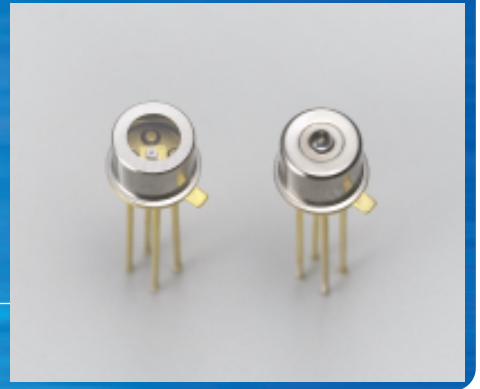


**NEW**

PHOTODIODE

# Si/GaAs PIN photodiode with preamp S8334/S7861/G8336 series

TO-18 package, 0.65/0.8  $\mu\text{m}$ , 500 Mbps/1.25, 2.1 Gbps

S8334/S7861/G8336 series devices are high-speed receivers specifically developed for 0.65/0.8  $\mu\text{m}$  band optical fiber communications. These devices use a high-speed, high-sensitivity PIN photodiode integrated with a fast 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  
S8334 series (500 Mbps) : -25 to +3 dBm  
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  
S8334 series: Si photodiode ( $\phi 0.4$  mm)  
S7861 series: Si photodiode ( $\phi 0.2$  mm)  
G8336 series: GaAs photodiode ( $\phi 0.08$  mm)
- Supply voltage  
S8334 series: 5 V  
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	S8334	S8334-02	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)**

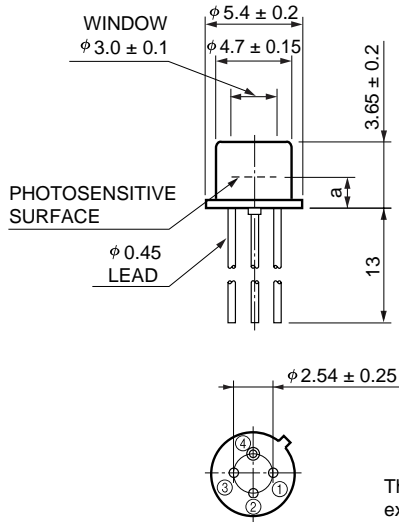
Parameter	Symbol	Condition	S8334	S8334-02	S7861	S7861-02	G8336	G8336-02	Unit
			Vcc=5 V RL=500 $\Omega$ *1		Vcc=3.3/5 V RL=50 $\Omega$		Vcc=3.3/5 V RL=50 $\Omega$		
Dimensional outline	-		①	②	③	④	①	②	
Window	-		flat	lens	flat	lens	flat	lens	-
Active area	A		$\phi 0.4$		$\phi 0.2$		$\phi 0.08$		mm
Photo sensitivity	S	Pin= -17 dBm, *2	2		1		0.45		V/mW
Supply current	Icc	dark state, RL= $\infty$	45		35		35 (Vcc=5 V) 25 (Vcc=3.3 V)		mA
Output bias voltage	Vo	dark state, RL= $\infty$	2.5		Vcc - 1.7		Vcc - 0.2		V
Rise time	tr	Pin= -17 dBm 20 to 80 %	1000		300		200		ps
Data rate	B		500 M		1.25 G		2.1 G		bps

\*1: S8334 series cannot be operated with RL=50  $\Omega$ , so it should be used with a load resistance larger than 500  $\Omega$ .

\*2: Single ended (Vout+) measurement

■ Dimensional outlines (unit: mm)

① S8334, G8336



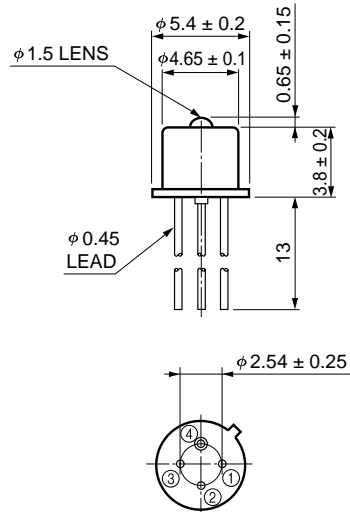
- ① Vout +
- ② Vcc
- ③ Vout -
- ④ Vee (CASE)

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

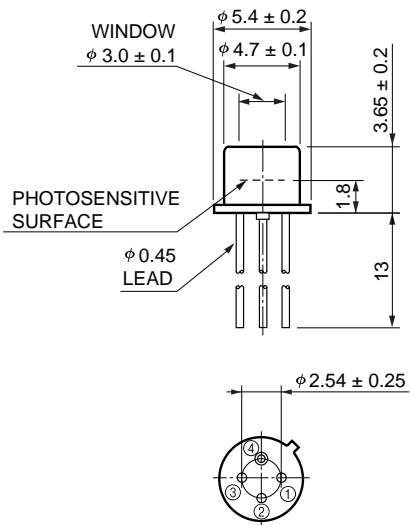
② S8334-02, G8336-02



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

KIRDA0098EA

③ S7861

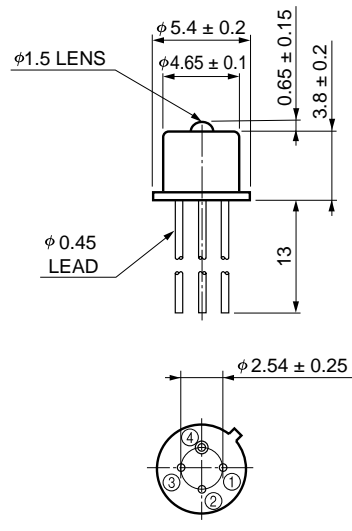


- ① Vout -
- ② Vcc
- ③ Vout +
- ④ Vee (CASE)

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

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