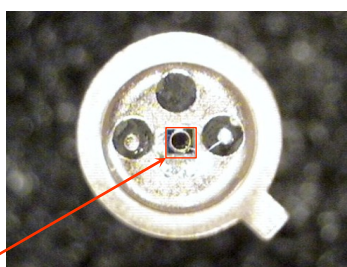
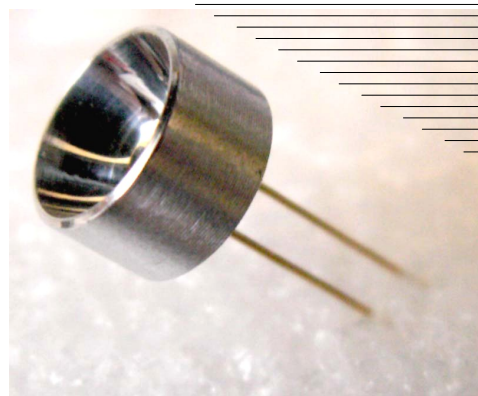


Features

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



Photodiode CHIP



Applications

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

Accessories (optional)

- [Amplifier AM-07M](#)

Description

Photodiode **PD24-05-PR** is a model of [photodetector](#) for detection of radiation at room temperature in the Middle Infrared (Mid-IR) spectral range from 1150 to 2400 nm.

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

Diameter of the photosensitive area of **PD24-05-PR** is 500 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: **PD24-05-PR** can be used in optical pair with our [LED11...LED23](#) and [LD200...LD230](#).

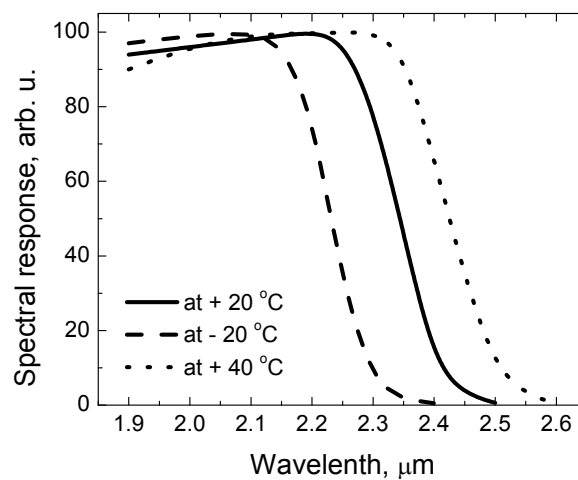
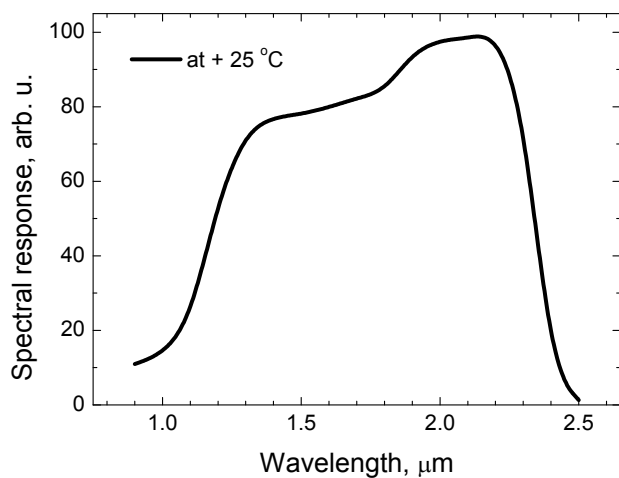
General characteristics

Package	Parameter	Symbol	Value	Unit
TO-18F with PR	Sensitive area diameter	d	0.5	mm
	Weight	m	0.65	g
	Operating temperature	T _{opr}	- 200...+ 60	°C
	Window material		no	
	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	

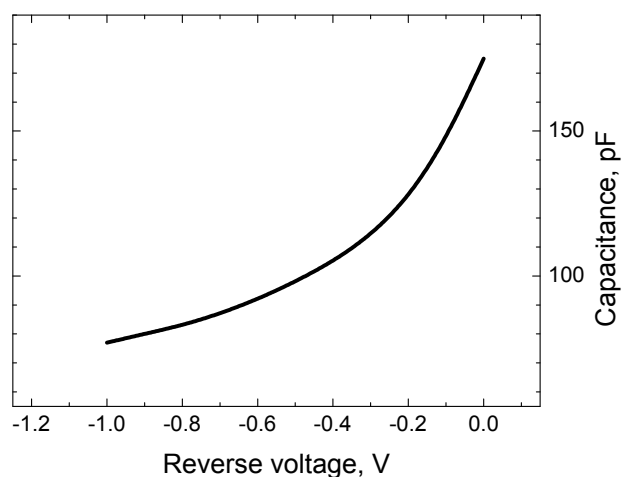
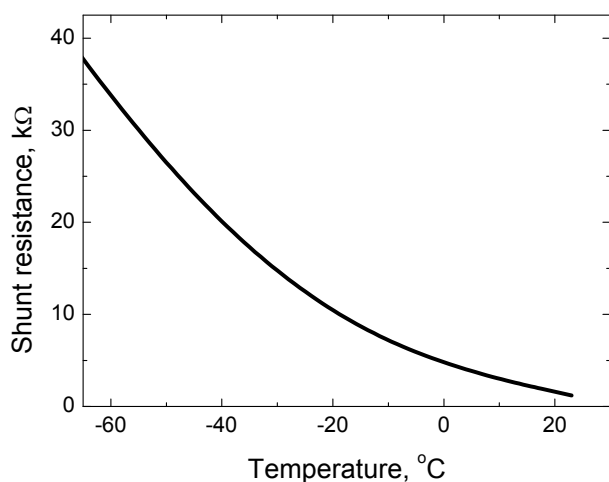
▼ Electrical and optical characteristics

Parameter	Symbol	Condition $T \approx + 20\text{ }^{\circ}\text{C}$	Min.	Typ.	Max.	Unit
Cut-off wavelength	λ	at level 10%	2.38	2.40	2.43	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	$3 \cdot 10^{10}$	$5 \cdot 10^{10}$	$8 \cdot 10^{10}$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
Dark current	I_d	$V = - 0.2\text{ V}$	5	12	20	μA
		$V = - 0.5\text{ V}$	10	20	30	
		$V = - 1.0\text{ V}$	15	35	50	
Capacitance	C	$V = 0\text{ V}$ $f = 1\text{ MHz}$	140	170	400	pF
Rise time	t_r	$V = 0\text{ V}$ $R_L = 50\text{ }\Omega$	10	15	50	ns
Fall time	t_f					
Shunt resistance	R_0	$V \approx - 10\text{ mV}$	1.5	3.0	10.0	k Ω
Noise equivalent power	NEP	at D^*	$3.0 \cdot 10^{-12}$	$1.8 \cdot 10^{-12}$	$1.1 \cdot 10^{-12}$	$\text{W} \cdot \text{Hz}^{-1/2}$

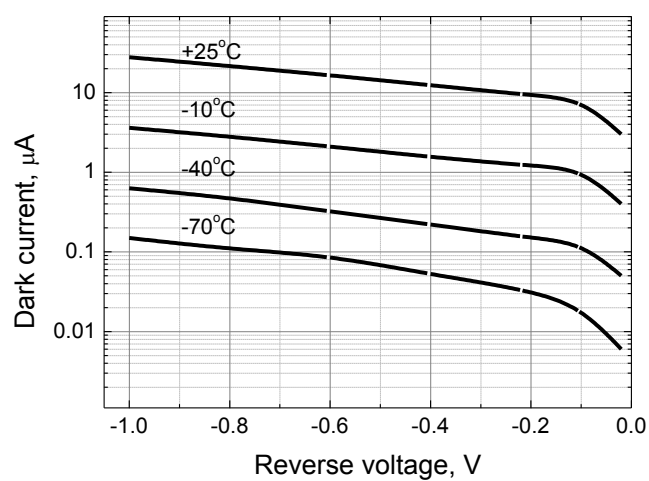
▼ Spectral response



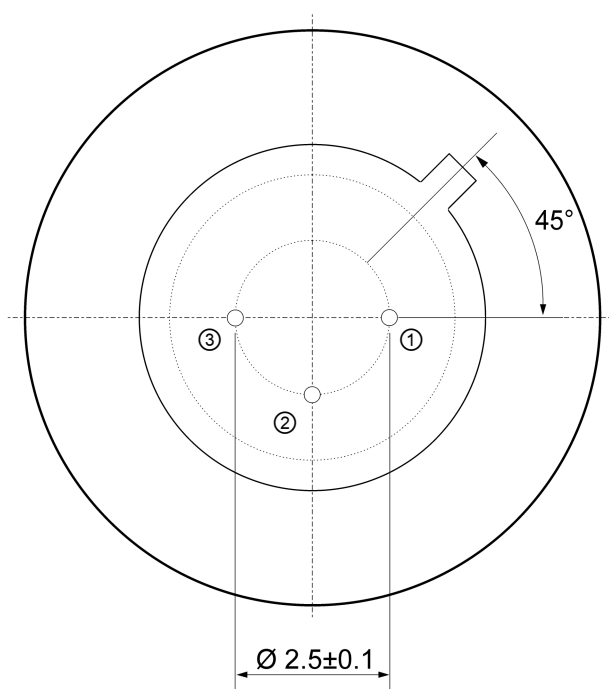
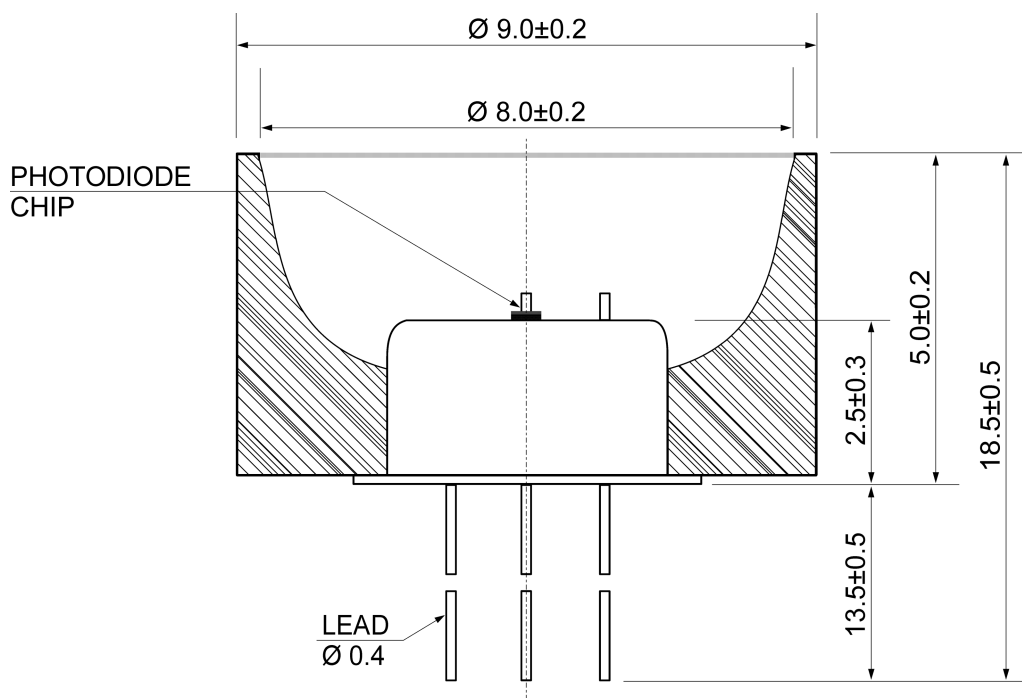
▼ Shunt resistance vs. element temperature ▼ Capacitance vs. reverse voltage



▀ Dark current vs. reverse voltage



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



Pin	Description
①	Detector (anode)*
②	-
③	Detector (cathode)*

*Special order: the pin polarity can be changed.