

InGaAs PIN photodiode with preamp G8339/G8342/G7881/G8345 series

Receptacle type, 1.3/1.55 μm , 156, 622 Mbps/1.25, 2.5 Gbps



G8339/G8342/G7881/G8345 series are high-speed receivers specifically developed for 1.3/1.55 μm 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
G8345 series (2.5 Gbps) : -22 to +1 dBm
- Integrated with trans-impedance amplifier
- Supply voltage
G8339/G8342/G8345 series: 3.3 V
G7881 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	G8345 Series	Unit
Supply voltage	Vcc	-0.3, +3.8	-0.3, +3.8	-0.3, +5.5	-0.3, +3.8	V
Operating temperature	T _{opr}	-20 to +70				°C
Storage temperature	T _{stg}	-40 to +85				°C

■ Specifications (Typ. Ta=25 °C, V_{ee}=0 V, capacitive coupling, λ =1.31 μm , unless otherwise noted)

Parameter	Symbol	Condition	G8339 Series	G8342 Series	G7881 Series	G8345 Series	Unit
			V _{cc} =3.3 V R _L =500 Ω *1	V _{cc} =3.3 V R _L =500 Ω *1	V _{cc} =3.3/5 V R _L =50 Ω	V _{cc} =3.3 V R _L =50 Ω	
Photo sensitivity	S	*2, *3	27	20	2.8	0.75	V/mW
Supply current	I _{cc}	dark state, R _L = ∞	25	30	35	55	mA
Output bias voltage	V _o	dark state, R _L = ∞	1.5	1.5	V _{cc} - 1.7	3.0	V
Rise time	t _r	*3, 20 to 80 %	2000	700	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_L=50 Ω , so they should be used with a load resistance larger than 500 Ω .

*2: Single ended (V_{out}+) measurement

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

G7881 series: Pin= -22 dBm

G8345 series: Pin= -17 dBm

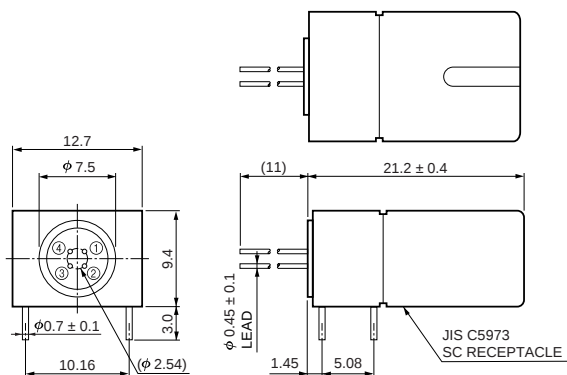
■ Package lineup

Parameter	G8339/G8342/G7881/G8345				
	-21	-22	-23 *4	-32	-44
Mounting style	Board			Panel	Board & panel
Connector	SC	FC	MU	FC	LC
Dimensional outline	①	②	③	④	⑤

*4: Under development

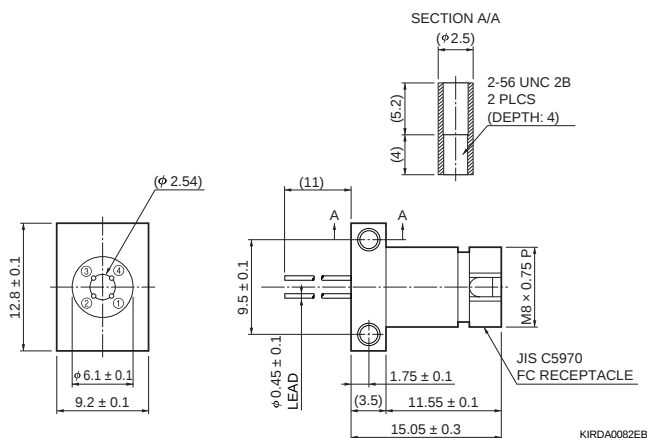
■ Dimensional outlines (unit: mm, tolerance unless otherwise noted: ± 0.2 mm)

① G8339/G8342/G7881/G8345-21



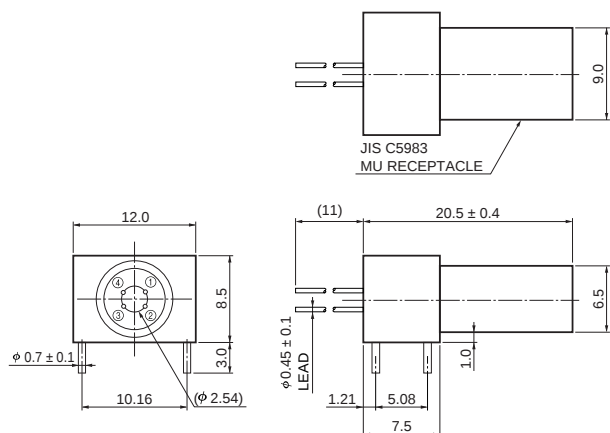
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② G8339/G8342/G7881/G8345-22



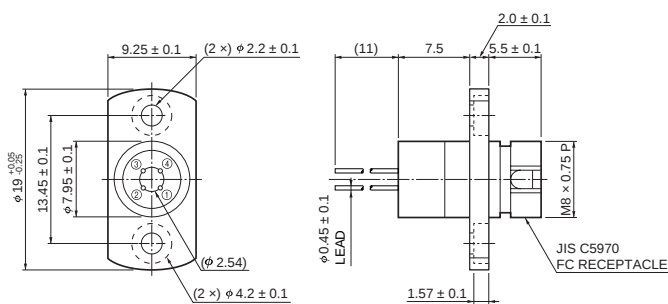
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③ G8339/G8342/G7881/G8345-23



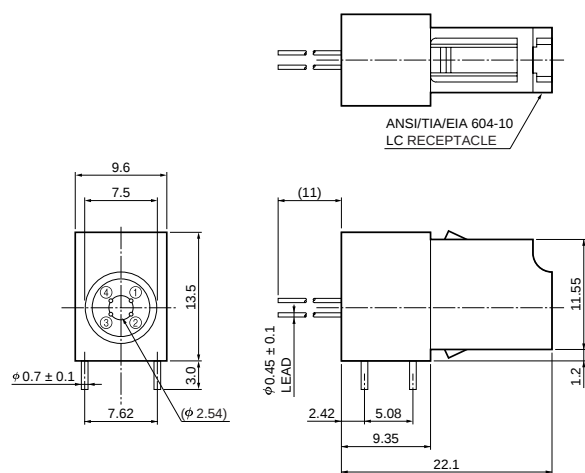
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④ G8339/G8342/G7881/G8345-32



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⑤ G8339/G8342/G7881/G8345-44



KIRDA0110EA

■ Pin connection

Pin No.	G8339/G8342/ G8345 Series	G7881 Series
①	Vcc	Vcc
②	Vout -	Vout +
③	Vee	Vee
④	Vout +	Vout -