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TETRA-LATERAL PSD'S

POSITION SENSING DETECTORS (PSD)



APPLICATIONS

- Tool Alignment and Control
- Leveling Measurements
- Angular Measurements
- 3 Dimensional Vision
- Position Measuring

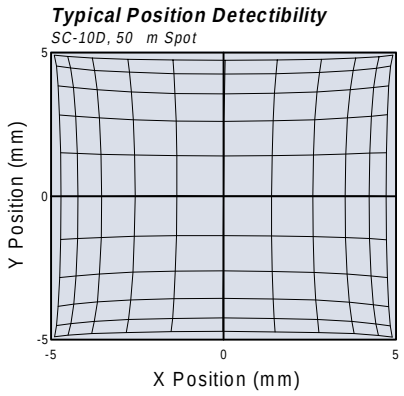
FEATURES

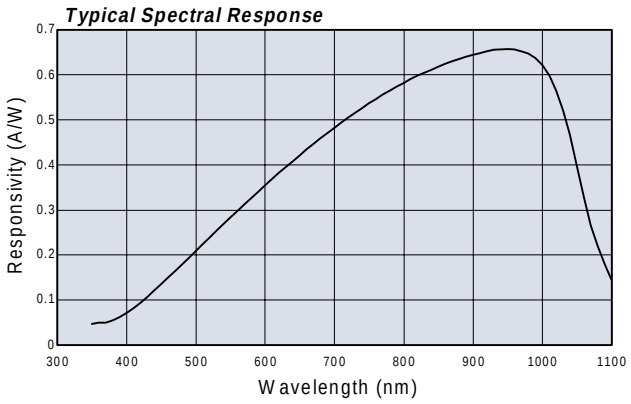
- Single Resistivity Layer
- High Speed Response
- High Dynamic Range
- Very High Resolution
- Spot Size & Shape Independence

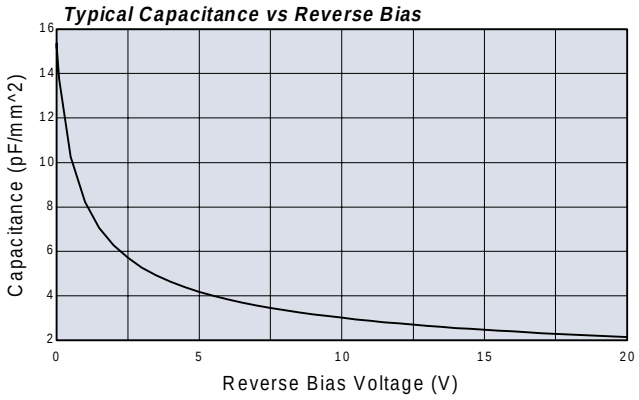
Tetra-lateral position sensing detectors are manufactured with one single resistive layer for both one and two dimensional measurements. They feature a common anode and two cathodes for one dimensional position sensing or four cathodes for two dimensional position sensing.

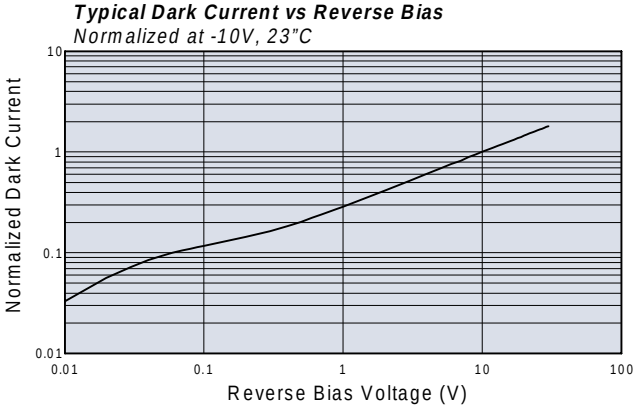
These detectors are best when used in applications that require measurement over a wide spacial range. They offer high response uniformity, low dark current, and good position linearity over 64% of the sensing area.

A reverse bias should be applied to these detectors to achieve optimum current linearity when large light signals are present. The circuit on the opposite page represents a typical circuit set up for two dimensional tetra-lateral PSDs. For further details as well as the set up for one dimensional PSDs refer to the "Photodiode Characteristics" section of the catalog. Note that the maximum recommended incident power density is 10 mW / cm^2. Furthermore, typical uniformity of response for a 1 mm ϕ spot size is ± 5% for SC-25D and SC-50D and ± 2% for all other tetra-lateral devices.









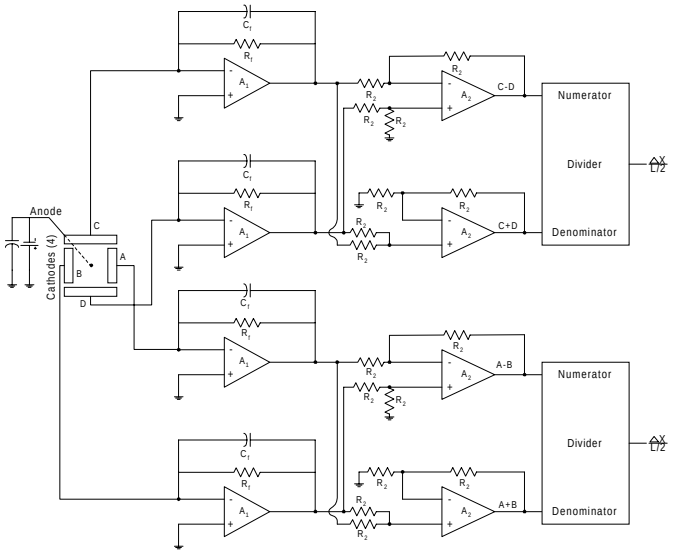
Model No.	Position Sensing Area		Responsivity (A/W)		Absolute Position Detection Error (mm)	Dark Current (nA)		Capacitance (pF)	Rise Time (µs)	Inter-electrode Resistance (KΩ)		Temp Range (°C)		Package Style ¶
	Area (mm^2)	Dimension (mm)	670 nm		Over 80% of Length 64% of Area	-15 V		-15 V	-15 V 670 nm 50Ω			Operating	Storage	
			min	typ	typ	typ	max	typ	typ	min	max			
ONE-DIMENSIONAL SERIES PLASTIC PACKAGE														
LSC-5D	11.5	5.3 x 2.2	0.35	0.42	0.040	1	20	50	0.25	2	50	-10 ~ +60	-20 ~ +70	44 / Plastic
LSC-30D	122	30 x 4.1			0.240	3	60	300	3.00	4	100			43/ Plastic
TWO-DIMENSIONAL SERIES METAL PACKAGE														
SC-4D	6.45	2.54 sq	0.35	0.42	0.080	0.5	10	20	0.66	3	30	-0 ~ +70	-20 ~ +80	38 / TO-5
SC-10D	103	10.16 sq			1.30	3	50	300	1.00					41 / Special
SC-13D	173	13.0 sq			2.20	5	100	500	1.70					
SC-25D	350	18.80 sq			4.45	12	250	1625	5.00					42 / Special
SC-50D	957	30.94 sq			12.25	50	1000	3900	13.00					20 / Special
TWO DIMENSIONAL SERIES PLASTIC PACKAGE §														
FIL-C4DG	6.45	2.54 sq	0.35	0.42	0.080	0.5	10	20	0.66	3	30	-10 ~ +60	-20 ~ +70	14 / Plastic
FIL-C10DG	103	10.16 sq			1.30	3	50	300	1.00					15 / Plastic

Rise time specifications are with a 1 mm ϕ spot size at the center of the device.

§ The photodiode chips in FIL series are isolated in a low profile plastic package. The have a large field of view as well as in line pins.

¶ For mechanical drawings please refer to pages 59 thru 71.

Chip centering within – 0.010".



For further details refer to the Photodiode Characteristics section of the catalog

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