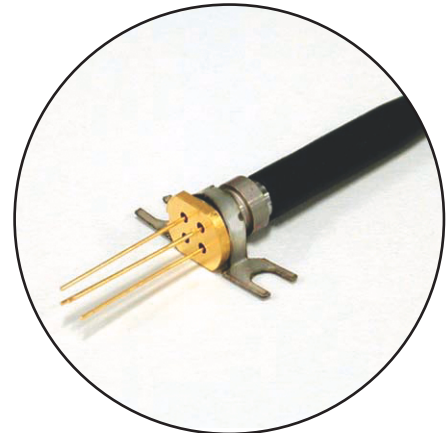


FEATURES

- Data rate up to 2.7Gb/s
- Sensitivity: -25dBm (typ.)
- Small co-axial package with single-mode fiber
- Differential Electrical Output
- Pre-amplifier Power Supply Voltage: +3.3V
- Wide operating temperature range: -40 to +85°C



APPLICATIONS

This PIN detector preamp is intended to function as an optical receiver in intermediate reach SONET, SDH, and DWDM systems operating up to 2.7Gb/s. The device operates in both the 1,310 and 1,550nm wavelength windows. The detector preamplifier is DC coupled and has a differential electrical output.

DESCRIPTION

This PIN preamplifier uses an InGaAs PIN chip with GaAs transimpedance preamplifier. The HY package is secured by a vertical flange for easy assembly. The package is connected with a single-mode fiber by Nd: YAG welding. This device is in compliance with ITU-T recommendations and meets the Telcordia requirements.

ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

| Parameter | Symbol | Ratings | Unit |
|-----------------------|-----------------------|------------|------|
| Storage Temperature | T _{stg} | -40 to +85 | °C |
| Operating Temperature | T _{op} | -40 to +85 | °C |
| Supply Voltage | V _{DD} | 0 to 4.5 | V |
| PIN Reverse Voltage | V _R | 0 to 20 | V |
| PIN Reverse Current | I _R (Peak) | 3.0 | mA |

OPTICAL & ELECTRICAL CHARACTERISTICS

(T_C=25°C, λ=1,550nm, V_R=+5.0V or +3.3V, V_{DD}=+3.3V, unless otherwise specified)

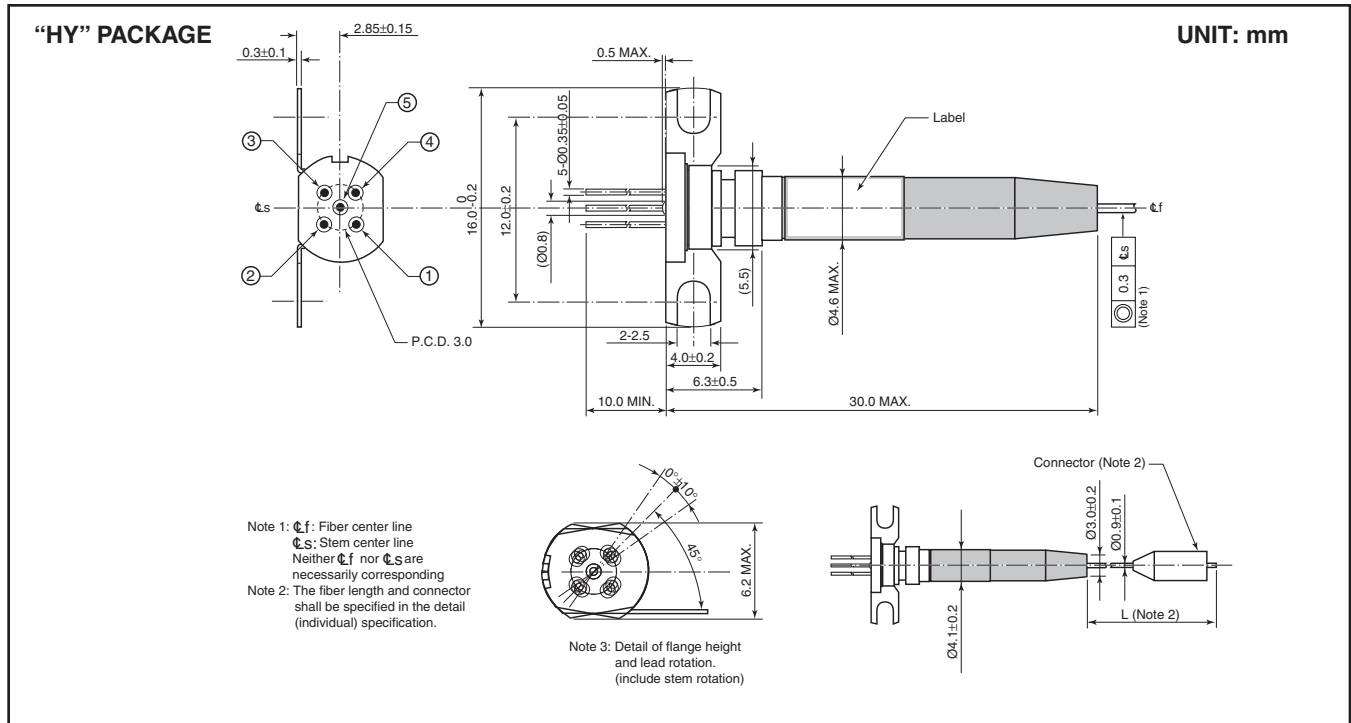
| Parameter | Symbol | Test Conditions | Limits | | | Unit |
|--|-------------------|--|--------|------|------|--------|
| | | | Min. | Typ. | Max. | |
| PIN-PD Responsivity | R13 | λ = 1,310nm, M=1 | 0.75 | 0.80 | - | A/W |
| | R15 | λ = 1,550nm, M=1 | 0.80 | 0.85 | - | |
| | R16 | λ = 1,610nm, M=1 | - | 0.70 | - | |
| AC Transimpedance | Z _t | Pin=-20dBm, f=100MHz, Single-ended | 1800 | 2200 | 2600 | Ω |
| Bandwidth | BW | Pin=-20dBm, -3dBm from 1MHz | 2.2 | 2.5 | - | GHz |
| Lower Cut-off Frequency | f _{cl} | | - | 50 | 75 | kHz |
| Peaking | d _{pk} | Pin=-20dBm, from 1MHz | - | - | 2 | dB |
| Group Delay Deviation | GD | Pin=-20dBm, from 500MHz to 1.75GHz | - | 60 | - | psec |
| Output Return Loss | S22 | Up to 1.75GHz | 10 | - | - | dB |
| | | Up to 2.5GHz | 5 | - | - | |
| Equivalent Input Noise Current Density | i _n | Average within 2.2GHz | - | 9.5 | 11.0 | pA/√Hz |
| Sensitivity | P _r | 2.488Gb/s, NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰ , Rext=-14dB, Tc=25°C (Note 2) | - | -25 | -24 | dBm |
| | | Tc=-40 to +85°C (Note 2) | - | -24 | -22 | |
| Maximum Overload | P _{max} | 2.488Gb/s, NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰ , | 0 | - | - | dBm |
| | | (Note 3) | -3 | - | - | |
| Maximum Output Voltage Swing | V _{clip} | Saturated Output Voltage | 450 | 550 | 800 | mV |
| Optical Return Loss | ORL | | 30 | - | - | dB |
| Power Supply Current | I _{DD} | | - | 45 | 70 | mA |
| Power Supply Voltage | V _{DD} | | 3.15 | 3.30 | 3.45 | V |

Note 1: All the parameters are measured with 50Ω AC-coupled.

Note 2: With f_c = 1866 MHz Bessel filter.

Note 3: Defined by a 10% distortion of the wave form.

Notes



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