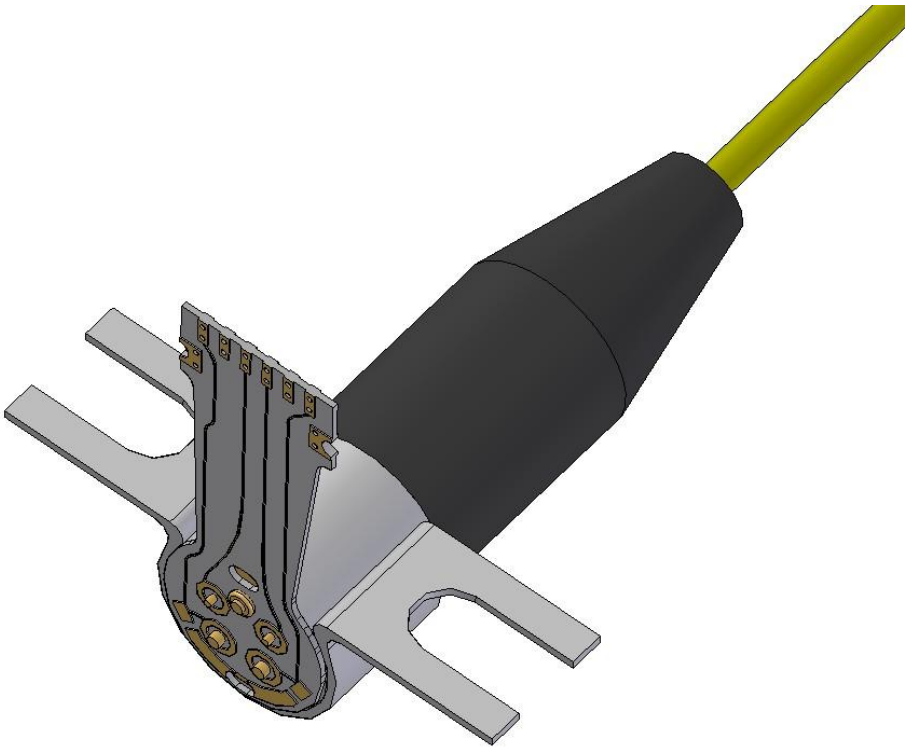
Wooriro Photo Diode

The specification of WPARP100FSLPFB

(Pigtailed ROSA with InGaAs APD – 10Gbps VERSION 2)



Contents

General Description

The 10Gbps APD TIA Pigtailed is a receiver module with a miniaturized size for using in the 300pin MSA optical transponder and is assembled with SMF(single mode optical fiber) 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 12㏀ transimpedance pre-amplifier for 10Gbps
- XMD-MSA compliant FPCB ROSA
- The flame GND (sleeve) and signal GND (stem) are electrically isolated
- Differential data output
- Low power dissipation: typ. 105mW
- High sensitivity: typ. -27dBm

Applications

- Digital fiber optic receiver in short, medium and long haul optical telecommunications transmission systems and in high speed optical data networks
- Fiber in the loop (FTTO, FTTC, FTTH)
- SFP+/XFP/300pin MSA optical transceiver

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
TIA supply voltage	V_{CC}	-0.5 to +3.7	V
APD supply voltage	V_{APD}	0 to V_{BR}	V
APD reverse current	I_{APD}	3	mA
DCA voltage	V_{DCA}	0 to 4.0	V
Operating case temperature range	T_C	-40 to +85	℃
Storage temperature range	T_{STG}	-40 to +85	℃

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	λ= 1550㎚, M=1	0.65	0.75		A/W
Optical wavelength range	λ	-	1100		1620	nm
Sensitivity	P_S	9.95Gbps NRZ, PRBS=2^{31}-1, BER=1×10^{-12},M_{opt} ER=11.3dB, λ=1550nm		-27	-26	dBm
Maximum overload	P_{MAX}	9.95Gbps NRZ, PRBS=2^{31}-1, BER=1×10^{-12},M_{opt} ER=11.3dB, λ=1550nm	-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㎂	25	30	40	V
Transimpedance	Z_T	Differential(50Ω on each output), f=100MHz	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}	Differential	350	450	650	mV_{p-p}
Output impedance	Z_O	Single-ended		50		Ω
Temperature coefficient of V_{BR}	δ	-	-	55	90	mV/℃
DCA input current[1]	I_{DCA}	-	-30		30	μA
DCA input voltage[1]	V_{DCA}		2.5		3.5	V

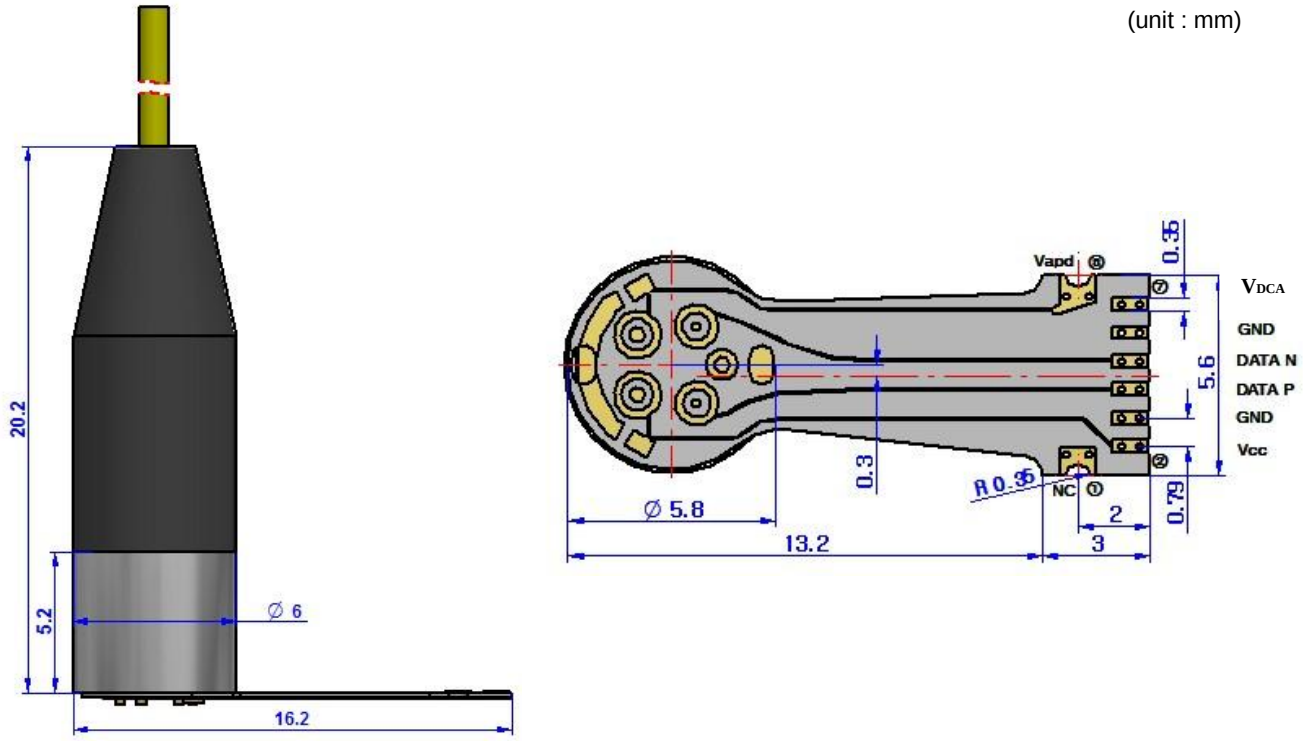
Note: [1] These are minimum and maximum inputs to DCA required to adjust V_{OS} over its full range. DCA is normally self-adjusting. Only apply I_{DCA} or V_{DCA} if different eye crossing is required. Current control(I_{DCA}) is recommended.

Table 3. Electrical Characteristics

Mechanical Dimension & FPCB Layout

Mechanical Dimension

(unit : mm)



Pin Configuration

No.	Symbol	I/O	Description
1	Thermistor	O	Thermistor (on request)
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	V_{DCA}	I	Adjustable DC offset control
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℃ for more than 10 seconds.

Ordering Information