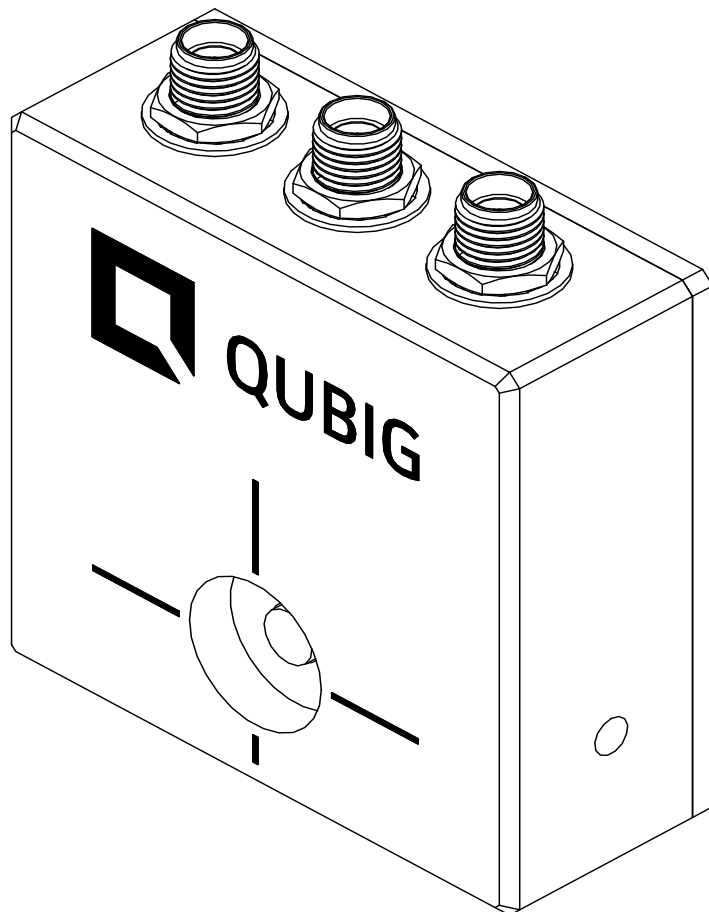


# PD100-NIR Photodetector

Datasheet



## Specifications

Sensor specifications		
Parameter	Value	Unit
Manufacturer	Hamamatsu	
Model	S5972	
Active area diameter	0.8	mm
Spectra range	320 to 1000	nm
Photosensitivity at 660/780/830 nm	0.44/0.55/0.55	A/W
Peak photosensitivity at 800 nm	0.57	A/W

RF out – port specifications		
Parameter	Value	Unit
Port type	Output	
Connector type	SMA female	
Bandwidth	0.03 to >100	MHz
Transimpedance gain at 1 MOhm load	22	kV/A
Transimpedance gain at 50 Ohm load	11	kV/A
Output voltage range at 50 Ohm load	±1.65	V
Output impedance	50	Ohm
NEP at 20 MHz	23	pW/Hz <sup>1/2</sup>

DC out - port specifications		
Parameter	Value	Unit
Port type	Output	
Connector type	SMA female	
Bandwidth	0 to 15	kHz
Transimpedance gain at 1 MOhm load	4	kV/A
Output voltage range	0 to 10	V
Offset voltage (no input light)	3	mV
Output impedance	1	kOhm
Saturation input power at 800 nm	4.5	mW

<b>+12V - port specifications</b>		
<b>Parameter</b>	<b>Value</b>	<b>Unit</b>
Porty type	Input	
Connector type	SMA female	
Supply voltage	12	V
Current drain (no input light)	33	mA

<b>General specifications</b>		
<b>Parameter</b>	<b>Value</b>	<b>Unit</b>
Package dimensions (l x h x d)	50 x 59 x 20	mm
Package material	Anodized aluminium	

## Basic operation

The PD100-NIR photodetector is equipped with an AC coupled output port (RF out) with a bandwidth of 0.03-100 MHz.

In addition the photodetector has an DC coupled output port (DC out) with a bandwidth of 0 to approximately 15 kHz. The sensitivity of the DC output at 780 nm was determined to be about 2.2 V/mW. This value has to be scaled according to the photosensitivity of the photo diode (see figure 1) if other wavelengths are employed.

To operate the photodetector a voltage of 12 V has to be connected to the supply port (+12 V).

## Features

- Optimal for laser frequency stabilization
- Separate DC port to optimize beam focus position onto sensor
- High optical input powers possible without saturating the AC signal

## Spectral response

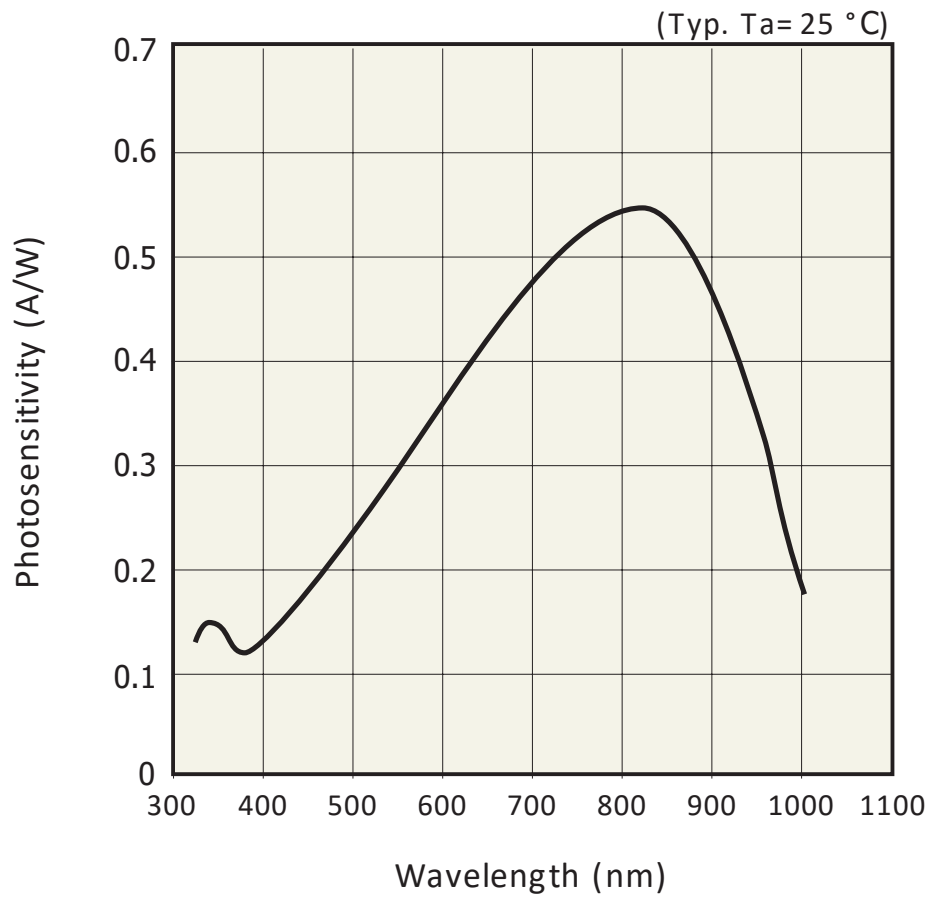


Figure 1: Photosensitivity of the Hamamatsu S5972 Si-Photodiode.  
Source: Hamamatsu Photonics K.K., "Si PIN photodiodes S5971, S5972, S5973 series", S5972 datasheet, Nov. 2019, page 2

## Package drawing

