

## FEATURES

- InGaAs-PIN PD with 3.3V pre-amplifier
- Wide band: 2.2GHz
- Data rate up to 2.7Gb/s
- Differential Output
- High Sensitivity: -25dBm typ.
- 5-pin co-axial package
- Operating Case Temperature: -40°C 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 has a differential electrical output.

## DESCRIPTION

This PIN preamplifier uses an InGaAs PIN chip with a GaAs transimpedance preamplifier. The HZ package is a flangless 5-pin coaxial package for designs that have a limited assembly space. This device is in compliance with ITU-T recommendations and meets the Telcordia requirements.

### ABSOLUTE MAXIMUM RATINGS ( $T_C=25^{\circ}\text{C}$ , unless otherwise specified)

Parameter	Symbol	Ratings		Unit
		Min.	Max.	
Storage Temperature	$T_{\text{stg}}$	-40	+85	°C
Operating Temperature	$T_{\text{op}}$	-40	+85	°C
Supply Voltage	$V_{\text{DD}}$	0	4.5	V
PIN Reverse Voltage	$V_{\text{R}}$	0	+20	V
PIN Reverse Current	$I_{\text{R}}$	-	3(peak)	mA

## OPTICAL &amp; ELECTRICAL CHARACTERISTICS

(T<sub>C</sub>=25°C, λ=1,550nm, V<sub>R</sub>=+5.0V or +3.3V, V<sub>DD</sub>=+3.3V, unless otherwise specified)

Parameter	Symbol	Test Conditions			Limits			Unit
					Min.	Typ.	Max.	
PIN Responsivity	R	$\lambda = 1,310\text{nm}$ , M=1			0.75	0.80	-	A/W
		$\lambda = 1,550\text{nm}$ , M=1			0.80	0.85	-	
		$\lambda = 1,610\text{nm}$ , M=1			-	0.70	-	
AC Transimpedance	Z <sub>t</sub>	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 <sub>cl</sub>				-	50	75	kHz
Peaking	d <sub>pk</sub>	Pin=-20dBm, from 1MHz			-	-	+2	dB
Group Delay Deviation	GD	Pin=-20dBm, from 500MHz to 1.75GHz			-	60	-	psec
Output Return Loss	S <sub>22</sub>	Up to 1.75GHz			10	-	-	dB
		Up to 2.5GHz			5	-	-	
Equivalent Input Noise Current Density	i <sub>n</sub>	Average within 2.2GHz			-	9.5	11.0	pA/ $\sqrt{\text{Hz}}$
Sensitivity	P <sub>r</sub>	2.48832Gb/s, NRZ, PRBS=2 <sup>23</sup> -1, B.E.R.=10 <sup>-10</sup> , Note (2)	R <sub>ext</sub> =14dB	25°C	-	-25	-24	dBm
				-40°C ~ 85°C	-	-24	-22	
			R <sub>ext</sub> =10dB, 25°C		-	-24	-	
Maximum Overload	P <sub>max</sub>	2.48832Gb/s, NRZ, PRBS=2 <sup>23</sup> -1, B.E.R.=10 <sup>-10</sup> .			0	-	-	dBm
		Note (3)			-3	-	-	
Maximum Output Voltage Swing	V <sub>clip</sub>	Saturated Output Voltage			450	550	800	mV
Optical Return Loss	ORL				30	-	-	dB
Power Supply Current	I <sub>DD</sub>				-	45	70	mA
Power Supply Voltage	V <sub>DD</sub>				+3.15	+3.30	+3.45	V

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

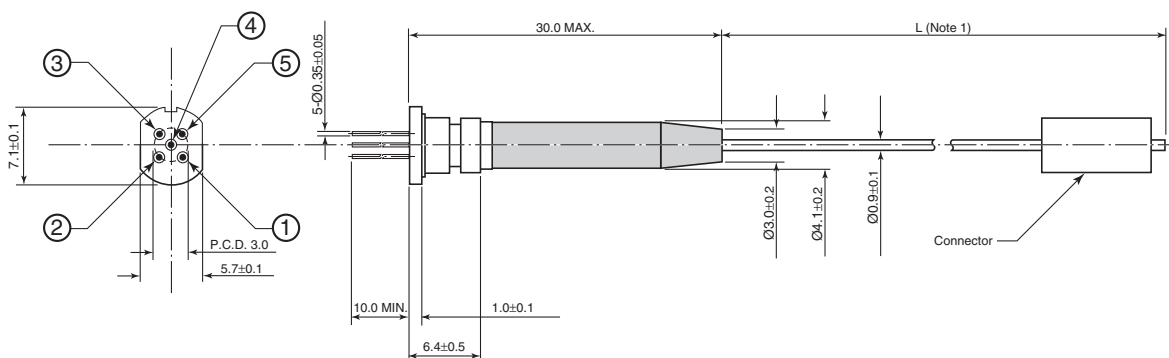
Note 2: With f<sub>c</sub>=1,866MHz Bessel filter.

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

Notes

## "HZ" PACKAGE

UNIT: mm



Note 1: The fiber length (L) shall be specified in the detail (individual) specification.

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