 8                              |                       |                                |                    |                     |              |
| BXT1-37T  | 40136  | 3x3               |                             |                             |   |  | 37                             |                       |                                |                    |                     |              |
| BXT1-38T  | 40061  | 3x3               |                             |                             |   |  | 8                              |                       |                                |                    |                     |              |
| BXT1-66T  | 40676  | 6x6               | 66                          |                             |   |  |                                |                       |                                |                    |                     |              |
| BXT1-68T  | 40677  | 6x6               | 8                           |                             |   |  |                                |                       |                                |                    |                     |              |
| BXT1-103T   | 40400  | 10x10             | 3                           |                             |   |  |                                |                       |                                |                    |                     |              |
| <b>BXT2S Series - Two-stage (2.5W) TE cooled PbSe detectors<sup>1,2,3</sup></b> |        |                   |                             |                             |   |  |                                |                       |                                |                    |                     |              |
| BXT2S-16T   | 40426  | 1x1               | -50                         | 4.5 typ                     | 2.0x10 <sup>10</sup> min<br>3.5x10 <sup>10</sup> typ  | 2.9x10 <sup>9</sup> min<br>2.5x10 <sup>9</sup> typ | 1.0 x 10 <sup>5</sup>          | 1.5 x 10 <sup>5</sup> | 1.0 - 20.0<br>6.0 typ          | 12 typ<br>25 max   | 70 min<br>75 typ    | 66           |
| BXT2S-18T   | 40208  | 1x1               | 8                           |                             |   |  |                                |                       |                                |                    |                     |              |
| BXT2S-26T   | 40427  | 2x2               | -50                         |                             |   |  | 66                             |                       |                                |                    |                     |              |
| BXT2S-28T   | 40186  | 2x2               | 8                           |                             |   |  |                                |                       |                                |                    |                     |              |
| BXT2S-36T   | 40428  | 3x3               | -45                         |                             |   |  | 66                             |                       |                                |                    |                     |              |
| BXT2S-38T   | 40203  | 3x3               | 8                           |                             |   |  |                                |                       |                                |                    |                     |              |
| BXT2S-66T   | 40431  | 6x6               | -25                         | 66                          |   |  |                                |                       |                                |                    |                     |              |
| BXT2S-68T   | 40425  | 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: BXT1 - 0.8 V @ 2.0 A, BXT2S - 1.9 V @ 1.4A

<sup>3</sup> Max rated element temperature is 85°C.

