

12 Gb/s PIN Preamp Receiver

The module consists of a PIN photodetector, a low noise preamplifier, a connectorized single-mode fibre pigtail (for coupling light into the photodetector), an SMP electrical output connector, and a hermetic metal package. Optimized for use in 10.66 Gb/s and 12 Gb/s Ultra Long Haul applications using RZ Modulation.

Features

- High optical input power capability
- Low capacitance high speed InGaAs PIN detector
- High Performance preamplifier chip
- Single polarity power supply
- Hermetically sealed
- Bellcore GR468-CORE Controlled
- Environment compliant
- Single mode fibre tail



Characteristics

TC = 25°C unless otherwise specified.

Parameter	Symbol	Min	Typ	Max	Unit
Optical overload $2^{23}-1$ BER<10 ⁻¹⁰ (4)	Psat	+1			dBm
High frequency -3 dB corner (2)	f3dB	12	13		GHz
S21 ripple (400 KHz to 5 GHz)		-0.75	0	+0.75	dB
Return loss S22 (400 KHz to 13 GHz)			-12	-5	dB
Group delay variation (400 KHz to 8 GHz)	GDV	-20	0	+20	pS
Optical Sensitivity $2^{23}-1$ BER<10 ⁻¹⁰ (4)	Sens		-19	-17.5	dBm
PIN responsivity (1)	R	0.7	0.8		A/W
Module PIN bias voltage (Positive)	Vpd	9.5	11.5	13.5	V
Amplifier bias voltage (Positive)	Vcc	7.5	8	8.5	V
Dark current	Id			10	nA
Current consumption	Icc		110	150	mA
Transimpedance gain (2, 3)	TZG	400	500	650	Ohms

- Notes: 1) Optical wavelength is in the 1300 nm region and between 1525 - 1575 nm.
 2) Load impedance is 50 Ω (AC coupled) with a return loss >20 dB, up to 20 GHz.
 3) Excludes PIN responsivity.
 4) Measured with 10 Gb/s NRZ PRBS data and no FEC.

Absolute Ratings

Parameter	Symbol	Min	Max	Unit
Amplifier bias voltage (4)	Vcc	-0.5	9	V
Operating temperature (1)	Top	0	85	°C
Storage temperature (2)	Tstg	-40	85	°C
Optical input (3)	po		10	dBm
Module PIN bias voltage (4)	Vpd		15	V
Peak module PIN current	Ipd		3	mA
Fibre bend radius		35		mm

- Notes: 1) The operating temperature is defined as the temperature of the module case.
 2) The rating is referred to ambient temperature.
 3) The optical level that causes no damage to the module. However, the electrical and optical performance specified in this document may not be guaranteed.
 4) The receiver may be damaged if not powered up and powered down in the correct order. When powering up the device, turn on PIN bias (Vpd) first, then positive supply (Vcc). Power down in reverse order.

Pin No.	Function
1	Ground
2	Case Ground
3	Vcc (+ve)
4	Case Ground
5	Case Ground
6	Case Ground
7	Ground
8	Vpd (+ve)

Circuit Schematic and Dimensions

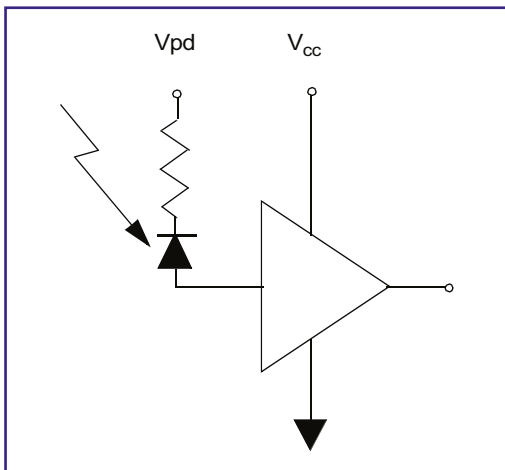


Figure 1: Schematic Diagram

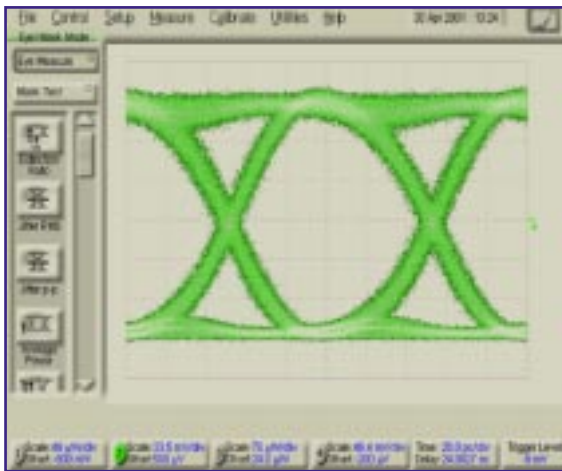


Figure 2: Typical eye diagram measured at 10 Gb/s with NRZ data.

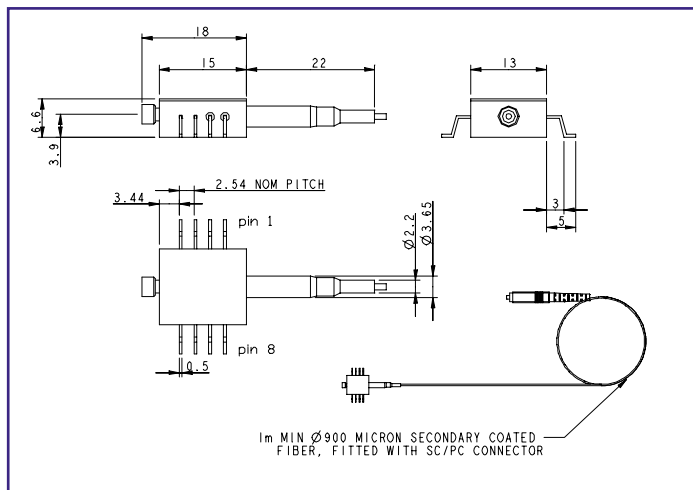


Figure 3: Outline Diagram

Ordering Information

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