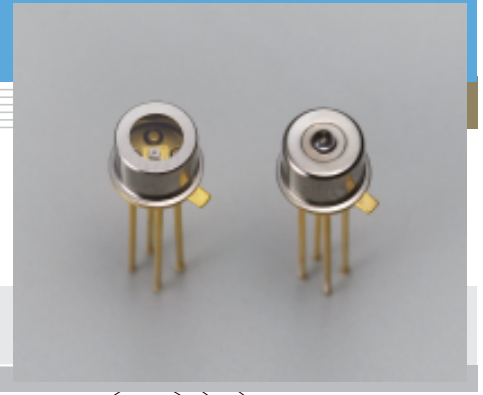


# Si/GaAs PIN photodiode with preamp S7861/G8336 series

TO-18 package, 0.8  $\mu\text{m}$ , 1.25, 2.1 Gbps



S7861/G8336 series are high-speed receivers specifically developed for 0.8  $\mu\text{m}$  band optical fiber communications. These devices incorporate a high-speed, high-sensitivity Si or GaAs PIN photodiode integrated with a high-speed preamp, allowing easy connection to a latter-stage circuit. Lens window types are also available for efficient and easy coupling to an optical fiber.

## Features

- Wide dynamic range  
S7861 series (1.25 Gbps) : -21 to +3 dBm  
G8336 series (2.1 Gbps) : -20 to +3 dBm
- Integrated with trans-impedance amplifier
- Active area  
S7861 series: Si photodiode ( $\phi 0.2$  mm)  
G8336 series: GaAs photodiode ( $\phi 0.08$  mm)
- Supply voltage  
S7861 series: 3.3 V, 5 V  
G8336 series: 3.3 V, 5 V
- Differential output

## Applications

- Optical fiber communications
- IEEE1394
- Fiber channel
- Gigabit Ethernet

### ■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	S7861	S7861-02	G8336	G8336-02	Unit
Supply voltage	Vcc			-0.3, +5.5		V
Operating temperature	Topr			-20 to +70		°C
Storage temperature	Tstg			-40 to +85		°C

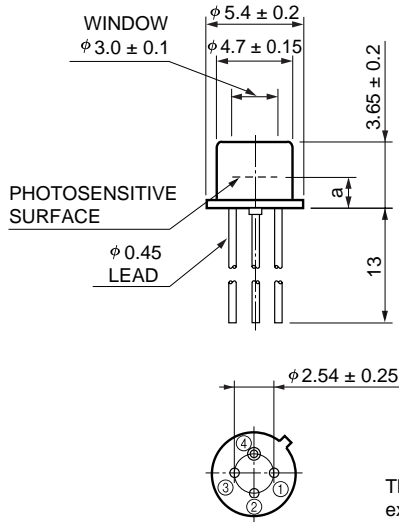
### ■ Specifications (Typ. Ta=25 °C, Vee=0 V, capacitive coupling, $\lambda=840$ nm, unless otherwise noted)

Parameter	Symbol	Condition	S7861	S7861-02	G8336	G8336-02	Unit
			Vcc=3.3/5 V RL=50 $\Omega$		Vcc=3.3/5 V RL=50 $\Omega$		
Dimensional outline	-		③	④	①	②	-
Window	-		flat	lens	flat	lens	-
Active area	A		$\phi 0.2$		$\phi 0.08$		mm
Photo sensitivity	S	Pin= -17 dBm, *1	1		0.45		V/mW
Supply current	Icc	dark state, RL= $\infty$	35		35 (Vcc=5 V) 25 (Vcc=3.3 V)		mA
Output bias voltage	Vo	dark state, RL= $\infty$	Vcc - 1.7		Vcc - 0.2		V
Rise time	tr	Pin= -17 dBm 20 to 80 %	300		200		ps
Data rate	B		1.25 G		2.1 G		bps

\*1: Single ended (Vout+) measurement

■ Dimensional outlines (unit: mm)

① G8336



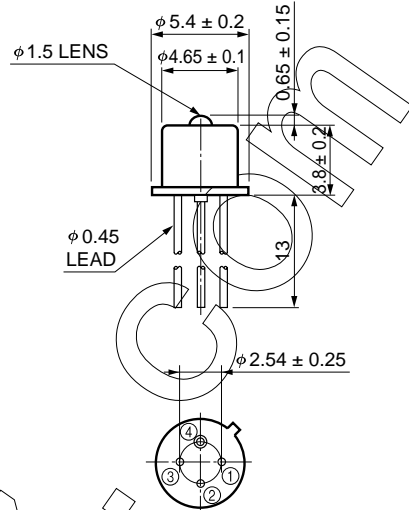
- ① Vout +
- ② Vcc
- ③ Vout -
- ④ Vee (CASE)

The borosilicate glass window may extend a maximum of 0.1 mm beyond the upper surface of the cap.

	S8334	G8336
a	1.8	1.6

KPINA0080EA

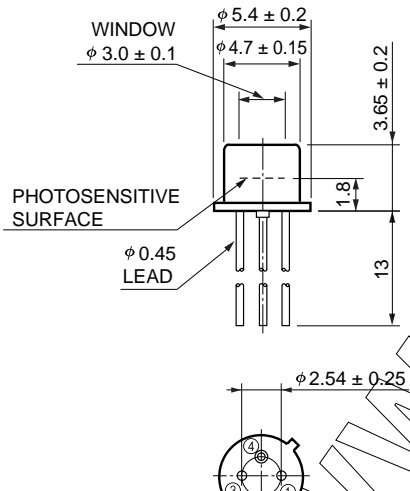
② G8336-02



- ① Vout +
- ② Vcc
- ③ Vout -
- ④ Vee (CASE)

KIRDA0098EA

③ S7861

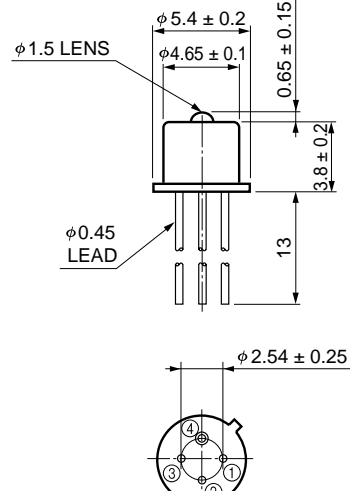


- ① Vout -
- ② Vcc
- ③ Vout +
- ④ Vee (CASE)

The borosilicate glass window may extend a maximum of 0.1 mm beyond the upper surface of the cap.

KSPDA0130EA

④ S7861-02



- ① Vout -
- ② Vcc
- ③ Vout +
- ④ Vee (CASE)

KIRDA0067EA

## HAMAMATSU

Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. ©2002 Hamamatsu Photonics K.K.

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Hamamatsu City, 435-8558 Japan, Telephone: (81) 053-434-3311, Fax: (81) 053-434-5184, <http://www.hamamatsu.com>

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 8, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741