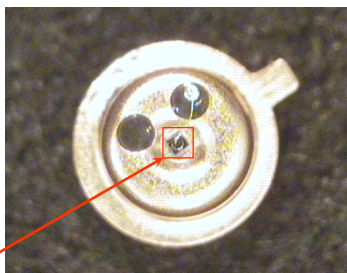


## Features

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



Photodiode CHIP

## Description

Photodiode **PD36-03-PR** is a model of [photodetector](#) for detection of radiation at room temperature in the Middle Infrared (Mid-IR) spectral range from 1500 to 3800 nm.

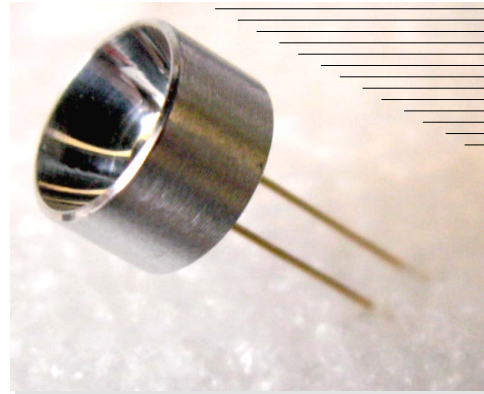
Photodiode chip is disposed inside the standard 5.5 mm TO-18 package with parabolic reflector (**PR**).

Diameter of the photosensitive area of **PD36-03-PR** is 300  $\mu\text{m}$ . 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: **PD36-03-PR** can be used in optical pair with our [LED29...LED36](#) and [LD290...LD360](#).

## General characteristics

Package	Parameter	Symbol	Value	Unit
TO-18 with PR	Sensitive area diameter	d	0.3	mm
	Weight	m	0.65	g
	Operating temperature	T <sub>opr</sub>	- 200...+ 60	°C
	Window material		no	
	Soldering temperature	T <sub>s</sub>	+ 230	°C
	Storage temperature	T <sub>stg</sub>	- 55...+ 70	°C
	Maximum reverse bias voltage	V	- 1.0	V
	Size		D	9.0
		H	18.5	



## Applications

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

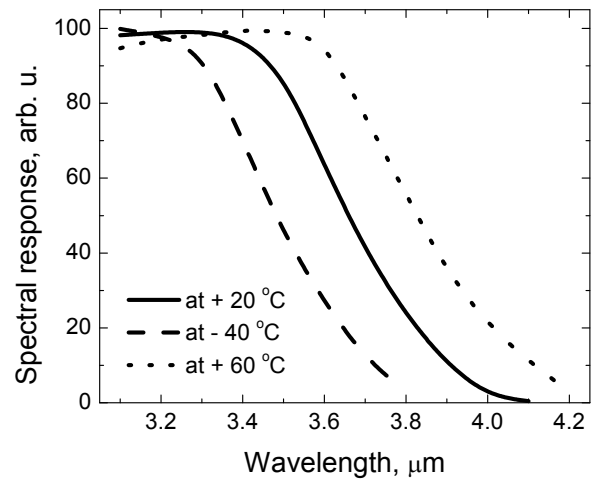
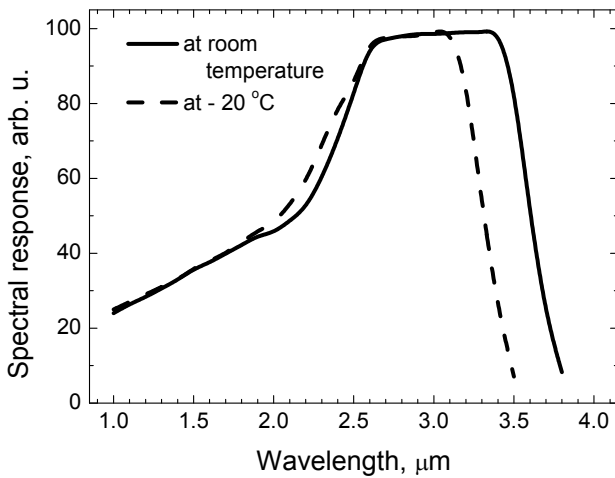
## Accessories (optional)

- [Amplifier AM-07M](#)

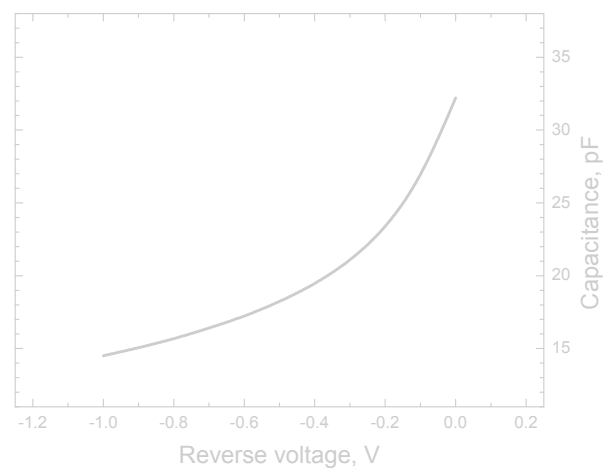
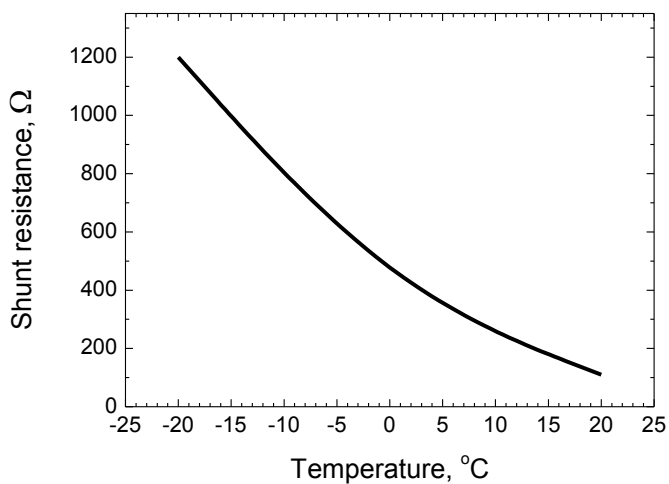
### Electrical and optical characteristics

Parameter	Symbol	Condition $T \approx + 20 \text{ }^\circ\text{C}$	Min.	Typ.	Max.	Unit
Cut-off wavelength	$\lambda$	at level 10%	3.60	3.80	3.85	$\mu\text{m}$
Peak sensitivity wavelength	$\lambda_p$	at level 90%	2.55 - 3.45			$\mu\text{m}$
Photo sensitivity	S	at $\lambda_p$	1.0	1.1	1.2	A/W
Detectivity	$D^*$	at $\lambda_p$	$3 \cdot 10^9$	$4 \cdot 10^9$	$6 \cdot 10^9$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
Dark current	$I_d$	$V = - 0.2 \text{ V}$	150	250	350	$\mu\text{A}$
		$V = - 0.4 \text{ V}$	200	400	500	
		$V = - 0.6 \text{ V}$	300	600	800	
Capacitance	C	$V = 0 \text{ V}$ , $f = 1 \text{ MHz}$	100	400	1000	pF
Rise time	$t_r$	$V = 0 \text{ V}$ , $R_L = 50 \Omega$ $V = - 0.5 \text{ V}$	20	50	120	ns
Fall time	$t_f$		10	10	20	
Shunt resistance	$R_0$	$V \approx - 10 \text{ mV}$	100	300	1200	$\Omega$
Noise equivalent power	NEP	at $\lambda_p$	$1.8 \cdot 10^{-11}$	$1.3 \cdot 10^{-11}$	$8.9 \cdot 10^{-12}$	$\text{W} \cdot \text{Hz}^{-1/2}$

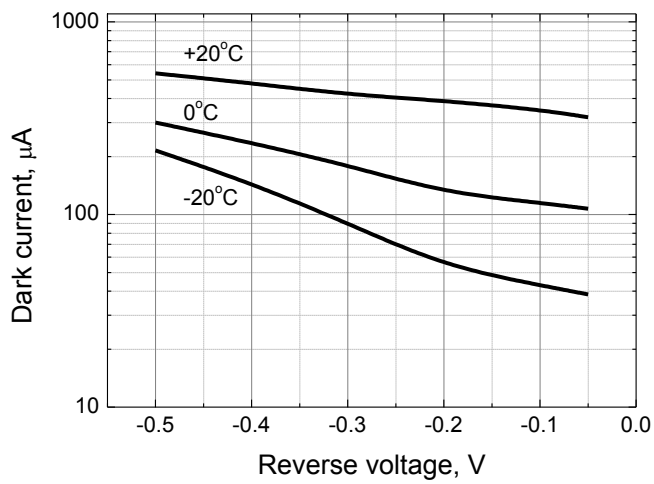
▼ Spectral response



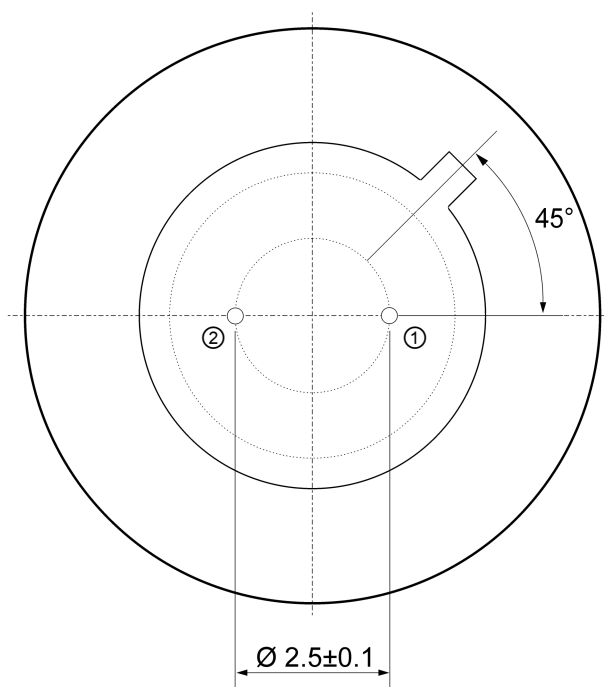
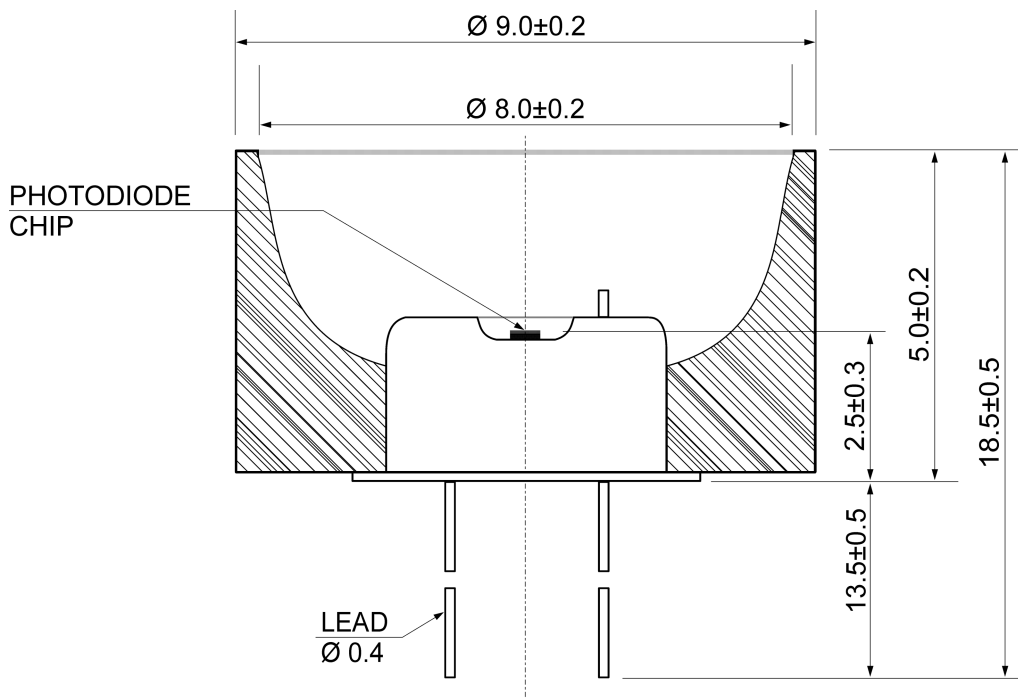
▼ Shunt resistance vs. element temperature    ▼ Capacitance vs. reverse voltage



### Dark current vs. reverse voltage



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



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

\*Special order: the pin polarity can be changed.