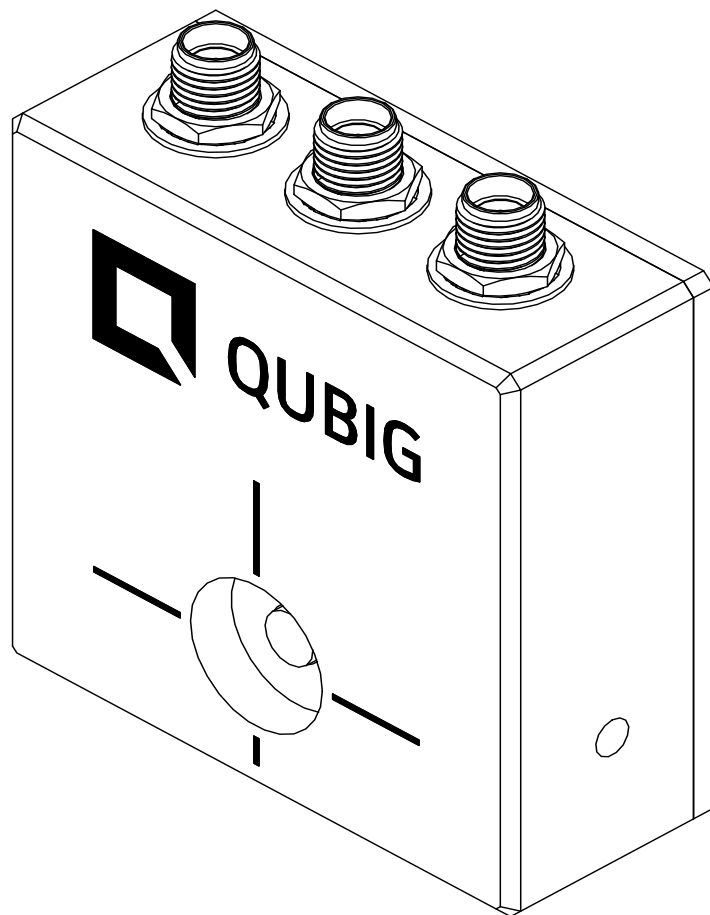


PD100-SWIR1 Photodetector

Datasheet



Specifications

Sensor specifications

Parameter	Value	Unit
Manufacturer	Hamamatsu	
Model	G1280-005A	
Active area diameter	0.5	mm
Spectra range	900 to 1700	nm
Peak photosensitivity at 1550 nm	1.1	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	15	pW/Hz ^{1/2}

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 1550 nm	2.3	mW

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

General specifications		
Parameter	Value	Unit
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 at least 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 1550 nm was determined to be about 4.4 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
- High optical input powers possible without saturating the AC signal
- Single-Supply with 12 V only

Spectral response

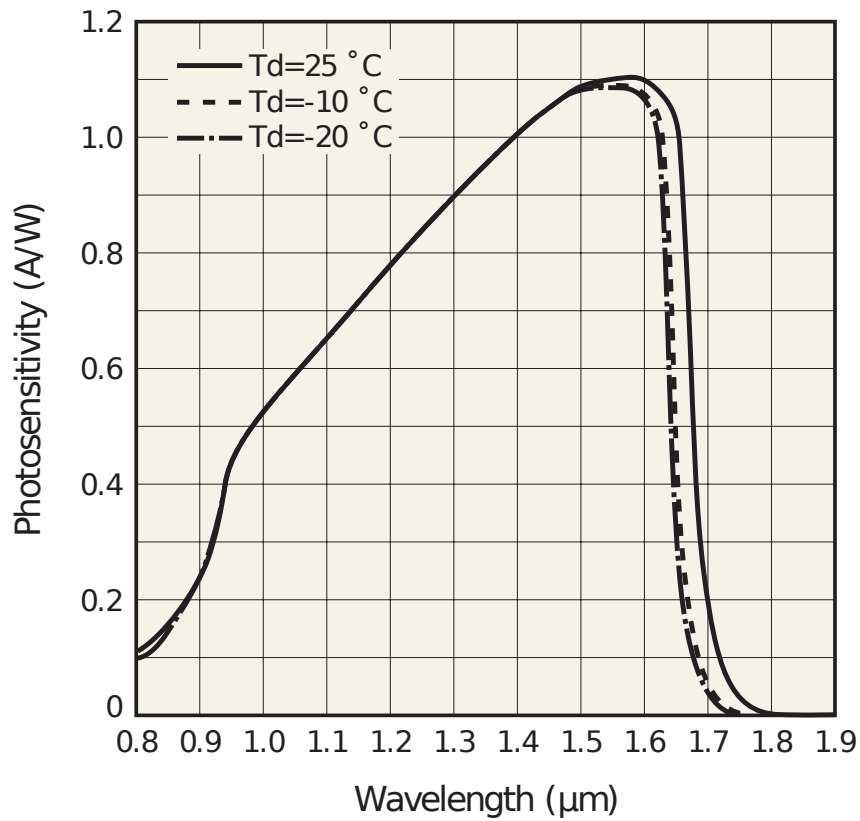


Figure 1: Photosensitivity of the Hamamatsu G12180 InGaAs-Photodiode. Source: Hamamatsu Photonics K.K., "InGaAs PIN photodiodes G12180 series", G12180-005 datasheet, Jan. 2021, page 3

Package drawing

