

## Photovoltaic Series

### Planar Diffused Silicon Photodiodes

#### Features

- Ultra Low Noise
- High Shunt Resistance
- Wide Dynamic
- Blue Enhanced

#### Applications

- Colorimeters
- Photometers
- Spectroscopy Equipment
- Fluorescence

The Photovoltaic Detector series is utilized for applications requiring high sensitivity and moderate response speeds, with an additional sensitivity in the visible-blue region for the blue enhanced series. The spectral response ranges from 350 to 1100 nm, making the regular photovoltaic devices ideal for visible and near IR applications. For additional sensitivity in the 350 nm to 550 nm region, the blue enhanced devices are more suitable.



These detectors have high shunt resistance and low noise, and exhibit long term stability. Unbiased operation of these detectors offers stability under wide temperature variations in DC or low speed applications. For high light levels (greater than 10mW/cm<sup>2</sup>), the Photoconductive Series detectors should be considered for better linearity.

These detectors are not designed to be reverse biased! Very slight improvement in response time may be obtained with a slight bias. Applying a reverse bias of more than a few volts (>3V) will permanently damage the detectors. If faster response times are required, the Photoconductive Series should be considered.

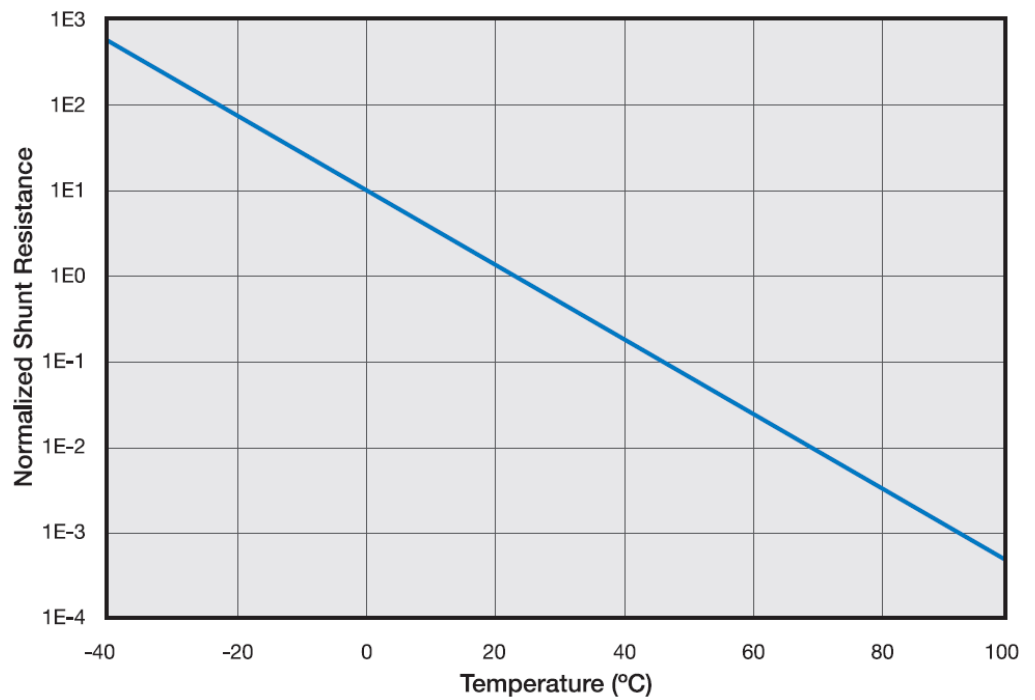
Refer to the Photovoltaic Mode (PV) paragraph in the "Photodiode Characteristics" section of this catalog for detailed information on electronics set up.

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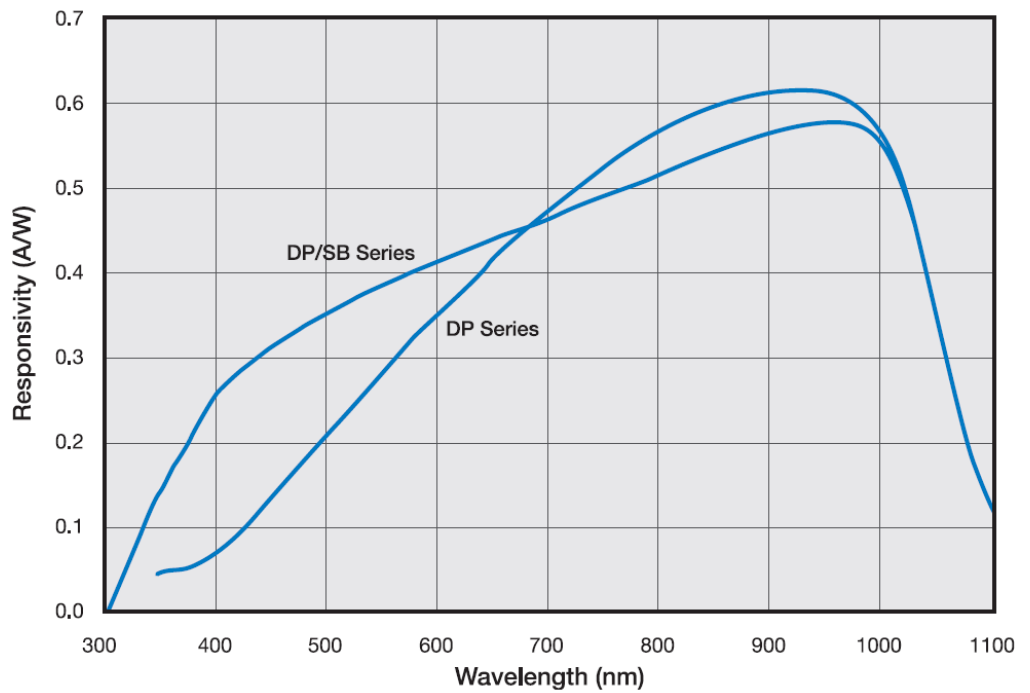


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### Typical Shunt Resistance vs. Temperature (normalized @ 23°C)



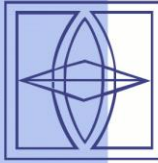
### Typical Spectral Response



### Typical Electro-Optical Specifications at $T_A = 23^\circ\text{C}$

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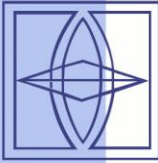
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Model Number	Active Area		Peak Responsivity Wavelength $\lambda_p$ (nm)	Responsivity at $\lambda_p$ (A/W)		Capacitance (pF)	Shunt Resistance (G $\Omega$ )	
	Area (mm <sup>2</sup> )	Dimensions (mm)	Typ	Min	Typ	0V	-10mV	
						Max	Min	Typ
<b>`DP` Series, Metal Package</b>								
CD-1705	0.88	0.93 sq	850	0.55	0.60	70	1.0	10
PIN-2DPI ^	1.1	0.81 x 1.37	970					
PIN-125DPL	1.6	1.27 sq						
PIN-3CDPI	3.2	1.27 x 2.54				320	0.5	5.0
PIN-3CDP								
PIN-5DPI	5.1	2.54 $\phi$				500	0.4	4.0
PIN-5DP								
PIN-13DPI	13	3.6 sq				1200	0.35	3.5
PIN-13DP								
PIN-6DPI	16.4	4.57 $\phi$				2000	0.2	2.0
PIN-6DP								
PIN-44DPI	44	6.6 sq				4300	0.1	1.0
PIN-44DP								
PIN-10DPI	100	11.28 $\phi$				9800	0.05	0.2
PIN-10DP								
PIN-25DP	613	27.9 $\phi$				60000	0.002	0.1
<b>`DP` Series, Plastic Package §</b>								
PIN-220DP	200	10 x 20	970	0.55	0.60	20000	0.02	0.2

Model Number	NEP (W/ $\sqrt{\text{Hz}}$ )	Rise Time (ns)	Temp. * Range (°C)		Package Style		
	0V, 970nm	0V, 632nm, 50 $\Omega$	Operating	Storage			
	Typ	Typ					
<b>`DP` Series, Metal Package</b>							
CD-1705	2.1 e-15	2000	-40 ~ +100	-55 ~ +125	4/ TO-18		
PIN-2DPI ^		30					
PIN-125DPL		50			8/ TO-18		
PIN-3CDPI	4/ TO-18						
PIN-3CDP	3.0 e-15	60			7/ TO-18		
PIN-5DPI					2/ TO-5		
PIN-5DP	3.4 e-15	150			5/ TO-5		
PIN-13DPI					2/ TO-5		
PIN-13DP	3.6 e-15	220			5/ TO-5		
PIN-6DPI					3/ TO-8		
PIN-6DP	3.9 e-15	475			6/ TO-8		
PIN-44DPI					3/ TO-8		
PIN-44DP	4.8 e-15	1000			6/ TO-8		
PIN-10DPI					10/ Lo-Prof		
PIN-10DP	6.8 e-15	6600			-10 ~ +60	-20 ~ +70	11/ BNC
PIN-25DP					3.0 e-14	12/ BNC	
<b>`DP` Series, Plastic Package §</b>							
PIN-220DP	1.2 e-14	2200	-10 ~ +60	-20 ~ +70	27/ Plastic		

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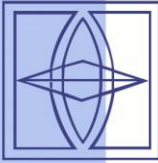
Model Number	Active Area		Responsivity (A/W)		Capacitance (pF)	R <sub>sh</sub> (MΩ)	NEP (W/√Hz)
	Area (mm <sup>2</sup> )	Dimensions (mm)	Min	Typ	Typ	Min	Typ
<b>Super Blue Enhanced `DP/SB` Series (All specifications @ λ = 410nm, V<sub>BIAS</sub> = 0V, R<sub>L</sub> = 50Ω)</b>							
PIN-040DP/SB	0.81	1.02 φ	0.15	0.20	60	600	2.0 e -14
PIN-5DP/SB **	5.1	2.54 φ			450	150	5.2 e -14
PIN-10DP/SB	100	11.28 φ			8800	10	2.0 e -13
PIN-10DPI/SB					17000	5	2.9 e -13
PIN-220DP/SB	200	10 x 20					

Model Number	Operating Current (mA)	Rise Time (μs)	Temp. * Range (°C)		Package Style
	Max	Typ	Operating	Storage	
<b>Super Blue Enhanced `DP/SB` Series (All specifications @ λ = 410nm, V<sub>BIAS</sub> = 0V, R<sub>L</sub> = 50Ω)</b>					
PIN-040DP/SB	0.5	0.02	-10 ~ +60	-20 ~ +70	1/ TO-18
PIN-5DP/SB **	2.0	0.2			5/ TO-5
PIN-10DP/SB	10.0	2.0			11/ BNC
PIN-10DPI/SB		4.0			10/ Metal
PIN-220DP/SB					27/ Plastic

Model Number	Active Area		Responsivity (A/W)		Capacitance (pF)	R <sub>sh</sub> (MΩ)	NEP (W/√Hz)
			436nm		0V		
	Area (mm <sup>2</sup> )	Dimensions (mm)	Min	Typ	Max	Min	Typ
<b>`5T` Series, Blue</b>							
OSD1-5T	1.0	1.0 sq	0.18	0.21	35	250	2.5 e -14
OSD3-5T	3.0	2.5 x 1.2			80	100	3.0 e -14
OSD5-5T	5.0	2.5 φ			130	100	3.3 e -14
OSD15-5T	15.0	3.8 sq			390	50	5.6 e -14
OSD60-5T	62.0	7.9 sq			1800	3	2.1 e -13
OSD100-5TA	100.0	11.3 φ			2500	2	2.5 e -13

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Model Number	Dark Current (pA)	Rise Time (μs)	Temp. * Range (°C)		Package Style
	Max	Typ	Operating	Storage	
<b>5T Series, Blue</b>					
OSD1-5T	1.0	7	-25 ~ +75	-45 ~ +100	7/ TO-18
OSD3-5T	2.0	9			7/ TO-18
OSD5-5T	2.0	9			5/ TO-5
OSD15-5T	10.0	12			5/ TO-5
OSD60-5T	25.0	30			3/ TO-8
OSD100-5TA	30.0	45			74/ Special

\* Non-condensing temperature and storage range, non-condensing environment.

\*\* Operating Temperature: -40 to +100°C, Storage Temperature: -55 to 125°C

^ The "l" 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".

For mechanical drawings please refer to "Mechanical Drawings".

## Positionstoleranzen:

Die **Standard**-Positionstoleranzen sind

„Chip zu Gehäuseträger /-boden“    +/- 0,254mm  
wo-immer der Chip direkt auf dem Gehäuseboden montiert ist.

„Chip zu Gehäusekappe“            +/- 0,281mm  
dto.

Die **geringstmögliche** Positionstoleranz ist

„Chip zu Gehäuseträger /-boden“    +/- 0,051mm  
wo-immer der Chip direkt auf dem Gehäuseboden montiert ist.

„Chip zu Gehäusekappe“            (keine Angabe)  
die Toleranz wird durch die Kappentoleranz dominiert