SITEK

peo PHOTONICS

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SiTek

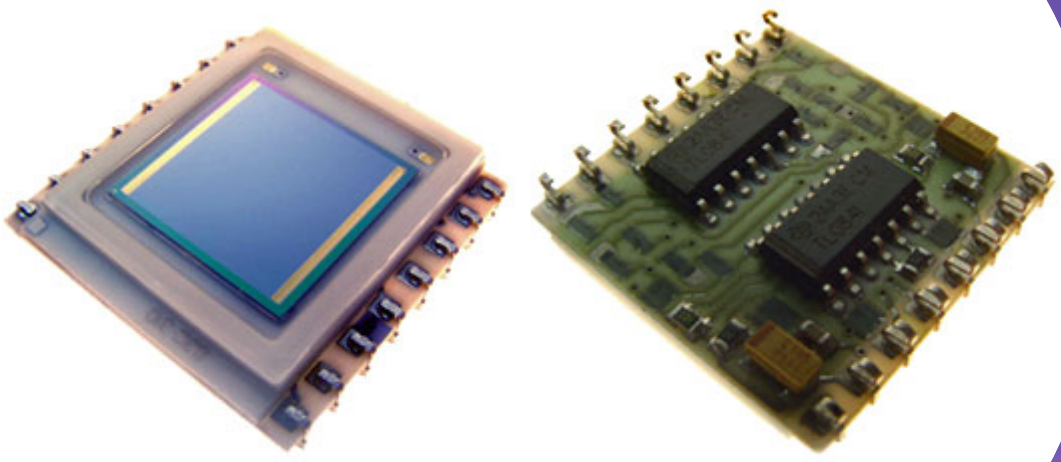
SiTek Electro Optics AB is a leading Swedish manufacturer specializing in high-precision optical and photonic solutions, with a core focus on Position Sensing Detectors (PSDs). Their advanced photonic technologies are designed for demanding applications requiring exceptional accuracy in positioning, alignment, and measurement.

SiTek's detectors are characterized by high resolution, fast response time, and excellent linearity—making them ideal for integration into laser alignment systems, optical metrology instruments, and industrial automation platforms. Their solutions support a wide range of sectors, including scientific research, aerospace, semiconductor manufacturing, and industrial inspection, where exacting precision is critical.

By combining robust engineering with leading-edge optoelectronic design, SiTek provides reliable and high-performance components trusted by OEMs and system integrators around the world.

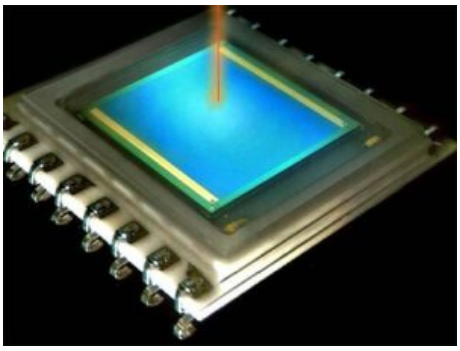
Achieve superior alignment and measurement performance with SiTek's precision optics and photonics solutions!

POSITION SENSITIVE DETECTORS (PSDS)



PHOTONICS

SPC-PSD (Signal Processing Circuit) – SiTek

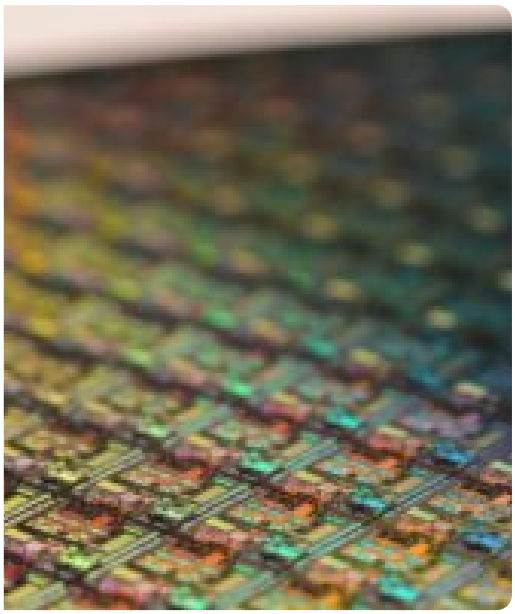


In order to facilitate the operation of SiTek PSD's, they have developed a dedicated SPC-PSD (signal processing circuit). All components necessary to obtain the sum and difference signals from a two- or one-dimensional PSD have been concentrated on a 20,5 x 20,5 mm2 thick film substrate.

SPC-PSD features

- analogue voltage outputs of all sum and differential signals from one- and two-dimensional PSD's
- laser trimmed resistors
- inputs for external adjustment of offset voltages
- good thermal tracking
- small size
- allows custom designed specifications
- evaluation board available

For more information on the applications of PSDs, read this PEO article.



1-dimensional SPC

Part. NoDescriptionActive areaS1-02571L2.5_SU74_SPC012.5×0.6S1-02711L2,5_SU74_SPC022.5×0.6S1-02311L5_SU74_SPC015x1S1-02721L5_SU74_SP025x1S1-02221L10_SU74_SPC0110x2S1-02731L10_SU74_SPC0210x2

2-dimensional SPC

Part. NoDescriptionActive areaS2-01782L2_SU75_SPC012x2S2-02442L2_SU75_SP022x2S2-02092L4_SU66_SPC014x4S2-02452L4_SU66_SP024x4S2-01712L10_SU65_SPC0110x10S2-02462L10_SU65_SP0210x10

SPC-PSD Evaluation Board

In order to simplify the set up of our popular signal processing circuits in an optical system SiTek now releases an SPC-PSD Evaluation Board.

The Evaluation Board can easily be mounted on an optical table by using a standard 2" filter holder or

screwed to for example an XYZ stage by using M6 screws. The board includes offset compensation electronics and a 14-pin connector that makes the inputs and outputs easily accessible.

Evaluation boards for both the J-lead and the DIL version are available and, as all of our products, they are of course RoHS compliant.

Part. NoDescription: SE-0012SPC01 Evaluation Board, SE-0013SPC02 Evaluation Board

For more information about this product, visit our partner's website!

PSD array (Position Sensing Detector) – SiTek

The PSD array consists of 16 parallel one-dimensional PSD elements on the same chip. By utilizing the triangulation technique the reflection of a laser line or multiple laser spots onto the PSD array will provide information about the contour of the illuminated object. The possibility for simultaneous readout of the 16 elements together with the fast response of each element makes the PSD array suitable for applications like high speed 3D contour measurements and measurements of parallel, moving objects such as cantilevers.

To ensure high sensitivity the gap between the elements has been minimized giving a fill factor of more than 97%, still with low crosstalk and the same high linearity as SiTeks other one-dimensional PSD's.

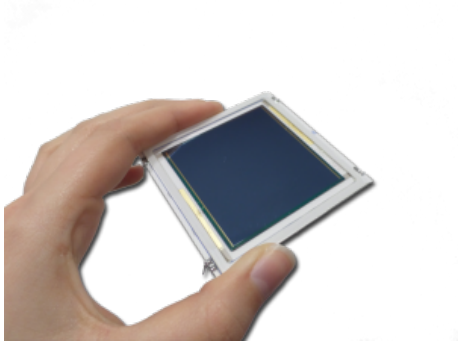
In order to preserve the performance also under stray light conditions the PSD array has been designed with SiTeks unique built in stray light elimination feature, a patented design which eliminates the decrease in speed and linearity due to stray light. The PSD array is delivered in a 34 pin dual in line type ceramic package and has a measurement length of 2,5 mm but can be custom designed with any length and/or number of PSD elements.

PSD-array features

- converts the position of a light or radiation spot into signal currents
- outstanding position resolution and linearity
- wide range of spectral response
- works with a wide range of light or radiation intensities
- short response time
- measures light or radiation intensity and position simultaneously
- independent of light or radiation spot focus
- high dynamic range

Two-dimensional PSD (Position Sensing Detector) – SiTek

The SiTek Two-dimensional PSD (Position Sensing Detector) has high resolution, fast response and outstanding linearity. The spectral range covers the region 400 – 1100 nm. Thanks to SiTek's proprietary AR-coating, optimized around 860 nm, a reflection loss of only 2% is achieved around the responsivity peak.



There is also an UV version available. The UV PSD is a detector optimized for use in the UV wavelength region 200-400 nm, although its spectral response reaches up to 1100 nm. The sensitivity in the UV region (200-400 nm) is extremely high. The UV-PSD has the same outstanding specifications as the standard SiTek PSD.

Two-dimensional PSD features

- converts the position of a light or radiation spot into signal currents
- wide range of spectral response
- fast response time (**1 MHz!**)
- measures light or radiation intensity and position simultaneously
- independent of light or radiation spot focus

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PSD

Position non-linearity: +/-0.3%
Detector resistance: 10 kohm**Part No.DespcriptionActive area*Package***S2 – 0001 2L2_MP12x2*TO-8*S2 – 0032 2L2_CP42x2*4-pin ceramic*S2 – 0002 2L4_MP14x4*TO-8*S2 – 0024 2L4_CP54x44*-ceramic*S2 – 0184 2L4_SU714x4*SMD*S2 – 0003 2L10_SU710x10*substrate*S2 – 0033 2L10_CP610x10*4-pin ceramic*S2 – 0185 2L10_SU7210x10*SMD*S2 – 0004 2L20_SU920x20*substrate*S2 – 0023 2L20_CP720x20*4-pin ceramic*S2 – 0196 2L45_SU2445x45*substrate*

PSD with enhanced UV respons

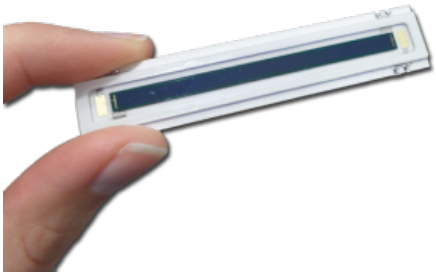
Part No.DespcriptionActive area*Package*S2 – 0030 2L2UV_MP12 x 2*TO-8*S2 – 0006 2L4UV_MP14 x 4*TO-8*S2 – 0016 2L10UV_SU710 x 10*substrate*S2 – 0034 2L20UV_SU920 x 20*substrate*

Contact one of our product specialists or check the PSD application areas.

Learn about the PSD in the PSD school

One-dimensional PSD (Position Sensing Detector) – SiTek

The SiTek One-dimensional PSD (Position Sensing Detector) has high resolution, fast response and outstanding linearity. The spectral range covers the region 400 – 1100 nm. Thanks to SiTek's proprietary AR-coating, optimized around 860 nm, a reflection loss of only 2% is achieved around the responsivity peak.
There is also an UV version available. The UV PSD is a detector optimized for use in the UV wavelength region 200-400 nm, although its spectral response reaches up to 1100 nm.



One-dimensional PSD features

- converts the position of a light or radiation spot into signal currents
- outstanding position resolution and linearity
- wide range of spectral response
- works with a wide range of light or radiation intensities
- fast response time (**1 MHz!**)
- measures light or radiation intensity and position simultaneously
- independent of light or radiation spot focus
- high dynamic range

PSD

Position non-linearity: +/-0.1%
Detector resistance: 50 kohm**Part. No**
Description**Active area*Package***S1-0001 1L2.5_CP22,5×0,6 mm *14-pin DIL* S1-0065 1L2.5_CP12,5×0,6 mm *4-pin DIL* S1-0003 1L5_CP25,0x1,0 mm *14-pin DIL* S1-0009 1L5_CP15,0x1,0 mm *4-pin DIL* S1-0005 1L10_CP210,0x2,0 mm *14-pin DIL* S1-0236 10,0×2,0 mm 1L10_SU70 *SMD* S1-0006
1L20_CP320,0x3,0 mm *22-pin DIL* S1-0007 1L30_SU230,0x4,0 mm *substrate* S1-0247 1L45_SU6945,0x3,0 mm *substrate* S1-0248 60,0×3,0 mm 1L60_SU34 *substrate*

PSD with stray-light elimination

Position non-linearity +/-0.1%
Detector resistance 200 kohm**Part. No**
Description**Active area*Package***S1-0090 1L5NT_CP15,0x0,25 mm *4-pin DIL* S1-006 1L5NT_CP25,0x0,25 mm *14-pin DIL* S1-0067
1L10NT_CP210,0x0,5 mm *14-pin DIL*

PSD with Enhanced UV respons

Part. No
Description**Active area*Package***S1-0072 1L2,5UV_CP22,5×0,6 mm *14-pin*

*DIL*S1-0032 1L5UV_CP25,0x1,0 mm *14-pin DIL*S1-0073 1L10UV_CP210,0x2,0 mm *14-pin DIL*S1-0074 1L20UV_CP320,0x3,0 mm *14-pin DIL*S1-0034 1L30UV_SU2

30,0×4,0 mm *substrate*

Contact one of our product specialists or check the PSD application areas.

Learn about the PSD in the PSD school

SEEPOS MEASUREMENT SYSTEM

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SEEPOS PSD signal processing tool – SiTek

For most position measurement applications the SiTek SEEPOS system offers a complete and easy-to-use solution. High speed PSD electronics combined with digital signal processing and high speed USB data transfer gives a powerful measurement system. With its large dynamic range it can handle light powers from nW to mW from DC light sources as well as modulated light sources. All parameters, such as PSD bias voltage, amplifier gain, the use of analog and digital filters etc., are easily controlled from the included software and light spot position is continuously displayed both in XY and X-t, Y-t graphs. Optimized plot algorithms ensure that all data is visually seen on the screen even in full speed measurements. Included tools for data analysis and visualization simplify rapid scan through large data sets in order to find specific parts of interest.

SEEPOS PSD signal processing tool features

- extremely versatile – all important parameters can be adjusted
- highest performance – 16 bit A/D conversion at 1 MHz and full speed USB data transfer
- user friendly – intuitive interface based on LabVIEW
- suitable for all users – easy set-up and advanced analyzing functions included
- PSD Holder MH01 and MHO2 (optional)

PSDs in Mechanical Holder MH01

SiTek's high linearity PSDs are also available in a mechanical holder suitable for optical system setups. The mechanical holder MH01 has a size of only 52 x 52 mm2 and the PSD is easily accessed via a DSUB9 connector. It is designed to fit ø1" filters as well as standard optomechanical components, such as posts and lens tubes. To minimize reflections it has a black anodized surface. The holder is available with SiTek's PSDs ranging from 2,5 – 20 mm (1D) and 2 x 2 – 20 x 20 mm2 (2D). SiTek's UV-enhanced PSDs and PSDs with stray light elimination (NT) can be delivered mounted in the PSD mechanical holder upon request.

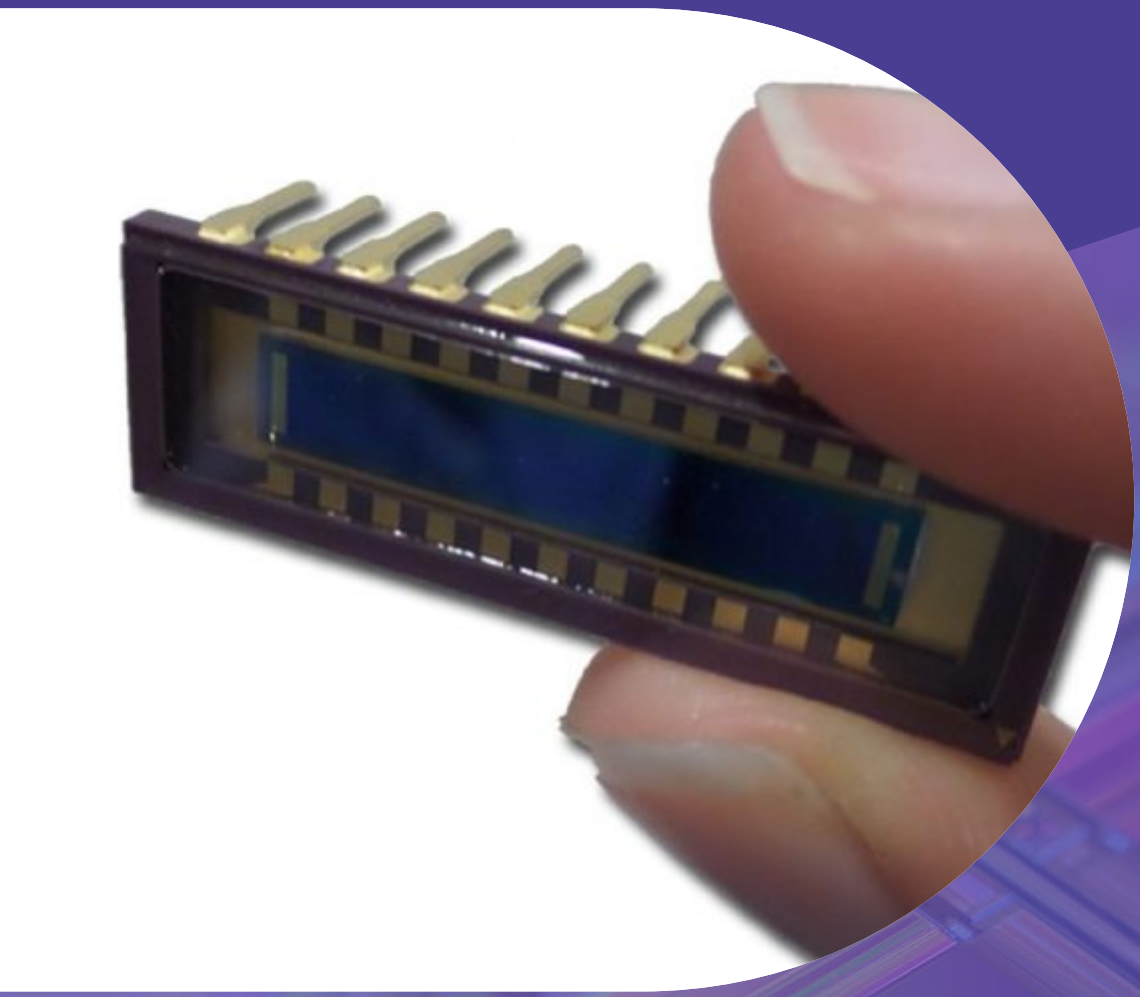
holder MH01

PSDs in Mechanical Holder MH02

SiTek's high linearity PSDs are also available in a mechanical holder suitable for optical system setups. The mechanical holder MH02 has a size of 84 x 84 mm2 and the PSD is easily accessed via a DSUB9 connector. It is designed to fit square 2" filters as well as standard optomechanical components, such as posts and cages stages. To minimize reflections it has a black anodized surface. The holder is available with SiTek's PSDs ranging from 30 – 60 mm (1D) and 20 x 20 – 45 x 45 mm2 (2D). SiTek's UV-enhanced PSDs can be delivered mounted in the PSD mechanical holder upon request.

holder MH02

ELECTRON & ION SENSORS



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Backscatter Detector