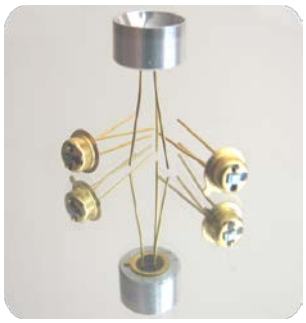
PD36-03-PRW Mid-Infrared Photodiodes

Description

Photodiodes PD36-03-PRW series are fabricated from narrow band-gap InAsSbP/InAs-based heterostructures lattice matched to InAs substrate, and are designed for detection of light signals in Mid-Infrared spectral range with cut-off wavelength around 3.6 µm.



Features

- Diameter of photosensitive area: 0.3 mm
- Fast Response: <50 ns
- Package: TO-18 with a parabolic reflector and with a glass window

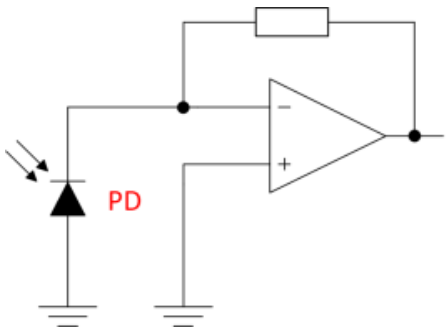
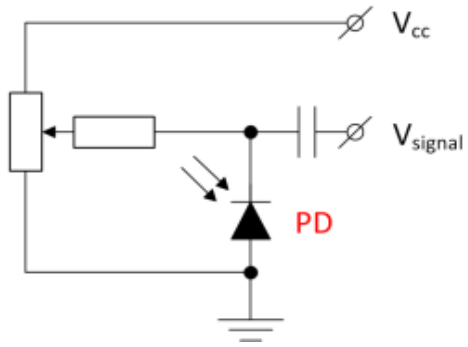
Applications

- Industrial Process Control
- Sensor development
- Medical diagnostics

Specification

Recommended modes of PD operation

We recommend using photovoltaic mode, when PD is used under no reverse bias.

PD used as a current source (photovoltaic mode)	PD used in a photoconductive mode (under reverse bias)
	

Device Parameters

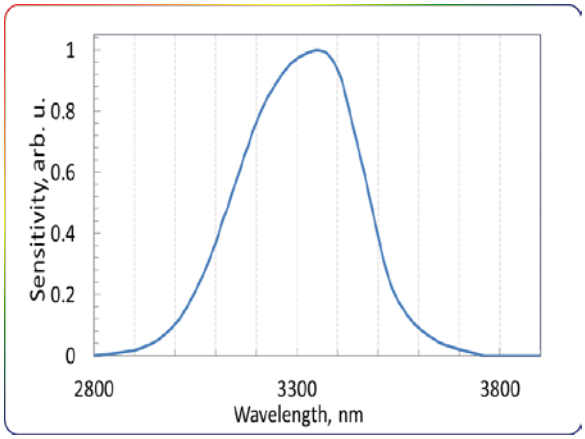
Device Parameters	Symbol	Value	Units
Sensitive area diameter	d	0.3	mm
Storage temperature	T_{stg}	-200 ~ +70	^{o}C
Operating temperature	T_{opr}	-200 ~ +60	^{o}C
Reverse voltage	V_r	-0.1	V

Optical and Electrical Characteristics

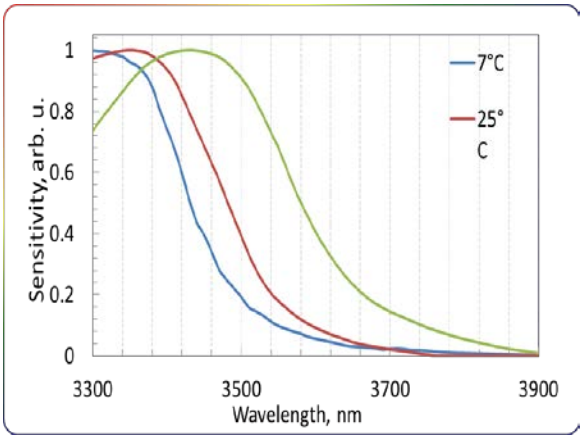
Photodiode Parameters	Conditions	Symbol	Value	Units
Cut-off wavelength	T=300 K	λ_{cut}	3.6	μm
Max. sensitivity wavelength (>90%)	T=300 K	λp	3.2 — 3.4	μm
Dark current	T=300 K, Vr=-1 V	I_d	200— 600	μA
Shunt resistance	T=300 K, Vr=-10 mV	R_{sh}	0.2 — 0.8	kΩ
Capacitance	T=300 K, λ=λp	C	200 — 500	pF
Sensitivity	T=300 K, λ=λp	S	0.8-1.0	A/W
Detectivity	T=300 K, λ=λp	D*	(3-6)*10^9	cm.$Hz^{1/2}$.W^{-1}

Typical Characteristic Curves

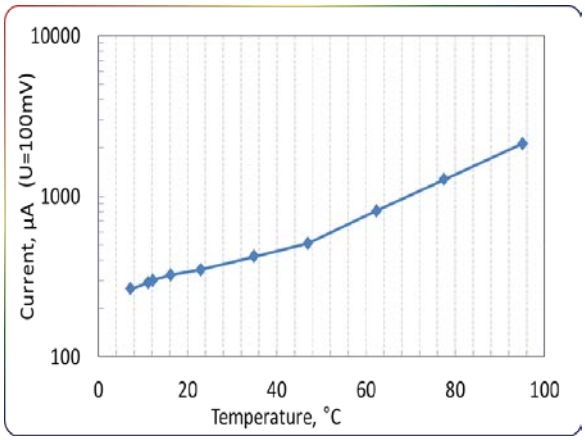
Spectral response (typical)



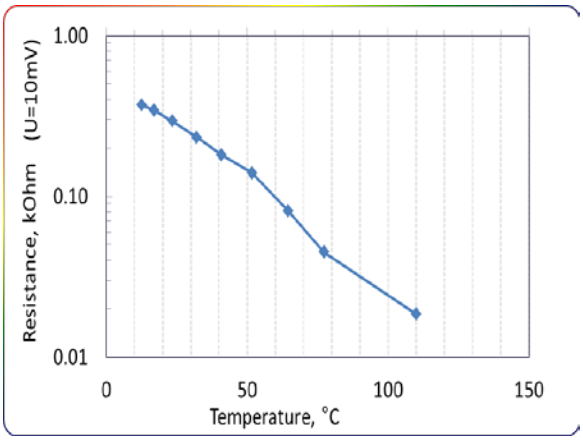
Temperature shift of spectral response



Dark current temperature dependence

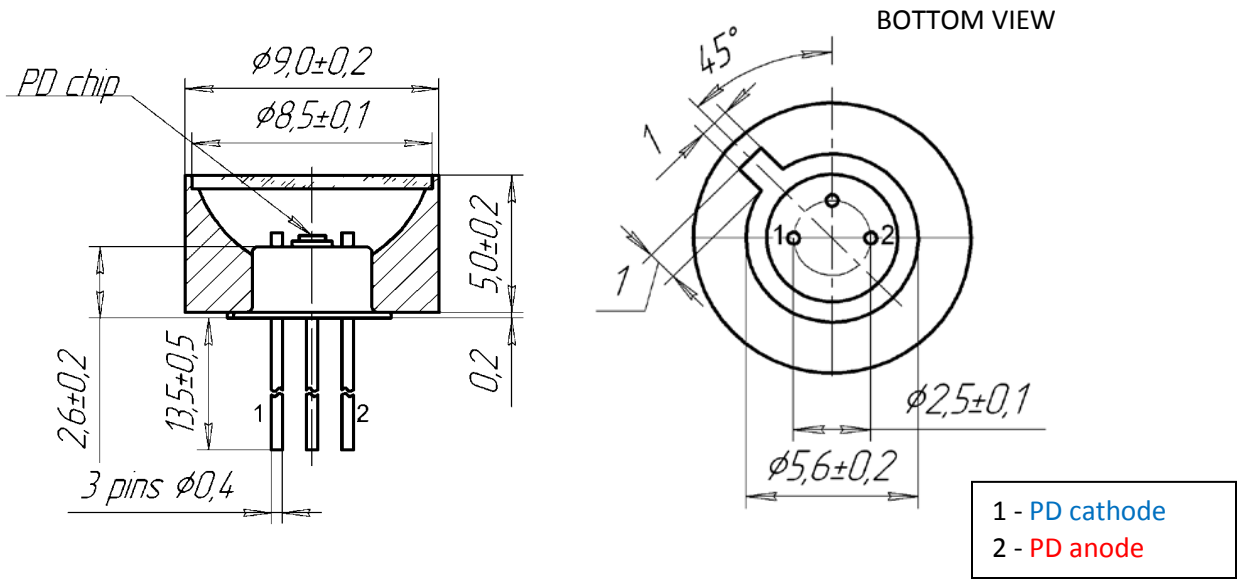


Resistance-temperature dependence



TO18 Package with a parabolic reflector and with a glass window

Dimension Drawing (units: mm)



Precautions

Photodiodes are polarity sensitive. Please note the anode of PD is marked with a RED dot. Check all polarity connections before using the device. Please do not connect the PD to the multimeter.

The MID-IR photodiodes are ESD (electro static discharge) sensitive and should be handled with the proper ESD protection environment.