

## High Speed Silicon Photodiodes

### Features

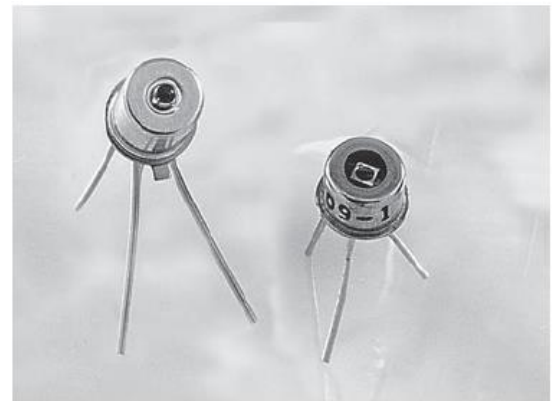
- Low Dark Current
- Low Capacitance
- TO-46 Package
- w/Lensed Cap
- Sub ns Response

### Applications

- Video Systems
- Computers and Peripherals
- Industrial Control
- Guidance Systems
- Laser Monitoring

OSI Optoelectronics High Speed Silicon series are small area devices optimized for fast response time or High bandwidth applications. The BPX-65 complements the rest of the high speed group with an industry standard.

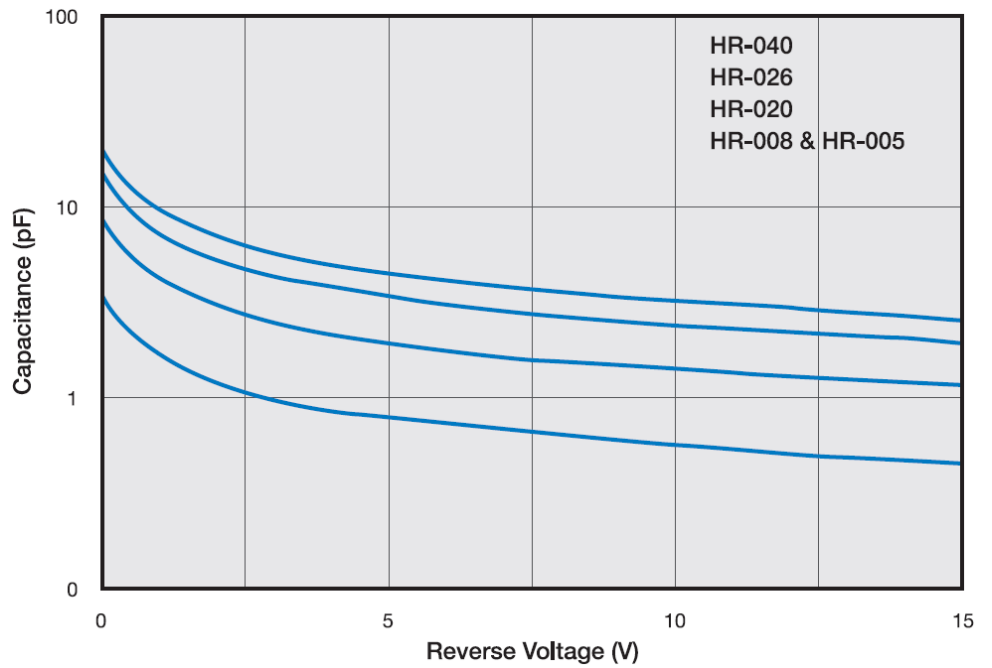
The spectral range for these devices goes from 350 nm to 1100 nm. The responsivity and response time are optimized such that the HR series exhibit a peak responsivity of 0.50 A/W at 800 nm and typical response times of a few hundred pico seconds at -5V.



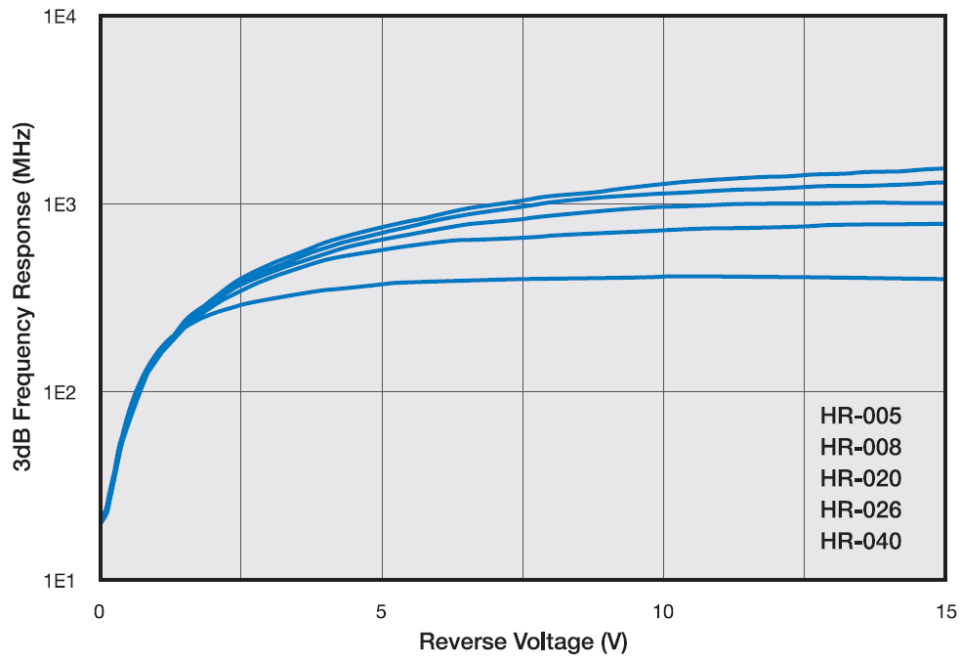
Note that for all high-speed photodetectors, a reverse bias is required to achieve the fastest response times. However, the reverse bias should be limited to maximum reverse voltage specified to avoid damage to the detector. Output signals can be measured directly with an oscilloscope or coupled to high frequency amplifiers as shown in figure 10 of the Photodiode Characteristics section of the catalog. All parts in the High-Speed silicon series are available with a flat window or ball lens (L).



### Typical Capacitance vs. Reverse Bias (HR Series)



### Typical Frequency Response vs. Reverse Bias (HR Series)

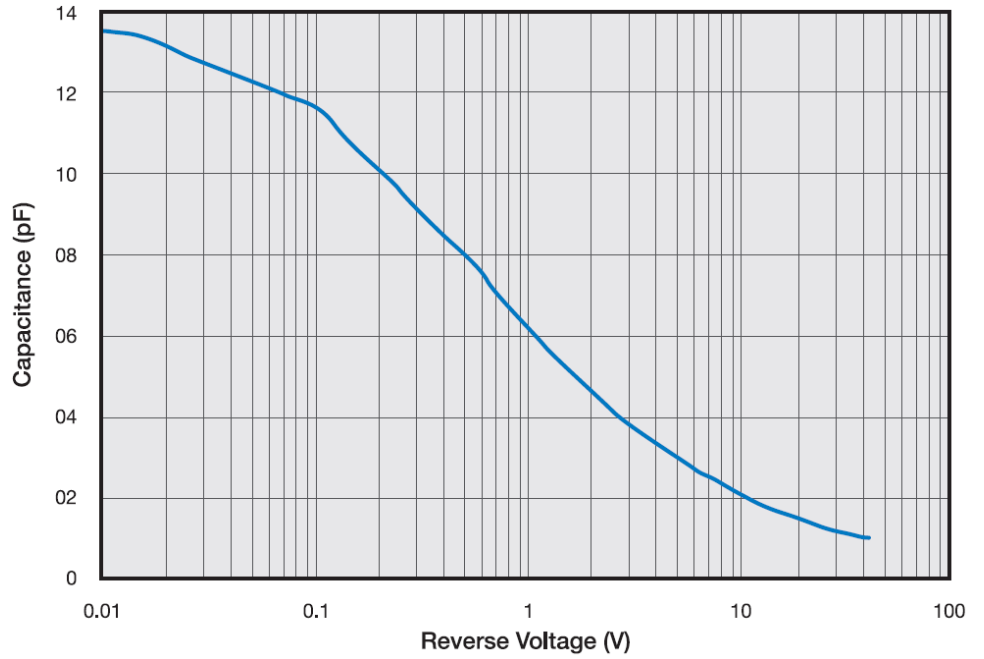


### Typical Capacitance vs. Reverse Bias (BPX-65: f=1MHz)

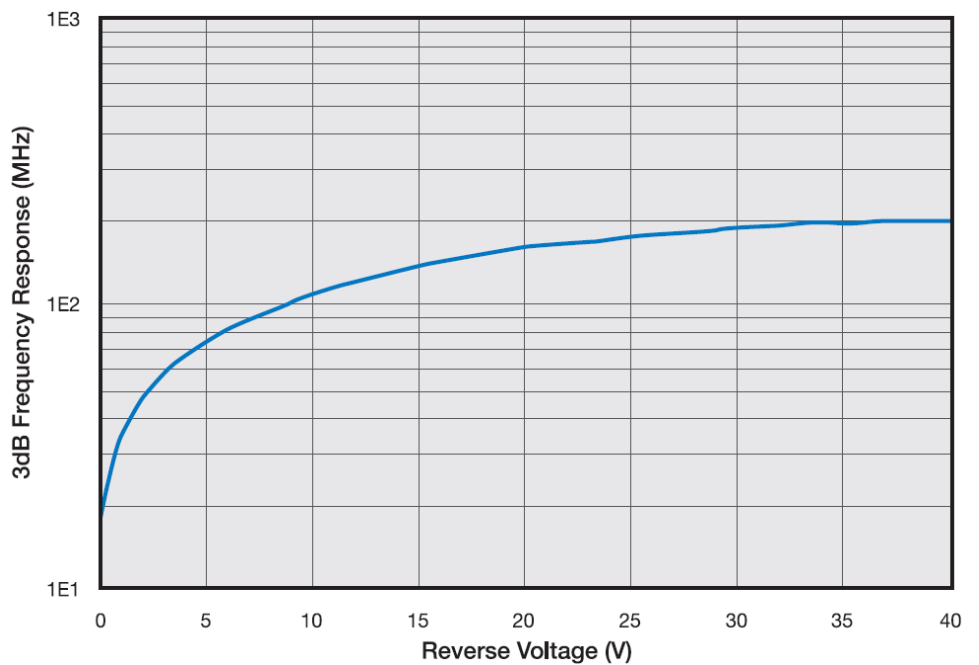
OEC  
 Opto-Electronic  
 Components



YOUR PARTNER



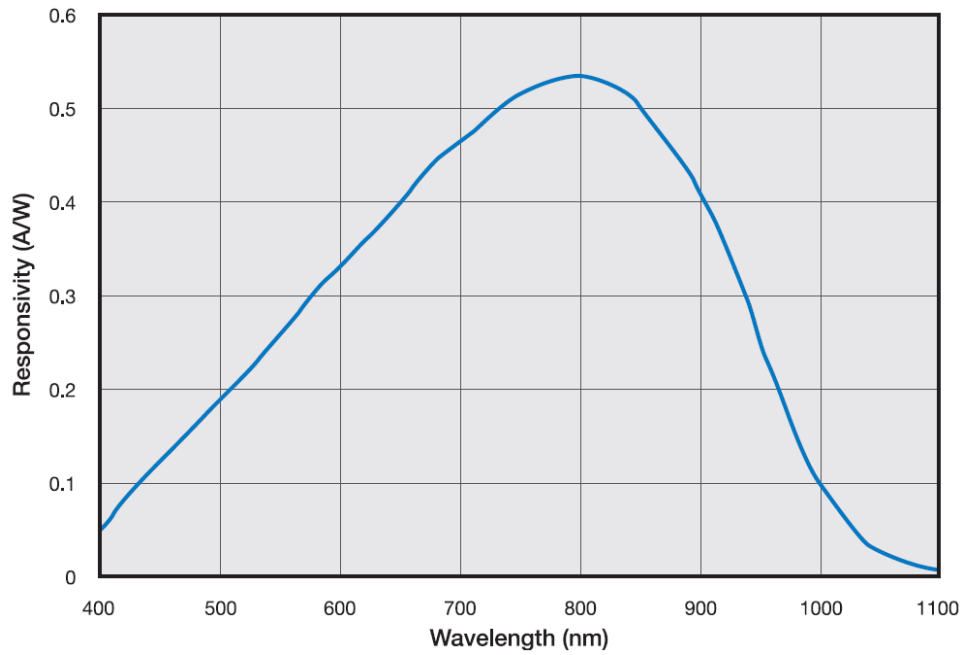
**Typical Frequency Response vs. Reverse Bias (BPX-65)**



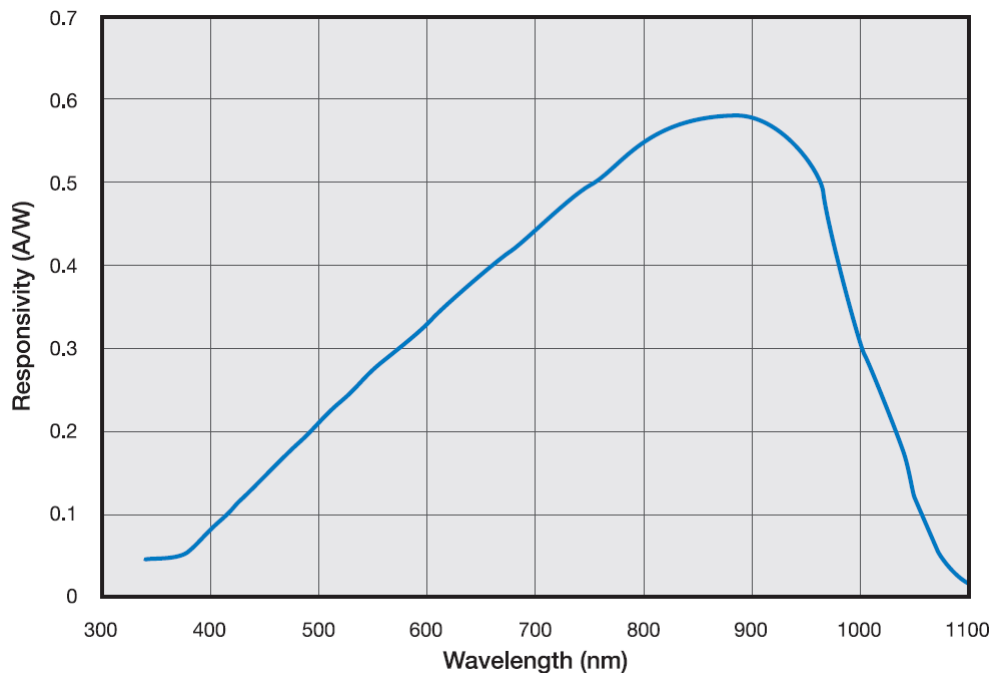
**Typical Spectral Response (HR Series)**

OEC GmbH  
 Vogelbergstraße 20  
 D-86441 Zusmarshausen

Tel. +49-(0)8291-18 86-0  
 Fax. +49-(0)8291-18 86-79  
[info@oec-gmbh.de](mailto:info@oec-gmbh.de)  
[www.oec-gmbh.de](http://www.oec-gmbh.de)



**Typical Spectral Response (BPX-Series)**



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



Model Number	Active Area		Peak Wavelength (nm)	Responsivity (A/W) 830nm		Capacitance (pF)	Dark Current (nA)	
	Area (mm <sup>2</sup> )	Dimensions (mm)		Min	Max	Typ	Typ	Max
<b>High Responsivity Series (V<sub>BIAS</sub> = -5V)</b>								
PIN-HR005 PIN-HR005L*	0.01	0.127 $\phi$	800	0.45*	0.50*	0.8	0.03	0.8
PIN-HR008 PIN-HR008L*	0.04	0.203 sq				0.8	0.03	0.8
PIN-HR020 PIN-HR020L*	0.02	0.508 $\phi$				1.8	0.06	1.0
PIN-HR026 PIN-HR026L*	0.34	0.660 $\phi$				2.6	0.1	1.5
PIN-HR040 PIN-HR040L*	0.77	0.991 $\phi$				4.9	0.3	2.0
<b>BPX-65 (V<sub>BIAS</sub> = -20V)</b>								
BPX-65	1.0	1.0 sq	900	0.45	0.5	3.0	0.5	5.0

Model Number	NEP (W/ $\sqrt{\text{Hz}}$ ) 830nm	Reverse Voltage (V)	Rise Time (ns) 830nm, 50 $\Omega$	Temp.** Range (°C)		Package Style
	Typ	Max	Typ	Operating	Storage	
<b>High Responsivity Series (V<sub>BIAS</sub> = -5V)</b>						
PIN-HR005 PIN-HR005L*	5.0 e -15	15	0.60	-25 ~ +85	-40 ~ +100	9/ TO-18 16/ TO-18 (L-Ball Lens Cap)
PIN-HR008 PIN-HR008L*	5.0 e -15		0.60			
PIN-HR020 PIN-HR020L*	7.1 e -15		0.80			
PIN-HR026 PIN-HR026L*	1.0 e -14		0.90			
PIN-HR040 PIN-HR040L*	1.9 e -14		1.0			
<b>BPX-65 (V<sub>BIAS</sub> = -20V)</b>						
BPX-65	2.3 e -14	50	2.0	-25 ~ +85	-40 ~ +100	7/ TO-18

Model Number	Active Area	Peak Wavelength (nm)	Responsivity (A/W) 900nm	Capacitance (pF)	Dark Current (nA)
--------------	-------------	----------------------	--------------------------	------------------	-------------------

OEC



Opto-Electronic  
Components



	Area (mm <sup>2</sup> )	Dimensions (mm)		Min	Typ	Typ	Typ	Max
<b>BPX-65R (V<sub>BIAS</sub> = -20V)</b>								
<b>BPX-65R</b>	1.0	1.0 sq	850	0.52	0.55	3.5	1.0	5.0

Model Number	NEP (W/√Hz) 900nm	Reverse Voltage (V)	Rise Time (ns) 820nm	Temp.** Range (°C)		Package Style
	Typ	Max	Typ	Operating	Storage	
<b>BPX-65R (V<sub>BIAS</sub> = -20V)</b>						
<b>BPX-65R</b>	3.3 e -14	30	3.5	-40 ~ +80	-55 ~ +100	4/ TO-18

- \* Responsivities are measured for Flat window devices. L- refers to devices with a Ball-type lens cap.
- \*\* Non-condensing temperature and Storage Range, Non-condensing Environment.

Chip centering is within  $\pm 0.005''$  wrt OD of the Header.

Cathode on BPX-65R is connected to the case.

For mechanical drawings please refer to "Mechanical Drawings".

OEC  
YOUR PARTNER