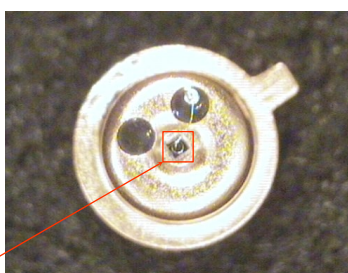


Features

- High reliability
- Superior linearity
- Easy-to-use detector/amplifier modules are also available



Photodiode CHIP

Description

Photodiode **PD48-03-NS** is a model of [photodetector](#) with narrow spectral range (**NS**) for detection of radiation at room temperature in the Middle Infrared (Mid-IR) spectral range from 3700 to 4800 nm.

Photodiode chip is disposed inside the standard 5.5 mm TO-18 package.

Diameter of the photosensitive area of **PD48-03-NS** is 300 μm . High speed of response makes it possible for detection of modulated radiation of laser diodes (LDs) and light-emitting diodes (LEDs).

Related products: **PD48-03-NS** can be used in optical pair with our [LED38...LED46](#).

Applications

- Environment measurements
- Gas analysis (CH_4 , CO , CO_2)
- Infrared spectrophotometry
- Analytical instruments

Accessories (optional)

- [Amplifier AM-07M](#)

General characteristics

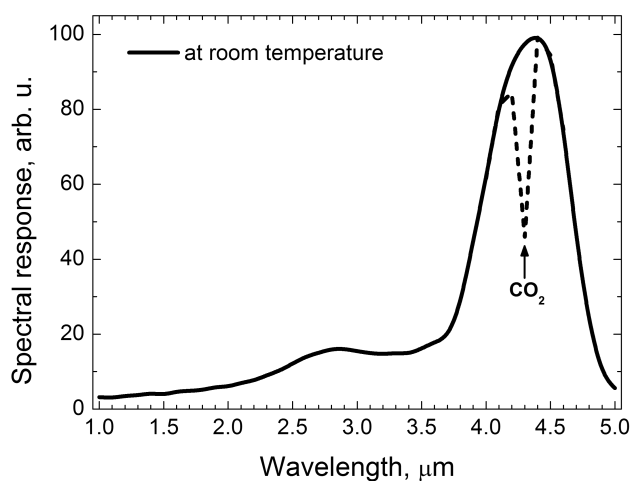
NS - narrow spectrum

Package	Parameter	Symbol	Value	Unit
TO-18	Sensitive area diameter	d	0.3	mm
	Weight	m	0.26	g
	Operating temperature	T_{opr}	-200...+60	$^{\circ}\text{C}$
	Soldering temperature	T_{s}	+230	$^{\circ}\text{C}$
	Storage temperature	T_{stg}	-55...+70	$^{\circ}\text{C}$
	Maximum reverse bias voltage	V	-0.5	V
	Size	D	5.5	mm
		H	17.7	

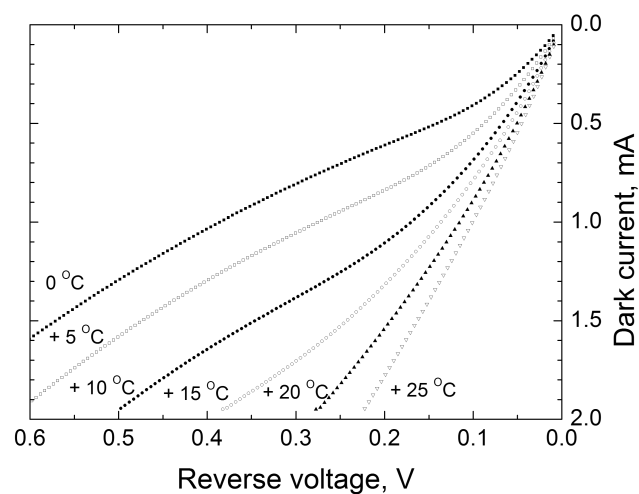
▼ Electrical and optical characteristics

Parameter	Symbol	Condition $T \approx +20^\circ\text{C}$	Min.	Typ.	Max.	Unit
Cut-off wavelength	λ	at level 10%	2.5 - 4.9			μm
Peak sensitivity wavelength	λ_p	at level 90%	4.3 - 4.6			μm
Photo sensitivity	S	at λ_p	0.6	0.7	0.8	A/W
Detectivity	D^*	at λ_p	$5 \cdot 10^8$	$7 \cdot 10^8$	$8 \cdot 10^8$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
Dark current	I_d	$V = -0.1 \text{ V}$	0.6	0.9	1.2	mA
Capacitance	C	$V = 0 \text{ V}$, $f = 1 \text{ MHz}$	25	30	50	pF
Rise time	t_r	$V = 0 \text{ V}$, $R_L = 50 \Omega$	≤ 20			ns
Fall time	t_f					
Shunt resistance	R_0	$V \approx -10 \text{ mV}$	100	150 - 200	500	Ω
Noise equivalent power	NEP	at D^*	$1.1 \cdot 10^{-10}$	$7.6 \cdot 10^{-11}$	$6.7 \cdot 10^{-11}$	$\text{W} \cdot \text{Hz}^{-1/2}$

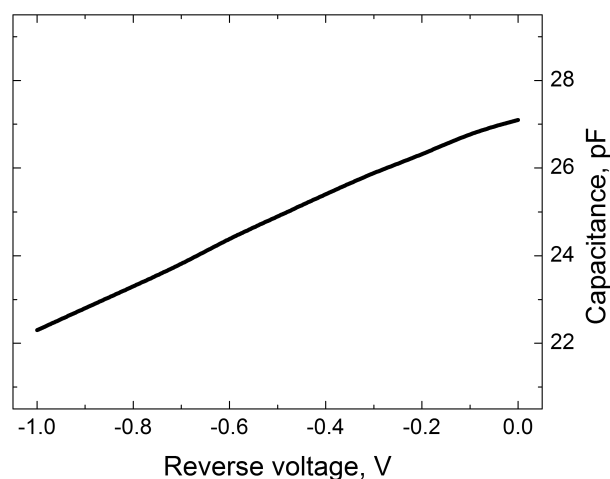
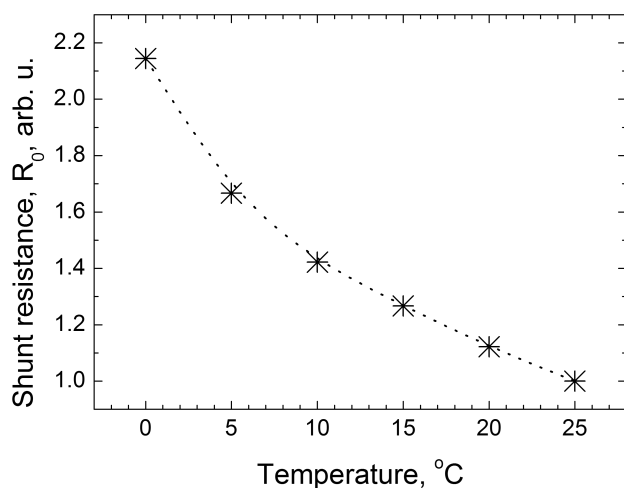
▼ Spectral response



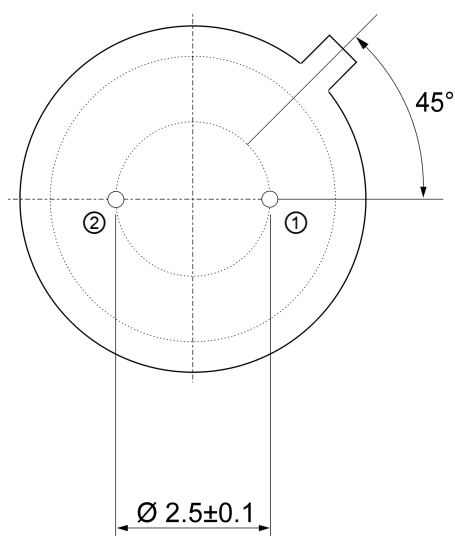
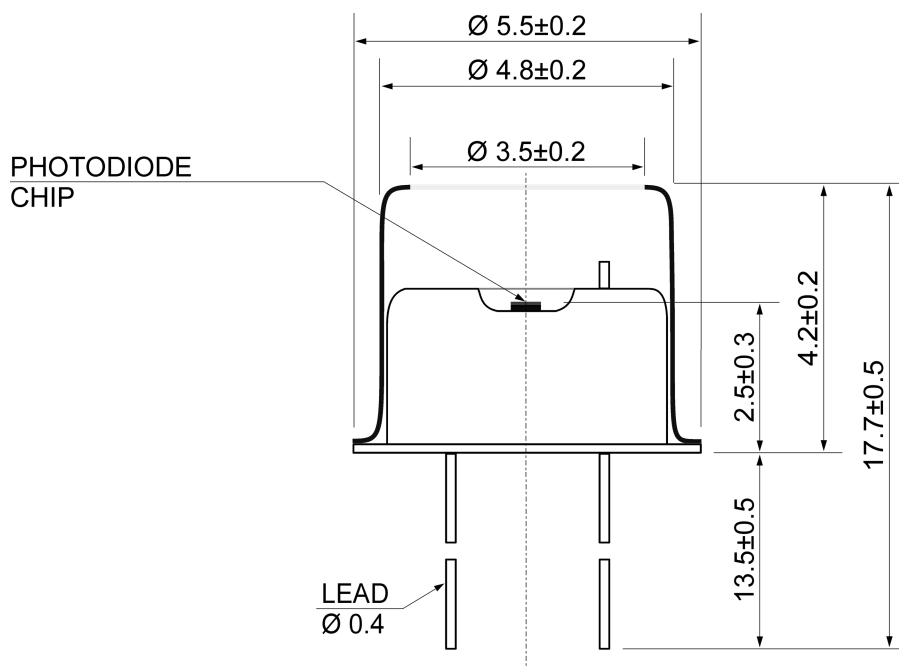
▼ Dark current vs. reverse voltage



▼ Shunt resistance vs. element temperature ▼ Capacitance vs. reverse voltage



▼ TO-18 package dimensions (unit: mm)



Pin	Description
①	Detector (anode)*
②	Detector (cathode)*

*Special order: the pin polarity can be changed.