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PHOTOCONDUCTIVE SERIES

PLANAR DIFFUSED SILICON PHOTODIODES

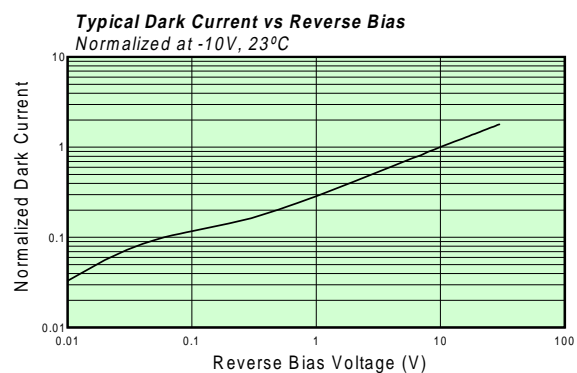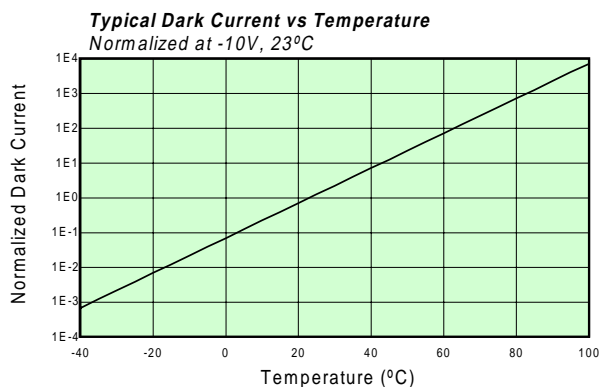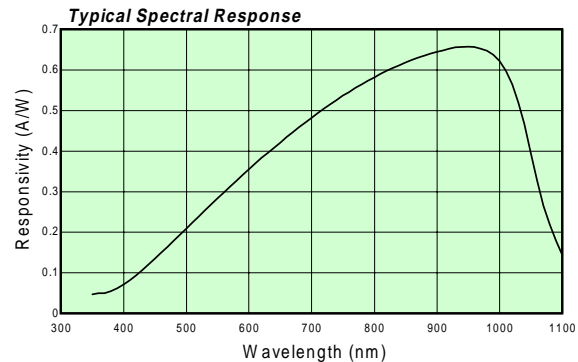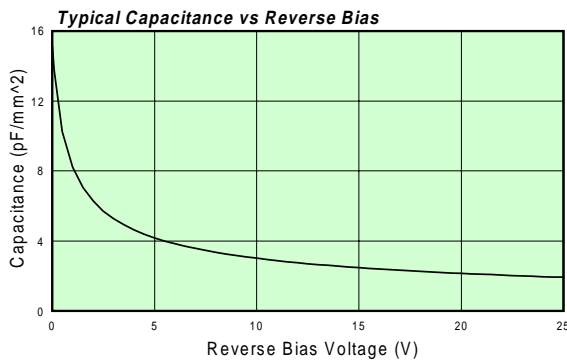| APPLICATIONS	FEATURES
• Pulse Detectors	• High Speed Response
• Optical Communications	• Low Capacitance
• Bar Code Readers	• Low Dark Current
• Optical Remote Control	• Wide Dynamic Range
• Medical Equipment	• High Responsivity
• High Speed Photometry	

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.

Refer to the *Photoconductive Mode (PC)* paragraph in the "Photodiode Characteristics" section of this catalog for detailed information on electronics set up.

Typical Capacitance vs Reverse Bias

Typical Spectral Response

Typical Dark Current vs Temperature
Normalized at -10V, 23ºC

Typical Dark Current vs Reverse Bias
Normalized at -10V, 23ºC

Model No.	Area (mm²)	Dimension (mm)	400 nm min	400 nm typ	632 nm min	632 nm typ	970 nm min	970 nm typ	Cap 0 V typ	Cap -10 V typ	Dark -10V typ	Dark -10V max	NEP -10V 970nm typ	Reverse Voltage max	Rise Time typ	Temp Operating	Temp Storage	Package Style ¶
D SERIES, METAL PACKAGE																		
PIN-020A	.20	0.51f							4	1	.01	.15	2.8 e -15		26			1 / TO-18
PIN-040A	.81	1.02f							8	2	.05	.50	6.2 e -15		24			1 / TO-18
PIN-2DI*	1.1	.81 x 1.37							25	5	.10	1.0	8.7 e -15		13			4 / TO-18
PIN-3CDI	3.2	1.27 x 2.54							45	12	.15	2	1.1 e -14		13			4 / TO-18
PIN-3CD																		7 / TO-18
PIN-5DI	5.1	2.54f							85	15	.25	3	1.4 e -14		12			2 / TO-5
PIN-5D																		5 / TO-5
PIN-13DI	13	3.6 sq							225	40	.35	6	1.6 e -14		14			2 / TO-5
PIN-13D			.07	.12	.33	.40	.60	.65						30		-40 ~ +100	-55 ~ +125	5 / TO-5
PIN-6DI	16.4	4.57f							30	60	.5	10	1.9 e -14		17			3 / TO-8
PIN-6D																		6 / TO-8
PIN-44DI	44	6.6 sq							700	130	1	15	2.8 e -14		24			3 / TO-8
PIN-44D																		6 / TO-8
PIN-10DI	100	11.28f							1500	300	2	25	3.9 e -14		43			10 / Lo-Prof
PIN-10D																-10 ~ +60	-20 ~ +70	11 / BNC
PIN-25D	613	27.9f							9500	1800	15	1000	1.1 e -13		250			12 / BNC
D SERIES, PLASTIC PACKAGE §																		
FIL-3C	3.2	1.27 x 2.54							45	12	.15	2	1.1 e- 14		13			14 / Plastic
FIL-5C	5.1	2.54f							85	15	.25	3	1.4 e- 14		12			14 / Plastic
FIL-20C	16.4	4.57f	.08	.12	.33	.40	.60	.65	330	60	.5	10	1.9 e- 14	30	17	-10 ~ +60	-20 ~ +70	14 / Plastic
FIL-44C	44	6.6 sq							700	130	1	15	2.8 e- 14		24			15 / Plastic
FIL-100C	100	11.28f							1500	300	2	25	3.9 e- 14		43			15 / Plastic
PIN-220D	200	10 x 20							3200	600	5	100	6.2 e -14		75			26 / Plastic

* 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.
§ 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.

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