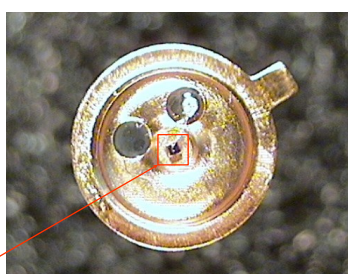


Features

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



Photodiode CHIP

Description

Photodiode **PD24-01-PRW** is a model of **photodetector** for detection of radiation at room temperature in the Middle Infrared (Mid-IR) spectral range from 0.9 to 2.4 μm .

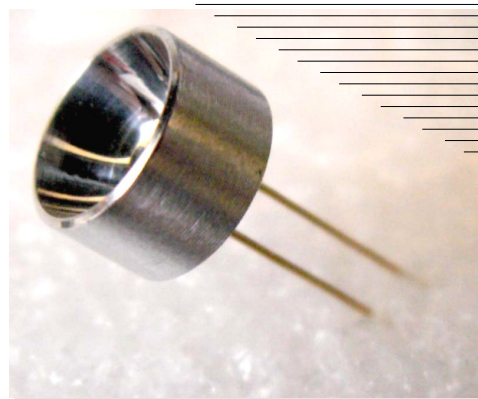
Photodiode chip is disposed inside the standard 5.5 mm TO-18 package with parabolic reflector (**PR**) and window (**W**)..

Diameter of the photosensitive area of **PD24-01-PRW** is 100 μm . High speed of response makes it possible for detection of modulated radiation of laser diodes (LDs) and light-emitting diodes (LEDs). **PR** allows to increase detectivity of the photodiode by a factor of 10 in the case of parallel beam of radiation.

Related products: **PD24-01-PRW** can be used in optical pair with our **LED11...LED23** and **LD200...LD230**.

General characteristics

Package	Parameter	Symbol	Value	Unit
TO-18 with PR W	Sensitive area diameter	d	0.1	mm
	Weight	m	0.65	g
	Operating temperature	T _{opr}	-200...+60	°C
	Window material		glass	
	Soldering temperature	T _s	+230	°C
	Storage temperature	T _{stg}	-55...+70	°C
	Maximum reverse bias voltage	V	-2.0	V
	Size	D	9.0	mm
		H	18.5	



Applications

- Environment measurements
- Infrared spectrophotometry
- Laser detection
- Analytical instruments

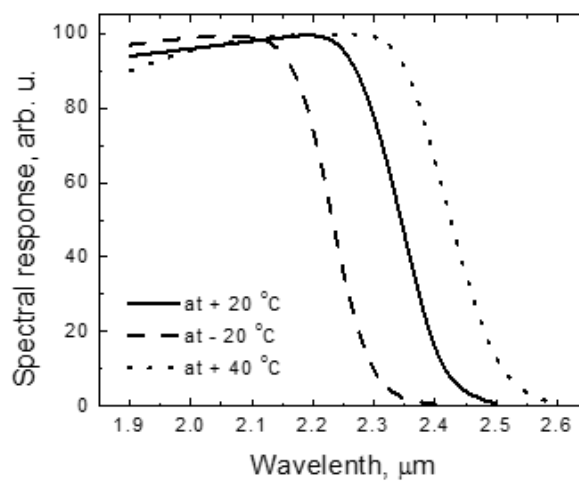
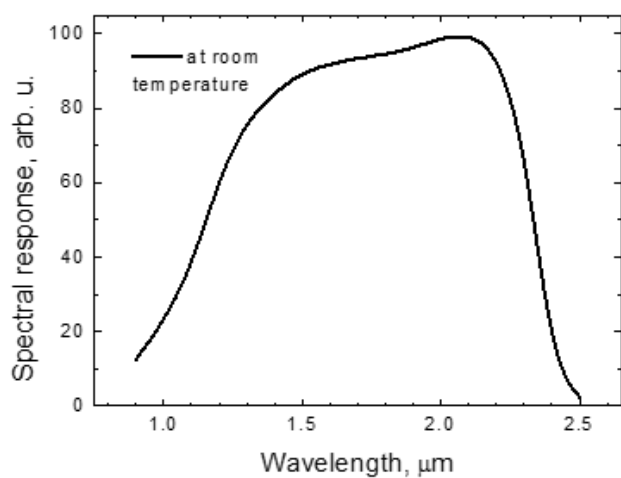
Accessories (optional)

- **Amplifier AM-07M**

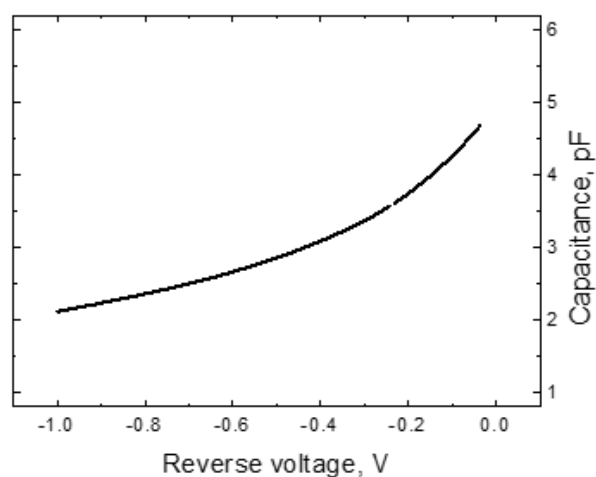
▼ Electrical and optical characteristics

Parameter	Symbol	Condition $T \approx +20^\circ\text{C}$	Min.	Typ.	Max.	Unit
Cut-off wavelength	λ	at level 10%	2.37	2.40	2.42	μm
Peak sensitivity wavelength	λ_p	at level 90%	1.95 - 2.20			μm
Photo sensitivity	S	at λ_p	0.9	1.0	1.1	A/W
Detectivity	D^*	at λ_p	$2 \cdot 10^{10}$	$5 \cdot 10^{10}$	$7 \cdot 10^{10}$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
Dark current	I_d	$V = -0.2 \text{ V}$	0.2	0.7	1.5	μA
		$V = -0.5 \text{ V}$	0.5	1.0	2.5	
		$V = -1.0 \text{ V}$	0.7	1.5	4.0	
Capacitance	C	$V = 0 \text{ V}$ $f = 1 \text{ MHz}$	1.5	3.0	5.0	pF
		$V = -3 \text{ V}$ $f = 1 \text{ MHz}$	0.7	1.5	2.5	
Cut-off frequency	f_c	$V = 0 \text{ V}$ $R_L = 50 \Omega$	1.5	2.0	2.5	GHz
Rise time	t_r		100	150	200	ps
Fall time	t_f					
Shunt resistance	R_0	$V \approx -10 \text{ mV}$	20	70	120	k Ω
Noise equivalent power	NEP	at D^*	$8.9 \cdot 10^{-13}$	$3.5 \cdot 10^{-13}$	$2.5 \cdot 10^{-13}$	$\text{W} \cdot \text{Hz}^{-1/2}$

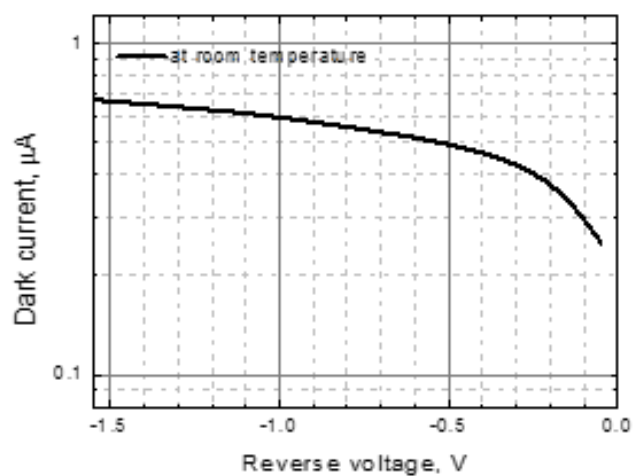
▼ Spectral response



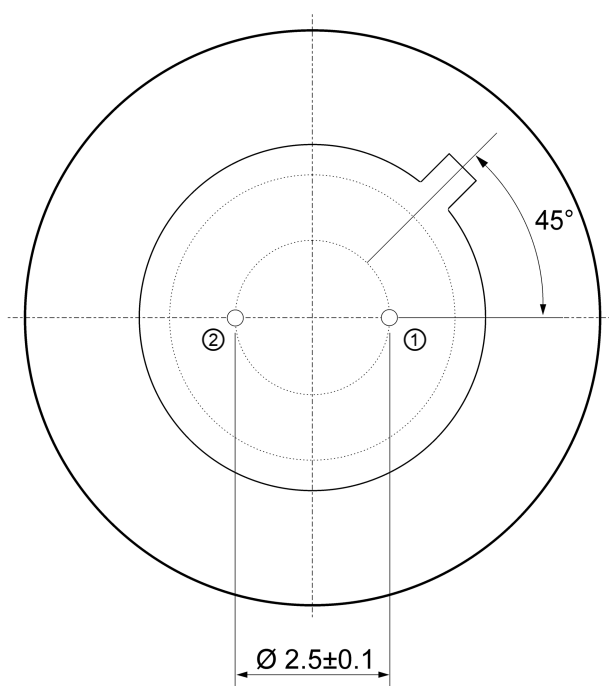
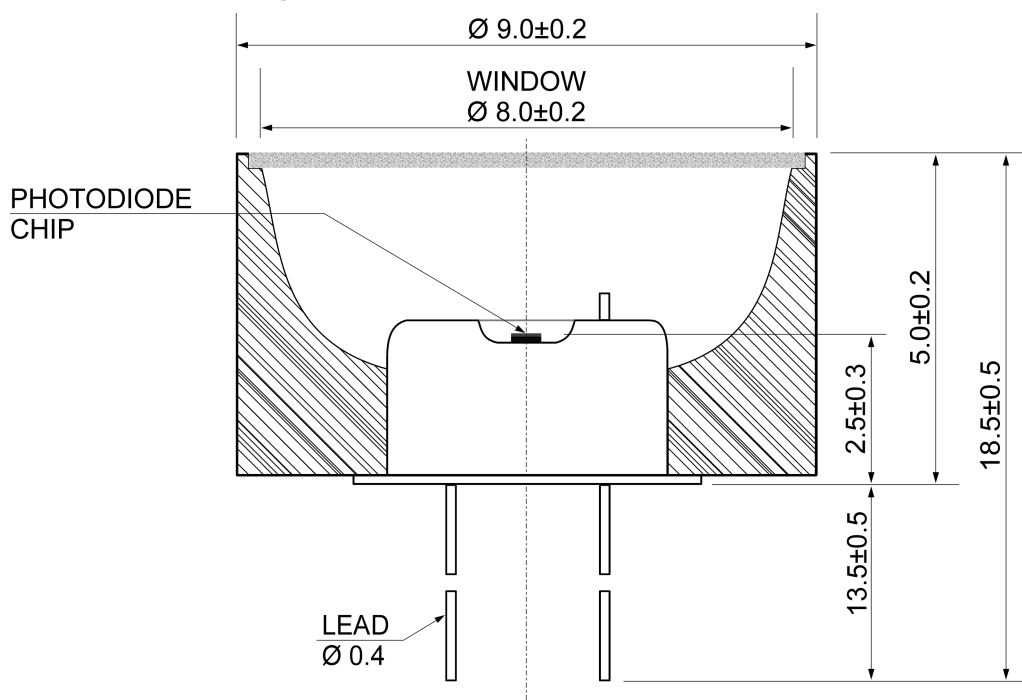
▼ Shunt resistance vs. element temperature ▼ Capacitance vs. reverse voltage



▼ Dark current vs. reverse voltage



▼ TO-18 package with PR & W dimensions (unit: mm)



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

*Special order: the pin polarity can be changed.