

InGaAs PIN photodiode with preamp

G9821 series

Receptacle type, 1.3/1.55 μm , 2.5 Gbps



G9821 series is a family of 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

- High-speed response
- High gain with AGC (Auto Gain Control)
- Low power supply voltage: 3.3 V
- Differential output
- Sensitivity: -25.5 to +1 dBm

Applications

- Optical fiber communications
- Fiber channel
- Gigabit Ethernet
- HDTV
- SDH/SONET (STM-16/OC-48)

■ Absolute maximum ratings

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.5, +5.0	V
Operation temperature *1	Topr	-40 to +85	°C
Storage temperature *1	Tstg	-40 to +85	°C

*1: No condensation

■ Electrical and optical characteristics

(Ta=25 °C, Vcc=3.3 V, Vee=0 V, RL=50 Ω *2, λ =1.31 μm , unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photo sensitivity	S	Pin= -22 dBm *2, *3	1.0	1.5	-	V/mW
Supply current	Icc	Dark state, RL=∞	-	45	60	mA
Output bias voltage	Vo	Dark state, RL=∞	-	3.0	-	V
Cut-off frequency	fc	Pin= -22 dBm, -3 dB *2	1.7	2.1	-	GHz
Low cut-off frequency	fc-L	Pin= -22 dBm, -3 dB	-	3.0	-	kHz
Noise equivalent power	NEP	Dark state, to 1875 MHz, *2, *3	-	310	500	nWrms
Minimum receivable sensitivity	Pmin	2.5 Gbps, PRBS=2 ²³ -1 BER=10 ⁻¹⁰ Extinction ratio=10 dB	-	-25.5	-23.5	dBm
Maximum receivable sensitivity	Pmax		+1	-	-	
Output impedance	Rout		40	50	60	Ω
Optical return loss	ORL	1.3/1.55 μm	12	14	-	dB

*2: Output: capacitive coupling

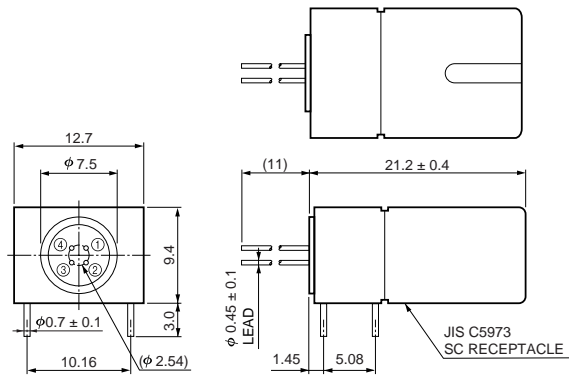
*3: Single-ended (Vout+) measurement

■ Package lineup

Parameter	G9821-21	G9821-22	G9821-32
Mounting style	Board		Panel
Connector	SC	FC	FC
Dimensional outline	①	②	③

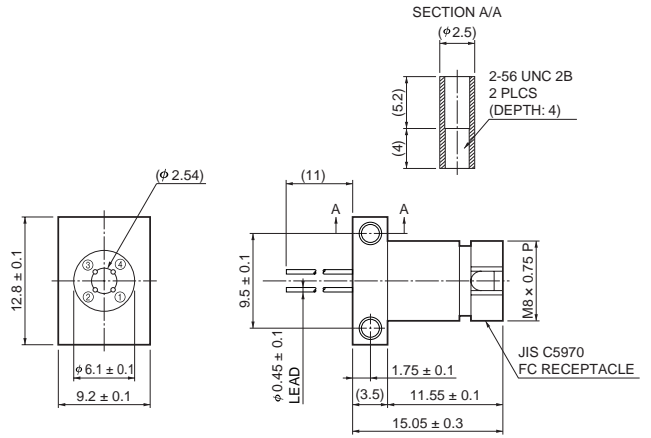
■ Dimensional outlines (unit: mm, tolerance unless otherwise noted: ± 0.2 mm)

① G9821-21



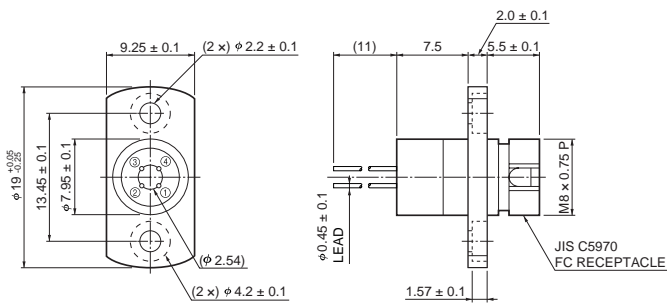
KIRDA0081EB

② G9821-22



KIRDA0082EB

③ G9821-32



KIRDA0083EB

■ Pin connection

Pin No.	G9821 series
①	Vcc
②	Vout -
③	Vee
④	Vout +