

InGaAs PIN photodiode with preamp G8338/G8341/G7871/G8344 series

TO-18 package, 1.3/1.55 μm , 156, 622 Mbps/1.25, 2.5 Gbps



G8338/G8341/G7871/G8344 series devices are high-speed receivers specifically developed for 1.3/1.55 μm 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
G8338 series (156 Mbps) : -37 to -5 dBm
G8341 series (622 Mbps) : -32 to -5 dBm
G7871 series (1.25 Gbps) : -25 to -1 dBm
G8344 series (2.5 Gbps) : -22 to +1 dBm
- Integrated with trans-impedance amplifier
- Active area
G8338/ G7871 series: $\phi 0.08$ mm
G8341/G8344 series: $\phi 0.04$ mm
- Supply voltage
G8338/G8341/G8344 series: 3.3 V
G7871 series: 3.3 V, 5 V
- Differential output

Applications

- Optical fiber communications
- Fiber channel
- Gigabit Ethernet
- HDTV
- SDH

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	G8338	G8338-02	G8341	G8341-02	G7871	G7871-02	G8344	G8344-02	Unit	
Supply voltage	Vcc	-0.3, +3.8		-0.3, +3.8		-0.3, +5.5		-0.3, +3.8		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, $\lambda=1.31 \mu\text{m}$, unless otherwise noted)

Parameter	Symbol	Condition	G8338	G8338-02	G8341	G8341-02	G7871	G7871-02	G8344	G8344-02	Unit
			Vcc=3.3 V RL=500 Ω *1		Vcc=3.3 V RL=500 Ω *1		Vcc=3.3/5 V RL=50 Ω		Vcc=3.3 V RL=50 Ω		
Dimensional outline	-		①	②	①	②	③	④	①	②	-
Window	-		flat	lens	flat	lens	flat	lens	flat	lens	-
Active area	A		φ0.08		φ0.04		φ0.08		φ0.04		mm
Photo sensitivity	S	*2, *3	27		20		2.8		1		V/mW
Supply current	Icc	dark state, RL=∞	25		30		35		55		mA
Output bias voltage	Vo	dark state, RL=∞	1.5		1.5		Vcc - 1.7		3.0		V
Rise time	tr	*3 20 to 80 %	2000		700		250		150		ps
Data rate	B		156 M		622 M		1.25 G		2.5 G		bps

*1: G8338/G8341 series cannot be operated with RL=50 Ω , so they should be used with a load resistance larger than 500 Ω .

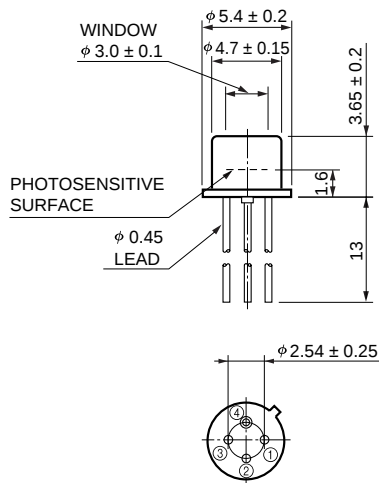
*2: single ended (Vout+) measurement.

*3: G8338/G8341series: Pin= -30 dBm

G7871/G8344series: Pin= -22 dBm

■ Dimensional outlines (unit: mm)

① G8338, G8341, G8344

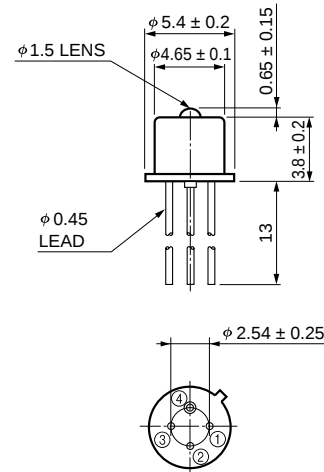


- ① Vout +
- ② Vcc
- ③ Vout -
- ④ Vee (CASE)

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

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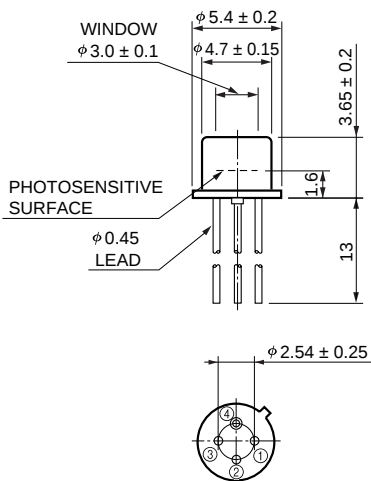
② G8338-02, G8341-02, G8344-02



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

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③ G7871

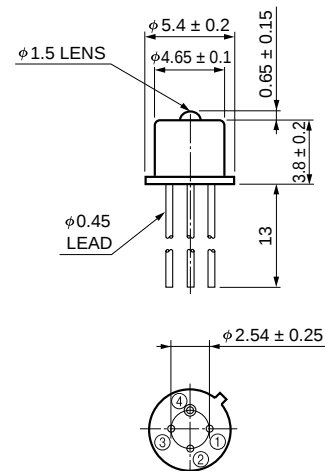


- ① Vout -
- ② Vcc
- ③ Vout +
- ④ Vee (CASE)

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

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④ G7871-02



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

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