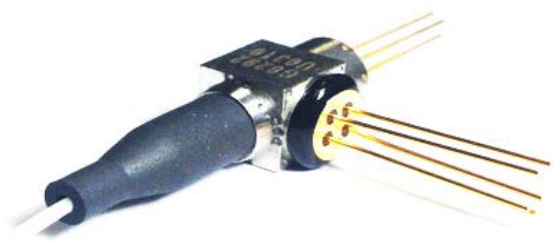
JEZETEK 九州光电子 Jiuzhou Opto-electronics



GPON ONU BOSA

BA-33 series T1.25G/R2.5G

Description

This BOSA is a high performance optical sub-assembly in single fiber by using 1310nm transmitter and 1490nm receiver.

The transmitter section uses a multiple quantum well 1310nm DFB laser supporting burst-mode operation. The receiver section uses a TO-can built in a long wavelength PIN diode and a 2.5Gbps transimpedance amplifier.

Applications

- GPON BOB ONU optical modem, class B+,C+
- GPON ONU transceiver
- FTTH Bi-directional play

Features

- Single fiber pigtail type bi-directional transmission design for digital communication
- Asymmetric 2.5Gbps downstream and 1.25Gbps upstream data link transmission
- Laser welded transmitter and epoxy cured receiver package
- Integrated micro-optics WDM filters for dual wavelength Tx/Rx operation at 1310/1490nm
- 1310nm InGaAsP/InP MQW DFB laser diode transmission with high bandwidth InGaAs monitor photodiode
- 1490nm digital APD with integrated 2.5Gbps, 3.3V continuous mode transimpedance-amplifier
- High optical isolation from external source and low optical cross-talk from internal source
- -5°C to +75°C commercial temperature and -40°C to +85°C industrial operating temperature available with excellent temperature dependent power tracking error

Standard

- Compliant with ITU-T G984.5 telecommunication protocol
- Compliant with Telcordia GR-468 reliability test criterion
- Compliant with Telcordia GR-326 connector qualification standard
- Compliant with RoHS6 standard

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网址(Url): http://www.jiuzhouoesz.com/

1. Absolute Maximum Ratings

Item	Unit	Min	Max	Note
Forward Current for LD	mA	--	120	
Reverse Voltage for LD	V	--	2	
Forward Current for MPD	mA	--	2	
Reverse Voltage for MPD	V	--	15	
Optical Power for Rx	dBm	5	--	
APD Forward Current	mA	--	2	
APD Reverse Current	mA	--	3	
APD Reverse Voltage	V		Vbr	
TIA Supply Voltage	V	-0.4	4	
Operating Temp	°C	-5	75	
Storage Temperature	°C	-40	85	
Storage Relative Humidity	%	--	85	
Solder Reflow Temperature	°C	--	260	(*1)

(*1): Only for soldering by iron and 10 seconds on leads only

2. Transmitter Electro-Optical Characteristics (T_C=25°C, CW)

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Threshold Current	Ith	Tc=25°C	--	10	15	mA
		Tc=-5~75°C	1	--	50	mA
Optical Output Power (*2)	Pf	If=Ith+20mA, Tc=25°C	1.6	--	3.5	mW
		If=Ith+20mA, Tc=-5~ 75°C	1.0	--	--	mW
Slope Efficiency	η	If=Ith+20mA, Tc=25°C	0.08	--	0.175	mW/mA
		If=Ith+20mA, Tc=-5~ 75°C	0.05	--	--	mW/mA
Forward Current	If	Pf=2.5mW, Tc=-5~75°C	--	--	70	mA
Forward Voltage	Vf	If=Ith+20mA	--	1.1	1.5	V
Rise/Fall Time	τ_r/τ_f	20%~80%	--	0.1	0.2	ns
Central Wavelength	λc	If=Ith+20mA, Tc=25°C	1300	1310	1320	nm
		If=Ith+20mA, Tc=-5~ 75°C	1290	--	1330	nm

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Spectrum Width (RMS)	Δλ	If=Ith+20mA, Tc=-5~ 75°C	--	0.32	1.0	nm
Side Mode Suppression Ratio	SMSR	If=Ith+20mA, Tc=-5~ 75°C	30	--	--	dB
Monitor Current	Im	If=Ith+20mA, Tc =-5~ 75°C	100	--	1000	μA
Monitor Dark Current	Id	Vrp=5V	--	--	100	nA
Monitor Capacitance	C	Vrp=5V, f=1MHz	4	--	15	pF
Tracking Error (*3)	TE	Tc=-5~ 75°C	-1.5	--	1.5	dB

(*2): Launched into 9/125μm SMF

(*3): ΔPf =10x log (Pf (Tc) /Pf (25°C)), Im hold(@Pf=2mW, 25°C)

3. Receiver Electro-Optical Characteristics (T_C=25°C, Vcc=3.3V)

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	No loads	3.0	3.3	3.6	V
Supply Current	Icc	No loads	--	20	24	mA
Operating Wavelength	λ	Tc=-5~75°C	1480	--	1500	nm
Sensitivity	Sen	2.5Gbps, PRBS23, ER=10dB, BER=10E-10, RL=50Ω, NRZ	--	--	-29.5	dBm
Overload	OL		-7.0	--	--	dBm
Output Impedance	Rout	Single end	40	--	60	Ω
Differential Output Voltage	Vpp	100Ω differential load, 2.5Gbps	--	--	1000	mV
Dark Current	Id	Vapd=Vbr-3V	--	--	150	nA
Optical Return Loss	ORL1310	1310nm	--	--	-15	dB
	ORL1490	1490nm	--	--	-20	dB
Optical Crosstalk	X-talk	1310nm/1490nm	--	--	-47	dB
Optical Isolation from External Source	ISO1	λ=1441~1450nm	25	--	--	dB
		λ=1530~1539nm				
	ISO2	λ=1260~1440nm	35	--	--	dB
		λ=1540~1625nm				

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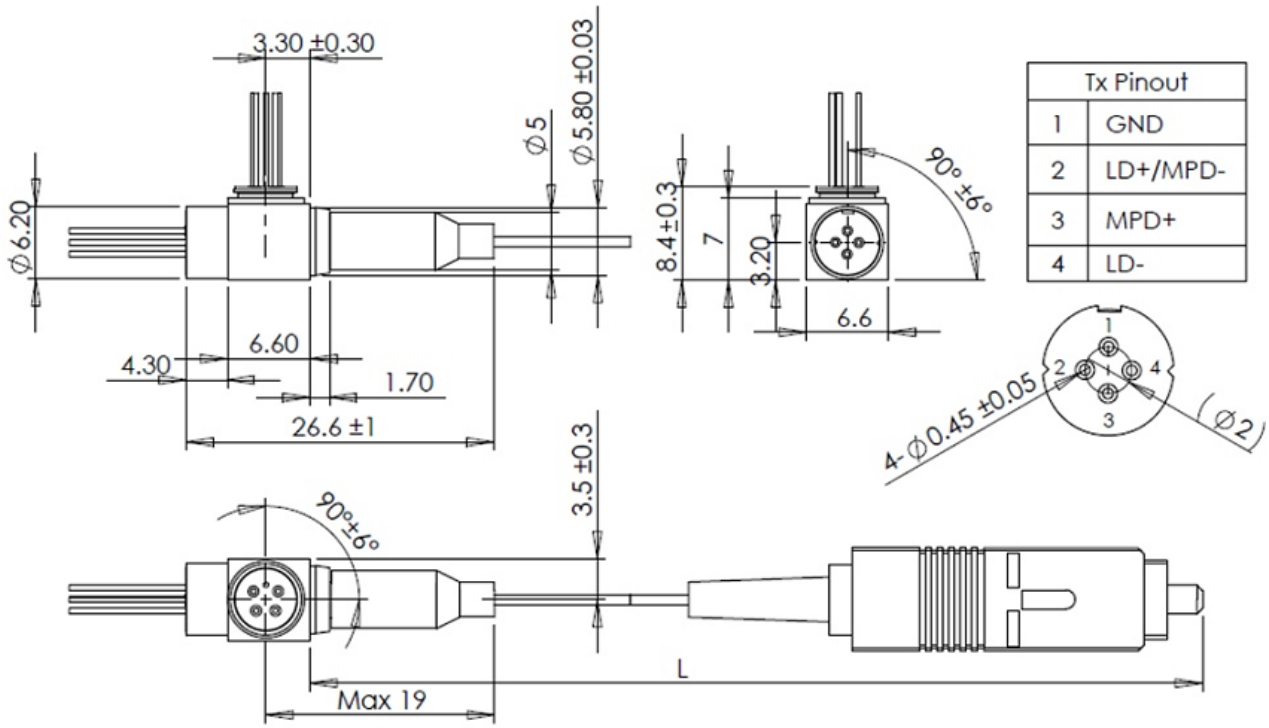
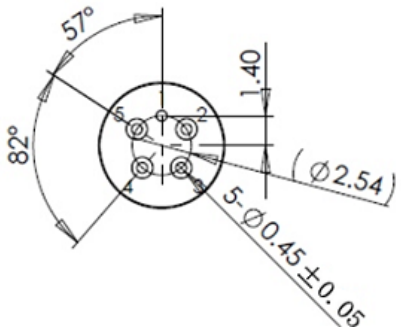
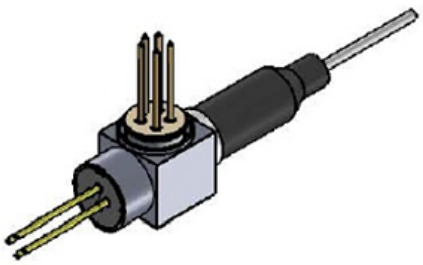
4. Dimension Outline



Tx Pinout	
1	GND
2	LD+/MPD-
3	MPD+
4	LD-

Rx Pinout	
1	GND
2	D+
3	Vcc
4	Vapd
5	D-





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5. Other Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Mode Field Diameter		8	9	10	μm	
Gladding Diameter		123	125	127	μm	
Fiber Macro bend Loss				0.05	dB	Radius 16mm
Optical Connector Insertion Loss		--	--	0.4	dB	SC/UPC connector
Fiber Bending Radius		25	--	--	mm	
Fiber Diameter		0.8	0.9	1.0	mm	
Fiber Length		210	--	250	mm	L
Pull Force on LD Assembly		30	--	--	Kgw	
Pull Force on APD Assembly		15	--	--	Kgw	
Shear Strength on XY Welding		30	--	--	Kgw	
Tension Force on Fiber Pigtail		10	--	--	N	

(*4): Connector fiber end face accord with IPC-8497-1

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