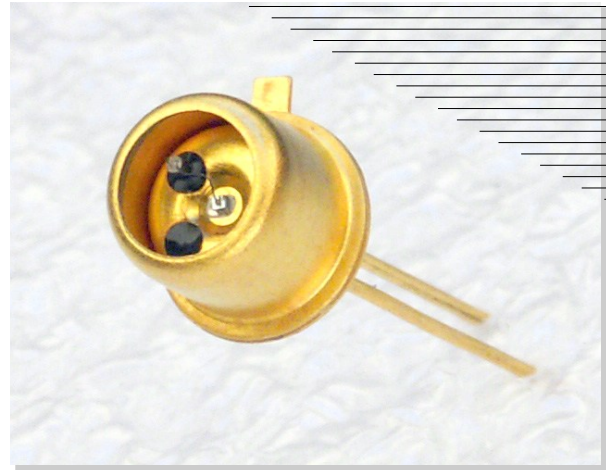
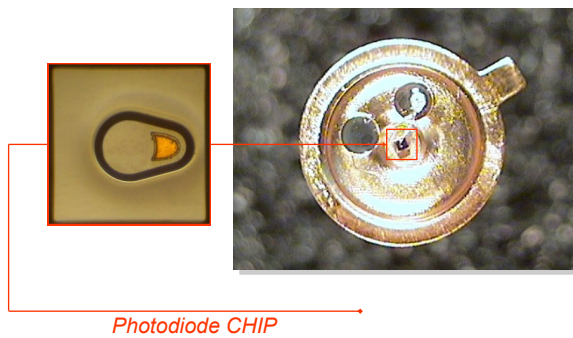


Features

- High speed
 $t_{\text{rise}} = 100 \text{ ps}$; $t_{\text{fall}} = 150 \text{ ps (typ.)}$
- High sensitivity
- Superior linearity



Applications

- Optical fiber communications
- Optical high-speed waveform measurements
- High-speed data links
- Free-space optical links

Description

IBSG has developed High-Speed (HS) photodiode **PD24-01-HS** with fast response times. This model can be applied to optical high-speed waveform measurements as well as for optical communications.

PD24-01-HS photodiode is designed for detection of radiation in the Middle Infrared (mid-IR) spectral range from 0.9 to 2.4 μm . High speed of response makes it possible to detect modulated radiation of IR lasers and light-emitting diodes (LEDs).

Photodiode chip is mounted in the standard 5.5 mm TO-18 package.

The 100 μm diameter of sensitive area provides low PD capacitance and high speed of response.

Related products: **PD24-01-HS** can be used in optical pair with our **LED18-LED23**.

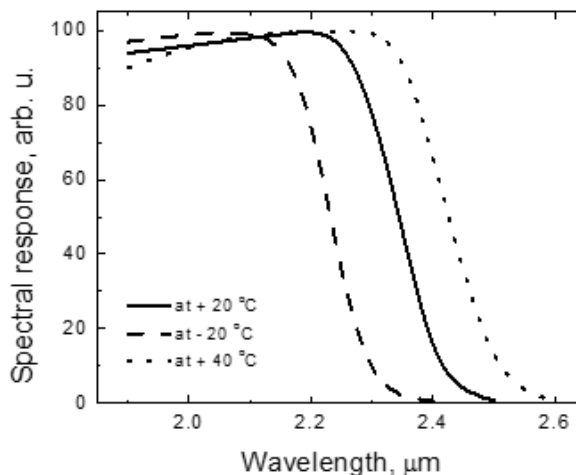
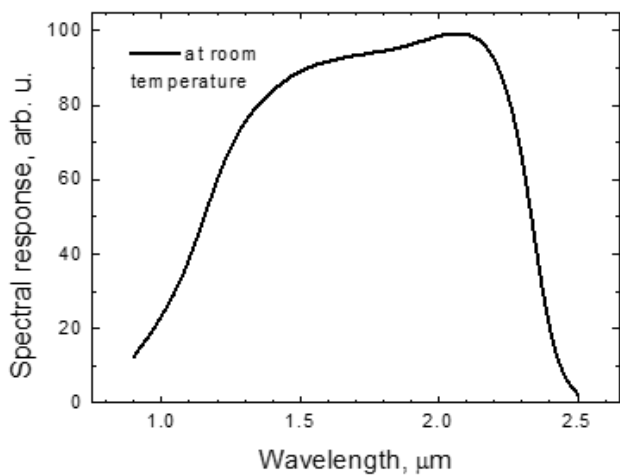
General characteristics

Package	Parameter	Symbol	Value	Unit
TO-18	Sensitive area diameter	d	0.1	mm
	Weight	m	0.26	g
	Window material		no or glass	
	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	-2.0	V
	Size		D	5.5
		H	17.7	

▼ Electrical and optical characteristics

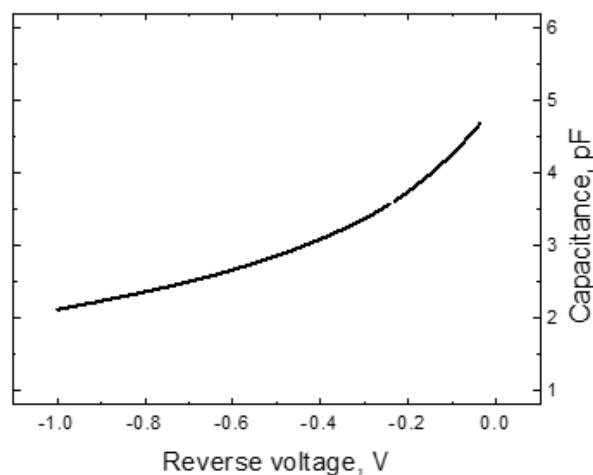
Parameter	Symbol	Condition $T \approx +20^\circ\text{C}$	Min.	Typ.	Max.	Unit
Cut-off wavelength	λ	at level 10%	2.37	2.40	2.42	μm
Peak sensitivity wavelength	λ_p	at level 90%	1.95 - 2.20			μm
Photo sensitivity	S	at λ_p	0.9	1.0	1.1	A/W
Detectivity	D^*	at λ_p	$2 \cdot 10^{10}$	$5 \cdot 10^{10}$	$7 \cdot 10^{10}$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
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

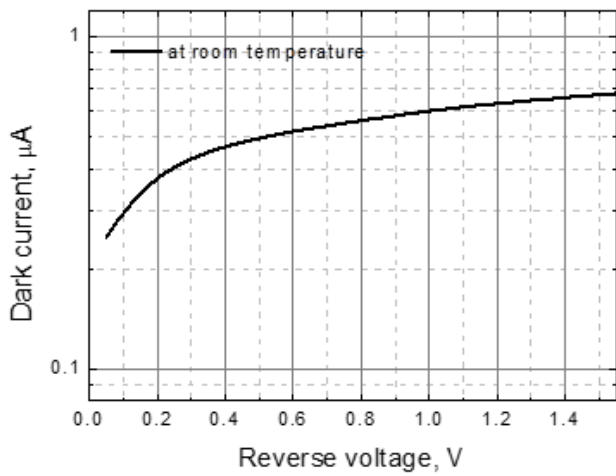


▼ Shunt resistance vs. element temperature

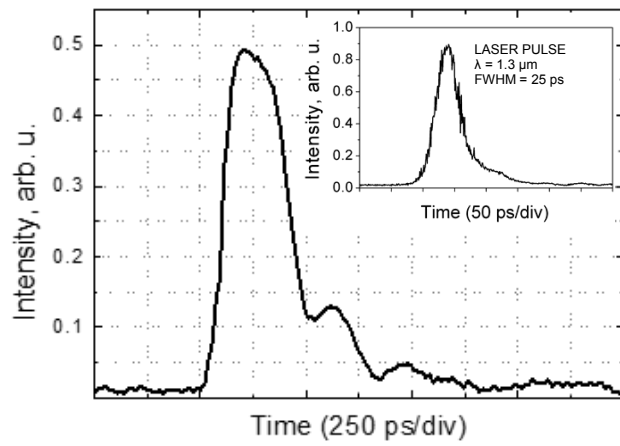
▼ Capacitance vs. reverse voltage



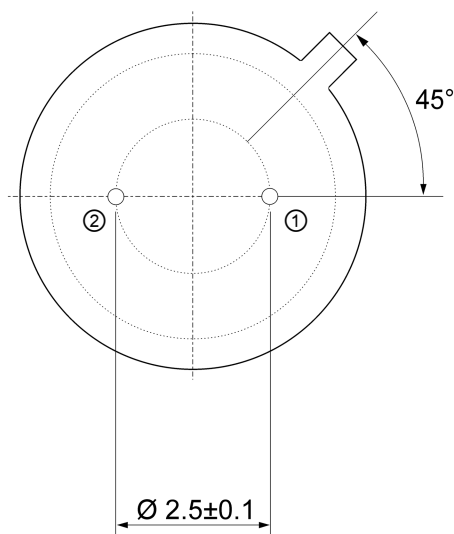
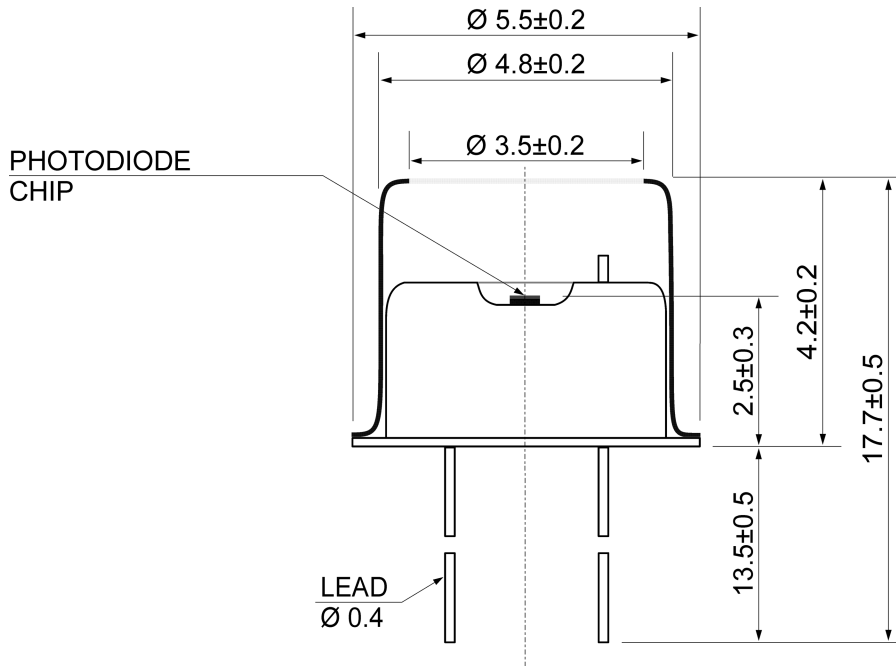
Dark current vs. reverse voltage



Optical pulse response



▼ TO-18 package dimensions (unit: mm)



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

*Special order: the pin polarity can be changed.