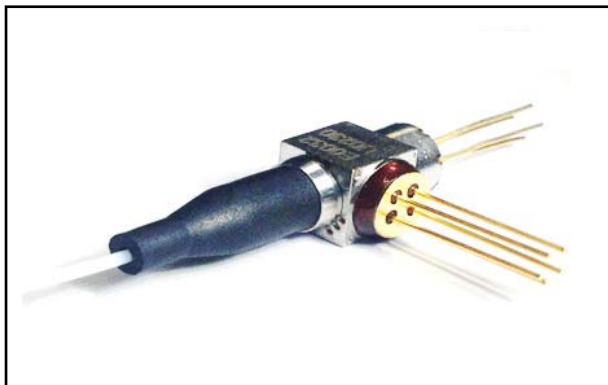




Description

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 FP laser supporting burst-mode operation. The receiver section uses a TO-can built in a long wavelength PIN diode and a 1.25Gbps transimpedance amplifier.

Applications

- EPON BOB ONU optical modem
- EPON ONU transceiver
- FTTH Bi-directional play

EPON ONU BOSA

BA-21 series T1.25G/R1.25G

Features

- Single fiber pigtail type bi-directional transmission design for digital communication
- Symmetric 1.25Gbps 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 FP laser diode transmission with high bandwidth InGaAs monitor photodiode
- 1490nm digital PIN photodiode integrated with 1.25Gbps, 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 operating temperature range with excellent temperature dependent optical power tracking error

Standard

- Compliant with IEEE802.3ah™-2004 1000BASE-PX10/20 communication protocol
- The Compliant with Telcordia GR-468 reliability test criterion
- Compliant with Telcordia GR-326 connector qualification standard
- Compliant with RoHS6 standard

1. Absolute Maximum Ratings

Item	Unit	Min	Max	Note
Forward Current for LD	mA	–	150	
Reverse Voltage for LD	V	–	2	
Forward Current for MPD	mA	–	2	
Reverse Voltage for MPD	V	–	20	
Optical Power for Rx	dBm	5	–	
TIA Supply Voltage	V	-0.4	4.0	
Operating Temp	°C	-5	75	
Storage Temperature	°C	-40	85	
Storage Relative Humidity	%	85	–	
Solder Reflow Temperature	°C	–	260	(*1)
Hand Soldering Temperature	°C	500		

(*1): For soldering by iron and 10 seconds on leads

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

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Threshold Current	I _{th}	T _c =25°C	1	–	15	mA
		T _c =-5~75°C	1	–	35	mA
Optical Output Power (*2)	P _f	I _f =I _{th} +20mA, T _c =25 °C	1.2	–	3.0	mW
		I _f =I _{th} +20mA, T _c =-5~75°C	0.80	–	–	mW
Slope Efficiency	η	I _f =I _{th} +20mA, T _c =25 °C	0.06	–	0.15	mW/mA
		I _f =I _{th} +20mA, T _c =-5~75°C	0.04	–	–	mW/mA
Forward Current	I _f	P _f =1.3mW, T _c =-5~75°C	–	–	65	mA
Operating Voltage	V _{op}	I _f =I _{th} +20mA	–	1.2	1.5	V
Peak Wavelength	λ	I _f =I _{th} +20mA	1290	1310	1330	nm
	λ	I _f =I _{th} +20mA, T _c =-5~75°C	1260	1310	1360	nm
Spectrum Width (RMS)	Δλ	I _f =I _{th} +20mA	–	2.0	2.5	nm
Rise/Fall time	τ _r /τ _f	20%~80%, I _b =I _{th}	–	100	200	ps
Monitor Current	I _m	P _f =1.3mW	100	–	1000	μA

Monitor Capacitance	C	V _{rp} =5V, f=1MHz	4	–	15	pF
Monitor Dark Current	I _d	V _{rp} =5V	–	–	100	nA
Tracking Error (*3)	TE	CW, T _c = -5~ 75°C,	-1.3	–	1.3	dB

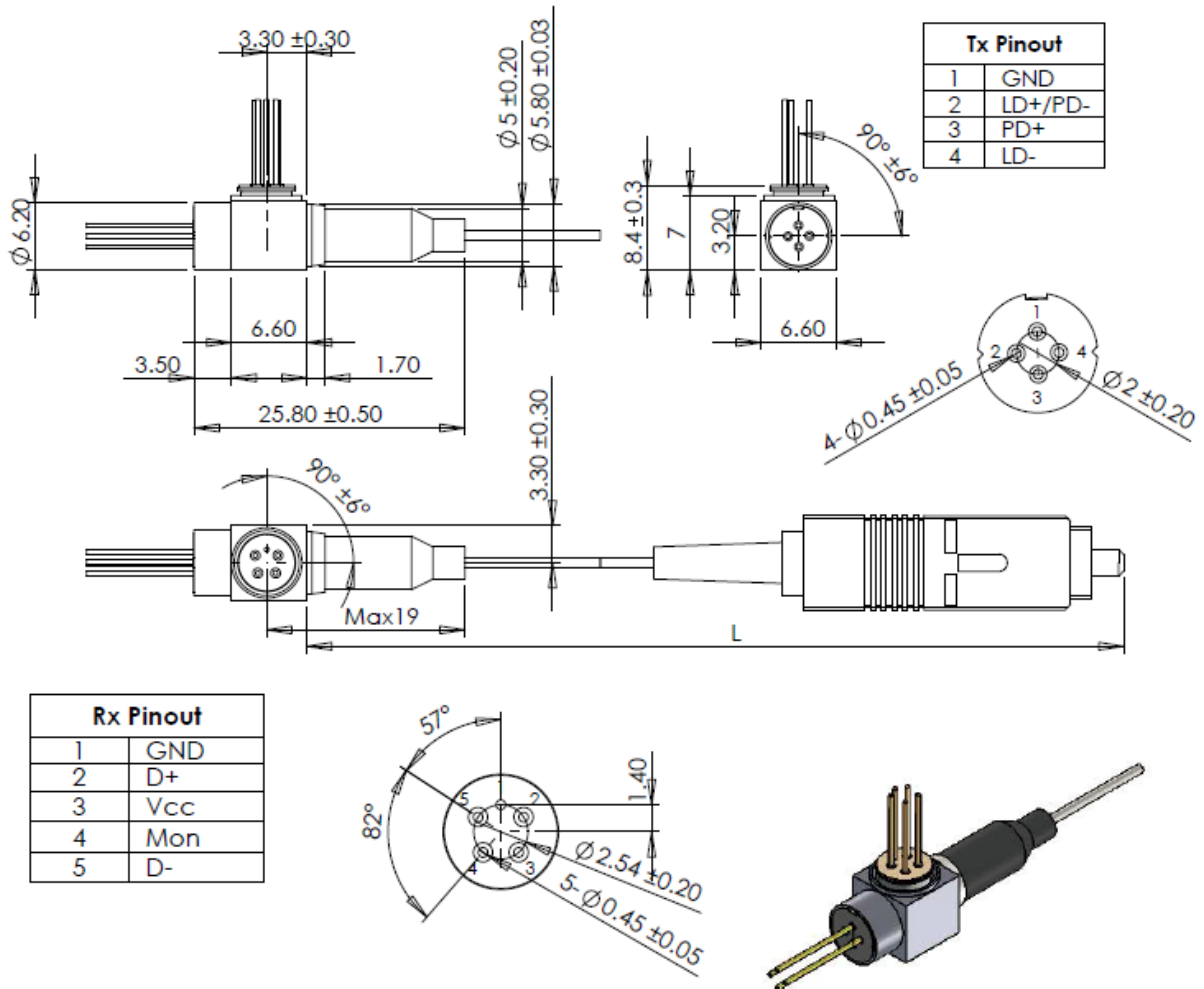
(*2): Launched into 9/125μm SMF

(*3): ΔPf = 10x log (Pf (T_c) / Pf (25°C)), I_m hold (@Pf=1.3mW, 25°C)

3. Receiver Electro-Optical Characteristics (T_c=25°C, V_{cc}=3.3V)

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Voltage	V _{cc}		3.0	3.3	3.6	V
Supply Current	I _{cc}	No loads	–	28	35	mA
Operating Wavelength	λ		1480	–	1500	nm
Sensitivity	Sen	λ=1490nm, 1.25Gbps, PRBS7, NRZ, ER=10dB, BER=10E-12	–	–	-28.5	dBm
Overload	OL		-1.0	–	–	dBm
Output Impedance	R _{out}	Single end	40	50	60	Ω
Differential Output Voltage	V _{pp}	100Ω differential load, 1.25Gbps	–	-	1000	mV
Optical Return Loss	ORL1310	1310nm	–	–	-12	dB
	ORL1490	1490nm	–	–	-20	dB
Rise/Fall time	τ _r /τ _f	20%~80%	200	300	400	ps
Optical Crosstalk	X-talk	1310nm internal TX/1490nm RX	–	–	-45	dB
Optical Isolation	ISO1	from external light source, λ=1260~1360nm	25	–	–	dB
	ISO2	from external light source, λ=1550~1560nm	35	–	–	dB

4. Dimension Outline



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 PD 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