

FEATURES

- Wide dynamic range, typically 2 μ W to 1.6 mW (p-p)
- Automatic Gain Controlled
- Differential transimpedance of 3.5 $k\Omega$
- Bandwidth from DC to 2.1 GHz
- Differential outputs
- Single supply voltage 3.3 V
- Remains linear up to 50 μ W (p-p) input power(unclipped)
- Wide data rate range
from 155 Mbps to 2.5 Gbps(low frequency cut off at 3 kHz)



APPLICATIONS

- Digital fiber optic receiver in short, medium and long haul optical telecommunications
- SONET/SDH-based transmission systems, test equipment and modules
- Gigabit Ethernet and Fiber Channel
- Wide-band RF gain block

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	-	3.0	3.3	3.6	V
Power supply current	I_{CC}	-		44	59	mA
Photodiode bias voltage*	V_{PD}	-	3.3		5	V
Transimpedance	Z_T	RL=50 Ω , measured differentially, AC coupled	2.5	3.5	4.5	$k\Omega$
3dB Bandwidth	f_{3dB}	Pin=-10dBm	1.7	2.1	2.6	GHz
Low frequency cut-off	f_{lc}			3		kHz
Transimpedance gain deviation	ΔZ_T	f=1MHz to 1.8GHz			2	dB
Electrical return loss	L_E	-	-10		-7	dB
Responsivity	R	-	0.85			A/W
Output impedance	Z_O	-		50		Ω

* Photodiode bias is necessary only for 5 pin type module.

2.5 Gbps PIN-TIA module – XPD0250CT-003

OPTICAL CHARACTERISTICS (T_C = 25 °C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Optical wavelength range	λ	-	1100		1600	nm
Sensitivity	P _S	RL=50, 2.5Gbps NRZ, PRBS=2 ²³ -1, BER=1×10 ⁻¹⁰		-27		dBm
Maximum overload	P _{MAX}	-		1.6		dBm
Optical return loss	Lo	λ = 1550nm			-30	dB

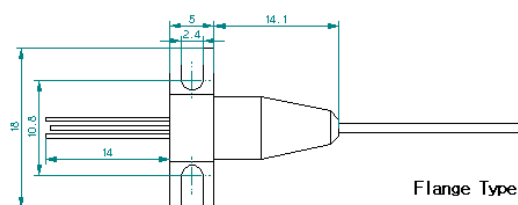
ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C)

Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	+5.0	V
Photodiode bias voltage*	V _{PD}	10	V
Operating case temperature range	T _C	-20 to +75	°C
Storage temperature range	T _{STG}	-40 to +85	°C

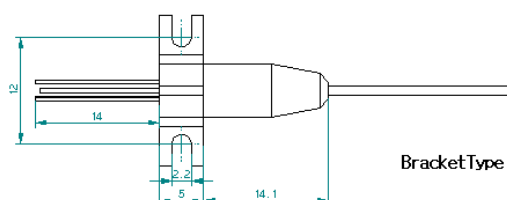
* Photodiode bias is necessary only for 5 pin type module.

MECHANICAL DIMENSIONS & PIN LAYOUT

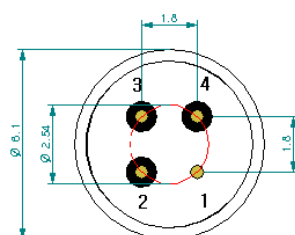
(unit : mm)



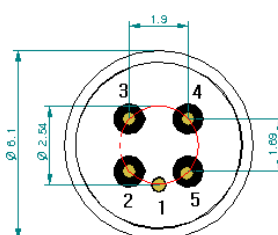
Flange Type



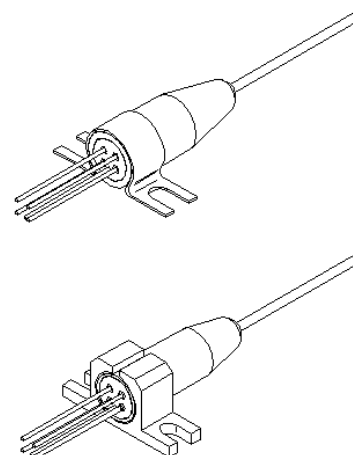
Bracket Type



pinning – 4pin



pinning – 5pin



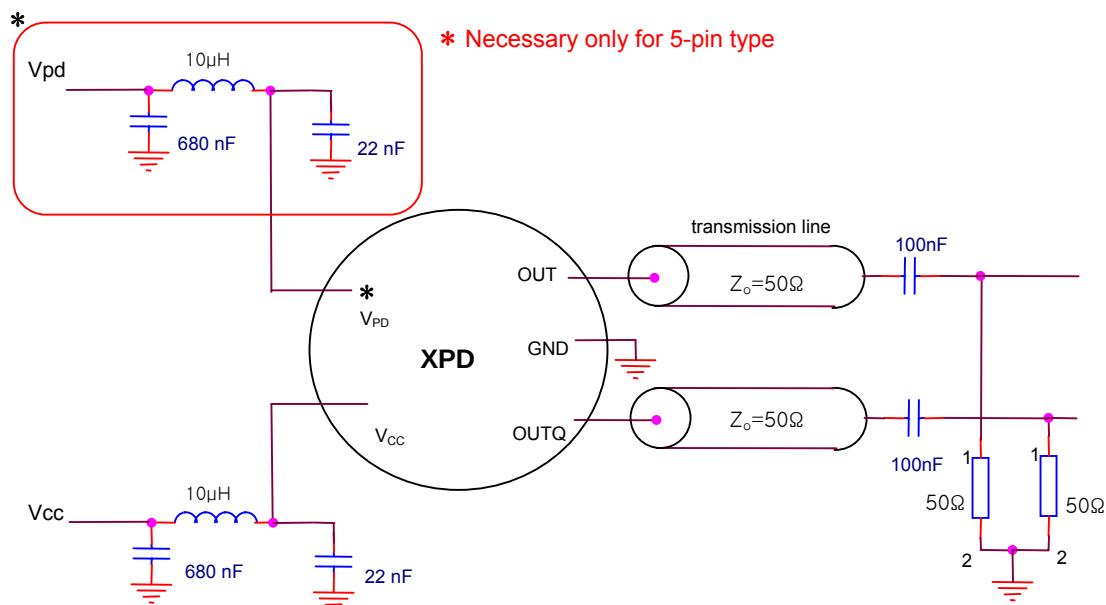
	A1	AM	B1	BM
1	GND	GND	GND	GND
2	OUTQ	OUT	OUT	OUTQ
3	OUT	OUTQ	VCC	VCC
4	VCC	VCC	OUTQ	OUT

	C1	CM	D1	DM
1	GND	GND	GND	GND
2	OUT	OUTQ	OUT	OUTQ
3	VCC	VCC	VPD	VPD
4	VPD	VPD	VCC	VCC
5	OUTQ	OUT	OUTQ	OUT

Symbol	Type	Description
GND	Ground	Ground
Vout	Output	Data output
Vcc	Supply	Supply voltage
Vpd	Supply	PD bias voltage
Voutq	Output	Data reverse output

2.5 Gbps PIN-TIA module – XPD0250CT-003

APPLICATIONS DIAGRAM



PRECAUTIONS FOR USE

ESD protection is imperative. Use of ground straps, anti static mats, and other standard ESD protective equipment is recommended when handling or testing an InGaAs PIN/APD or any other junction photodiode.

Soldering temperature of the leads should not exceed 260 °C for more than 10 seconds.

Fiber pigtailed should be handled with less than 10 N pull and with a bending radius greater than 1 inch.

ORDERING INFORMATION

Model name				Option			
PD type	Bit-rate	Package type	Code	Pinning	Fiber*	Connector type	Flange
XPD: PIN PD	0250: 2.5G	CT: Coaxial type embedded TIA	003	A1 B1 C1 D1	S: SMF M: MMF P: PMF	NC: No connector SP: SC/UPC FP: FC/UPC SA: SC/APC FA: FC/APC	N: No flange F: Flange B: Bracket

* Standard fiber length: 1 meter

ex) XPD0250CT-003-A1SFPN

2.5 Gbps PIN-TIA receiver module with A1 pin-layout, single mode fiber-pigtailed FC/UPC connector

2.5 Gbps PIN-TIA module – XPD0250CT-003

REVISION HISTORY

Date	Revision	Description
September 2003	002	Specific condition is defined
April 2003	001	Initial release

URL: www.XL-photonics.com E-mail: sales@XL-photonics.com

59-8 Jang-Dong, Yusong-Gu, Daejeon 305-343, South Korea

TEL: +82-42-3600-100 FAX: +82-42-3600-101

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