

Wooriro Photo Diode

WOORIRO 10Gbps APD TIA LC Receptacle
SPECIFICATIONS



Contents

General Description 3

Absolute Maximum Ratings 3

Electro-Optical Characteristics 4

Mechanical Dimension & FPCB Layout 5

Other Requirements 6

General Description

The 10Gbps APD TIA LC Receptacle is a low cost receiver module with a miniaturized size for using in the XFP/300pin MSA optical transceiver and is assembled with LC receptacle by high power Nd-YAG laser welding method. It guarantees high sensitivity and its low deviation over an operating temperature range.

Features

- InGaAs APD chip for 10Gbps
- High gain 12kΩ transimpedance pre-amplifier for 10Gbps
- XMD-MSA compliant FPCB ROSA
- The flame GND (sleeve) and signal GND (stem) are electrically isolated
- Operation at 1270nm and 1620nm
- Differential data output
- High sensitivity: typ. -27dBm
- Telcordia™ qualified

Applications

- Digital fiber optic receiver in short, medium and long haul optical telecommunications transmission systems and in high speed optical data networks
- SFP+/XFP/300pin MSA optical transceiver

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
TIA supply voltage	V _{CC}	-0.5 to +4	V
APD supply voltage	V _{APD}	0 to V _{BR}	V
APD reverse current	I _{APD}	3	mA
Operating case temperature range	T _C	-40 to +85	°C
Storage temperature range	T _{STG}	-40 to +85	°C

Table 1. Absolute Maximum Ratings

Electro-Optical Characteristics

Inspection sheet shall be appended to products when they are delivered. Test report shall be submitted in papers and in electronic media. It shall contain the major in following items.

Optical Characteristics(Tc=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Responsivity	R	$\lambda = 1550\text{nm}, M=1$	0.65	0.75		A/W
Optical wavelength range	λ	-	1270		1620	nm
Sensitivity	P_S	9.95Gbps NRZ, PRBS= $2^{31}-1$, BER= 1×10^{-12} , M_{opt} ER=11.3dB, $\lambda=1550\text{nm}$		-27	-26	dBm
Maximum overload	P_{MAX}	9.95Gbps NRZ, PRBS= $2^{31}-1$, BER= 1×10^{-12} , M_{opt} ER=11.3dB, $\lambda=1550\text{nm}$	-5			dBm

Table 2. Optical Characteristics

Electrical Characteristics(Tc=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
TIA supply voltage	V_{CC}	-	3.1	3.3	3.4	V
TIA supply current	I_{CC}	-		32	46	mA
Breakdown voltage	V_{BR}	Dark current, $I_d=10\mu\text{A}$	25	30	40	V
Transimpedance	Z_T	Differential(50Ω on each output), $f=100\text{MHz}$	10.4	12	14.6	KΩ
3dB bandwidth	F_{CH}	@-3dB, M=9, Pin=-20dBm	7	8		GHz
Low cut-off frequency	F_{CL}			10	45	KHz
Maximum output voltage	V_{OUT}	Single-ended	350	450	650	mV_{p-p}
Output impedance	Z_O	Single-ended		50		Ω
Temperature coefficient of V_{BR}	δ	-	-	55	90	$mV/^\circ\text{C}$

Table 3. Electrical Characteristics

Mechanical Dimension & FPCB Layout

Mechanical Dimension

(unit : mm)

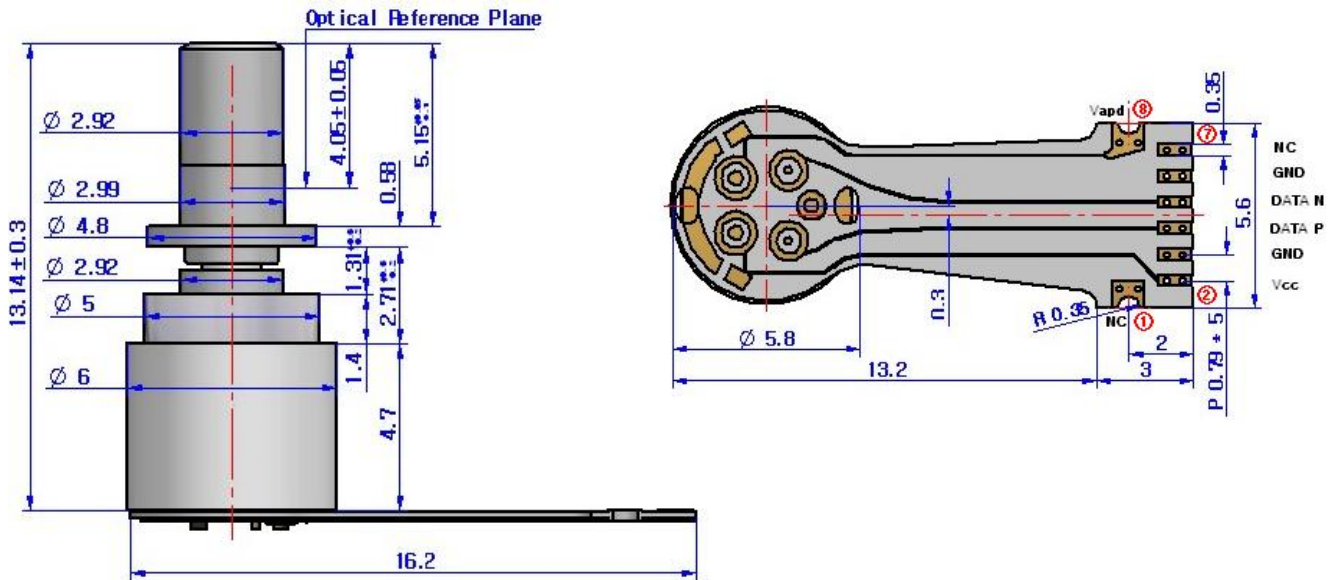


Figure 1. Mechanical Dimension

Pin Configuration

No.	Symbol	I/O	Description
1	NC	NC	Not internal connection
2	V _{CC}	I	TIA Supply voltage
3	GND	I/O	Signal ground
4	Data P	O	Positive data output
5	Data N	O	Negative data output
6	GND	I/O	Signal ground
7	NC	NC	No internal connection
8	V _{APD}	I	APD bias voltage

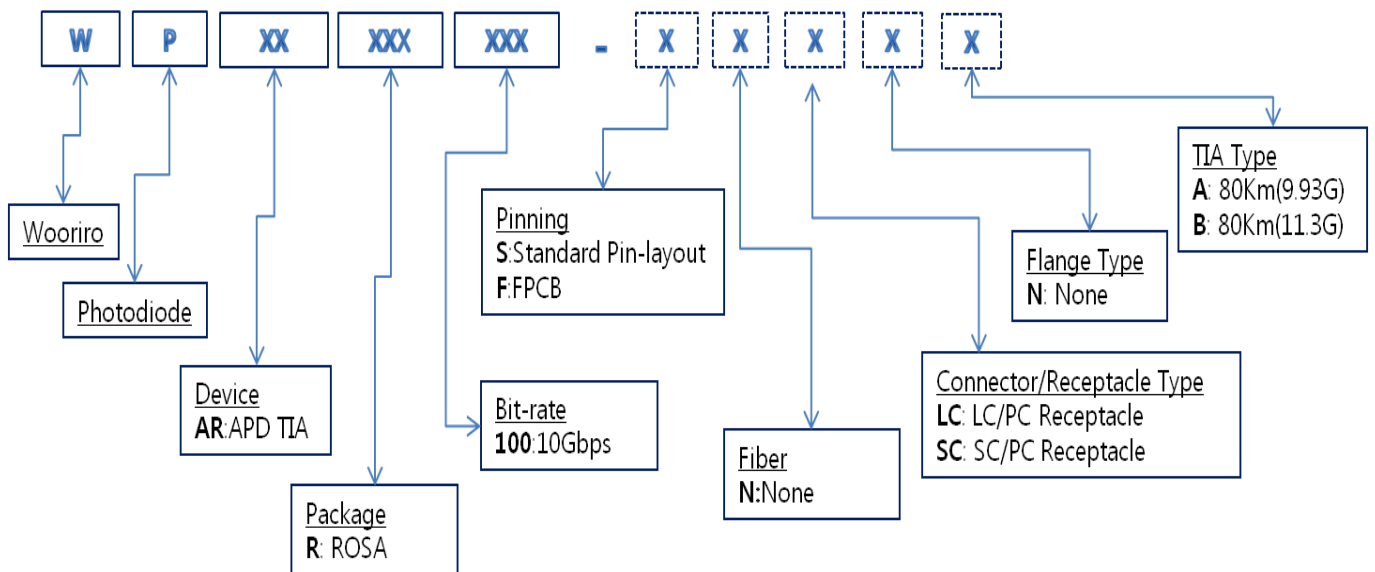
Table 4. PIN Configuration

Other Requirements

Precautions for Use

This device is susceptible to damage as a result of ESD(electrostatic discharge). 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 350 °C for more than 10 seconds.

Ordering Information



Ex) WPARR100-FNLCNB: 10G APD TIA LC Receptacle with FPCB at 11.3G