

InGaAs PIN photodiode with preamp

G9822 series

Pigtail type, 1.3/1.55 μm , 2.5 Gbps



G9822 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 pigtail module.

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 | - | -25.5 | -23.5 | dBm |
| Maximum receivable sensitivity | Pmax | Extinction ratio 10 dB | +1 | - | - | |
| Output impedance | Rout | | 40 | 50 | 60 | Ω |
| Optical return loss | ORL | 1.31/1.55 μm | 27 | 35 | - | dB |

*2: Output: capacitive coupling

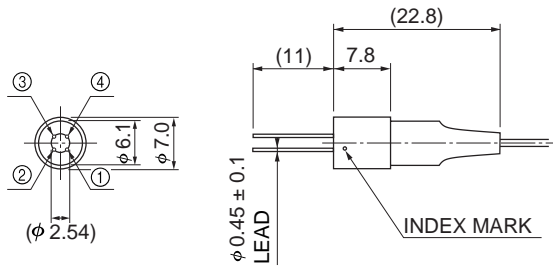
*3: Single-ended (Vout+) measurement

■ Package lineup

| Structure | G9822-11 | G9822-12 |
|------------|--|----------|
| Mount type | Coaxial | |
| Fiber | SM (9.5/125) ϕ 0.9 mm, 1 m +20 cm/-0 cm | |
| Connector | SC | FC |

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

Mount type



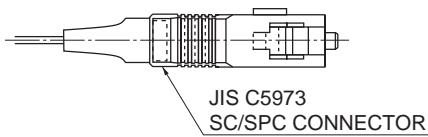
■ Pin connection

| Pin No. | G9822 series |
|---------|--------------|
| ① | Vcc |
| ② | Vout - |
| ③ | Vee |
| ④ | Vout + |

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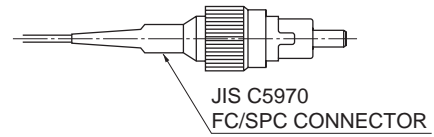
Connector

(1) SC



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(2) FC



KIRDA0103EA

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