

# InGaAs PIN photodiode with preamp G8339/G8342/G7881/G8796 series

Receptacle type, 1.3/1.55  $\mu\text{m}$ , 156, 622 Mbps/1.25, 2.5 Gbps



G8339/G8342/G7881/G8796 series are high-speed receivers specifically developed for 1.3/1.55  $\mu\text{m}$  band optical fiber communications. These devices incorporate a high-speed, high-sensitivity InGaAs PIN photodiode and a high-speed preamp integrated in a receptacle module. Packages are available with various connectors and mounting styles.

## Features

- Wide dynamic range  
G8339 series (156 Mbps) : -37 to -5 dBm  
G8342 series (622 Mbps) : -32 to -5 dBm  
G7881 series (1.25 Gbps) : -25 to -1 dBm  
G8796 series (2.5 Gbps) : -22 to +1 dBm
- Integrated with trans-impedance amplifier
- Supply voltage  
G8339/G8342 series: 3.3 V  
G7881/G8796 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	G8339 series	G8342 series	G7881 series	G8796 series	Unit
Supply voltage	Vcc	-0.3, +3.8	-0.3, +3.8	-0.3, +5.5	-0.5, +6	V
Operating temperature	T <sub>opr</sub>	-20 to +70				°C
Storage temperature	T <sub>stg</sub>	-40 to +85				°C

### ■ Specifications (Typ. Ta=25 °C, V<sub>ee</sub>=0 V, capacitive coupling, $\lambda=1.31 \mu\text{m}$ , unless otherwise noted)

Parameter	Symbol	Condition	G8339 series	G8342 series	G7881 series	G8796 series	Unit
			V <sub>cc</sub> =3.3 V R <sub>L</sub> =500 $\Omega$ *1	V <sub>cc</sub> =3.3 V R <sub>L</sub> =500 $\Omega$ *1	V <sub>cc</sub> =3.3/5 V R <sub>L</sub> =50 $\Omega$	V <sub>cc</sub> =3.3/5 V R <sub>L</sub> =50 $\Omega$	
Photo sensitivity	S	*2, *3	27	17	2.8	1.2	V/mW
Supply current	I <sub>cc</sub>	dark state, R <sub>L</sub> = $\infty$	25	30	35	35	mA
Output bias voltage	V <sub>o</sub>	dark state, R <sub>L</sub> = $\infty$	1.5	1.65	V <sub>cc</sub> - 1.7	V <sub>cc</sub> - 0.25	V
Rise time	t <sub>r</sub>	*3, 20 to 80 %	2000	500	250	150	ps
Data rate	B		156 M	622 M	1.25 G	2.5 G	bps

\*1: G8339/G8342 series cannot be operated with R<sub>L</sub>=50  $\Omega$ , so they should be used with a load resistance larger than 500  $\Omega$ .

\*2: Single ended (V<sub>out</sub>+) measurement using a single mode optical fiber with a master plug.

\*3: G8339/G8342 series: Pin= -30 dBm

G7881 series: Pin= -22 dBm

G8796 series: Pin= -17 dBm

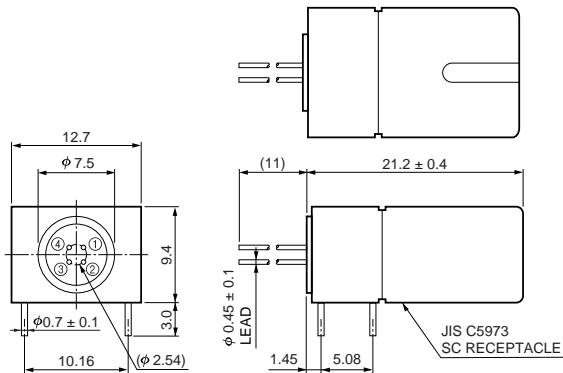
### ■ Package lineup

Parameter	G8339/G8342/G7881/G8796				
	-21	-22	-23	-32	-44
Mounting style	Board			Panel	Board & panel
Connector	SC	FC	MU	FC	LC
Dimensional outline	①	②	③	④	⑤

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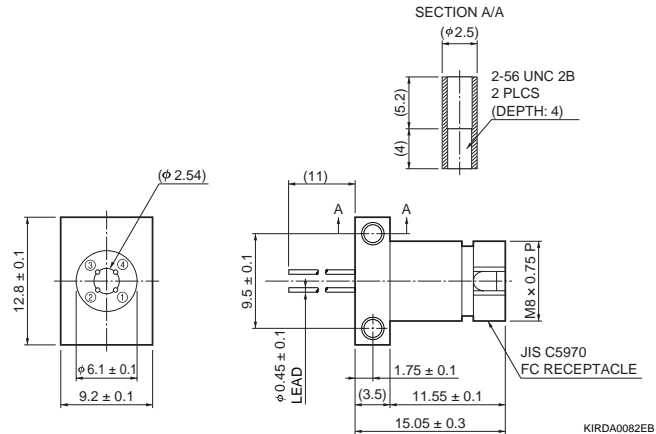
■ Dimensional outlines (unit: mm, tolerance unless otherwise noted:  $\pm 0.2$  mm)

① G8339/G8342/G7881/G8796-21



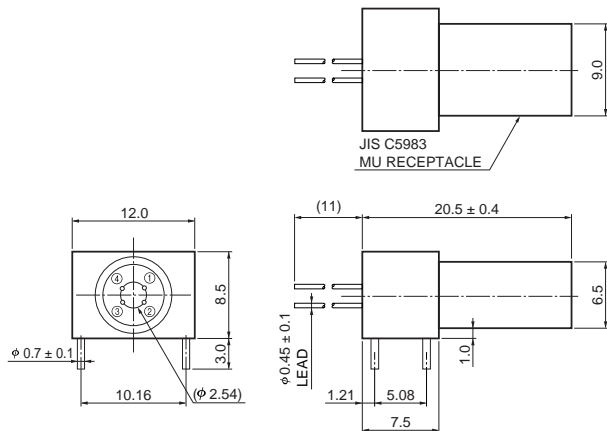
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② G8339/G8342/G7881/G8796-22



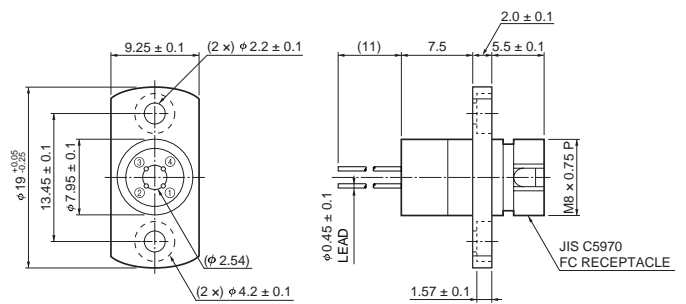
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③ G8339/G8342/G7881/G8796-23



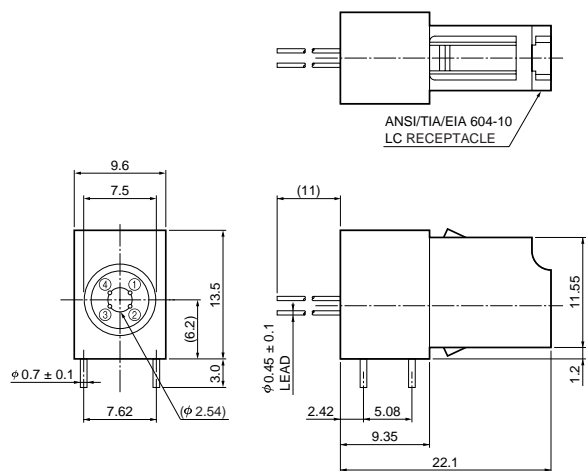
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④ G8339/G8342/G7881/G8796-32



KIRDA0083EB

⑤ G8339/G8342/G7881/G8796-44



KIRDA0110EB

## ■ Pin connection

Pin No.	G8339/G8342/ G8796 Series	G7881 Series
①	Vcc	Vcc
②	Vout -	Vout +
③	Vee	Vee
④	Vout +	Vout -

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