

### Features

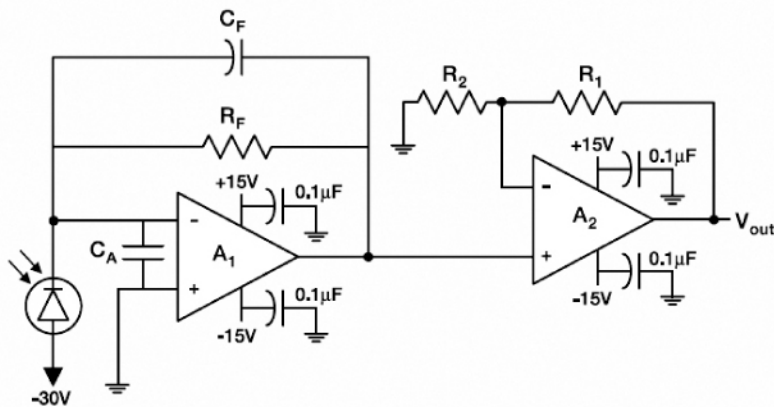
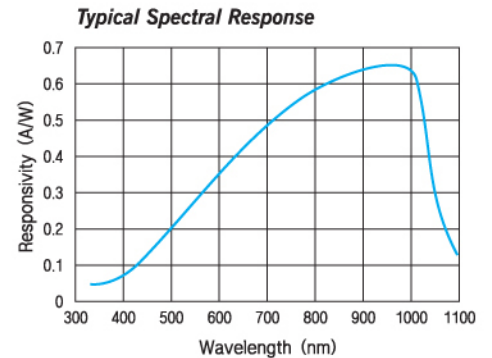
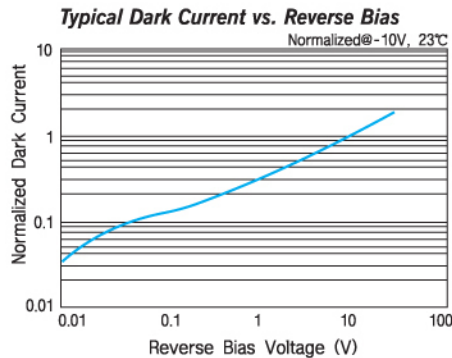
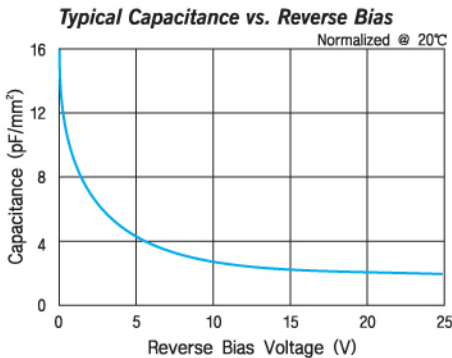
- High Speed Response
- Low Capacitance
- Low Dark Current
- Wide Dynamic Range
- High Responsivity

### Applications

- Pulse Detectors
- Optical Communications
- Bar Code Readers
- Optical Remote Control
- Medical Equipment
- High Speed Photometry



The Photoconductive Detector Series are suitable for high speed and high sensitivity applications. The spectral range extends from 350 to 1100 nm, making these photodiodes ideal for visible and near IR applications, including such AC applications as detection of pulsed LASER sources, LEDs, or chopped light. To achieve high speeds, these detectors should be reverse biased. Typical response times from 10 ns to 250 ns can be achieved with a 10V reverse bias, for example. When a reverse bias is applied, capacitance decreases (as seen in the figure below) corresponding directly to an increase in speed. As indicated in the specification table, the reverse bias should not exceed 30 volts. Higher bias voltages will result in permanent damage to the detector. Since a reverse bias generates additional dark current, the noise in the device will also increase with applied bias. For lower noise detectors, the Photovoltaic Series should be considered.



Photoconductive mode of operation circuit example:  
Low Light Level / Wide Bandwidth

Typical Electro-Optical Specifications at T<sub>A</sub>=23°C

Model Number	Active Area		Peak Responsivity Wavelength	Responsivity at $\lambda_p$		Capacitance (pF)		Dark Current (nA)		NEP (W/ $\sqrt{\text{Hz}}$ )	Reverse Voltage (V)	Rise Time (ns)	Temp.* Range (°C)		Package Style
	Area (mm <sup>2</sup> )	Dimensions (mm)		$\lambda_p$ (nm)	(A/W)		0 V	-10 V	-10 V				-10 V	Operating	
			typ.		min.	typ.	typ.	typ.	typ.	max.	typ.	max.	typ.		

'D' Series, Metal Package

PIN-020A	0.20	0.51 $\emptyset$	970	0.60	0.65	4	1	0.01	0.15	2.8e-15	30	6	-40 ~ +100	-55 ~ +125	TO-18
PIN-040A	0.81	1.02 $\emptyset$				8	2	0.05	0.50	6.2e-15		8			
PIN-2DI <sup>(1)</sup>	1.1	0.81 x 1.37				25	5	0.10	1.0	8.7e-15		10			
PIN-3CDI	3.2	1.27 x 2.54				45	12	0.15	2	1.1e-14		10			TO-18
PIN-3CD						45	12	0.15	2	1.1e-14		10			TO-5
PIN-5DI	5.1	2.54 $\emptyset$				85	15	0.25	3	1.4e-14		12			TO-5
PIN-5D						85	15	0.25	3	1.4e-14		12			TO-5
PIN-13DI	13	3.6 sq				225	40	0.35	6	1.6e-14		14			TO-5
PIN-13D						225	40	0.35	6	1.6e-14		14			TO-5
PIN-6DI	16.4	4.57 $\emptyset$				330	60	0.5	10	1.9e-14		17			TO-8
PIN-6D						330	60	0.5	10	1.9e-14		17			TO-8
PIN-44DI	44	6.6 sq				700	130	1	15	2.8e-14		24			TO-8
PIN-44D						700	130	1	15	2.8e-14		24			TO-8
PIN-10DI	100	11.28 $\emptyset$				1500	300	2	25	3.9e-14		43			Lo-Prof
PIN-10D						1500	300	2	25	3.9e-14		43			BNC
PIN-25D	613	27.9 $\emptyset$	9500	1800	15	1000	1.1e-13	250	BNC						

'O' Series, Metal Package

OSD1-0	1	1.0 sq	900	0.47	0.54	12	3	1	3	4.5e-14	50	10	-25 ~ +75	-40 ~ +100	TO-18
OSD5-0	5	2.5 $\emptyset$				50	8	5	10	1.0e-13		8			TO-5
OSD15-0	15	3.8 sq				150	20	8	15	1.3e-13		9			TO-5
OSD35-0	35	5.9 sq				350	46	12	30	1.6e-13		12			TO-5
OSD60-0	58	7.6 sq				600	75	15	50	1.7e-13		14			TO-8
OSD100-0A	100	11.3 $\emptyset$				1000	130	30	70	2.5e-13		19			Special

'D' Series, Plastic Package <sup>(2)</sup>

FIL-5C	5.1	2.54 $\emptyset$	970	0.60	0.65	85	15	0.25	3	1.4e-14	30	12	-10 ~ +60	-20 ~ +70	Plastic
FIL-20C	16.4	4.57 $\emptyset$				330	60	0.5	10	1.9e-14		17			
FIL-44C	44	6.6 sq				700	130	1	15	2.8e-14		24			Plastic
FIL-100C	100	11.28 $\emptyset$				1500	300	2	25	3.9e-14		43			
FIL-220D	200	10 x 20				3200	600	5	100	6.2e-14		75			

<sup>(1)</sup> The 'I' suffix on the model number is indicative of the photodiode chip being isolated from the package by an additional pin connected to the case.

<sup>(2)</sup> The photodiode chips in "FIL" series are isolated in a low profile plastic package. They have a large field of view as well as "in line" pins.

\* Non-Condensing temperature and Storage Range, Non-Condensing Environment.