



Description

This receptacle BOSA is a high performance optical sub-assembly in single fiber by using 1310nm transmitter and 1577nm 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 APD chip and a 10Gbps trans-impedance amplifier. High optical isolation and reflection free is achieved by using CWDM filter and optical isolator.

Applications

- 10G EPON asymmetric bi-directional ONU SFP+, XFP transceiver
- 10G EPON asymmetric bi-directional BOB ONU optical modem

10GEPON ONU BOSA BA-43 series T1.25G/R10G

Features

- Single fiber receptacle type bi-directional transmission design for digital communication
- Asymmetric 10Gbps downstream and 1.25Gbps upstream data link transmission
- Laser welded transmitter and epoxy cured receiver package
- Integrated micro-optics CWDM filters for dual wavelength Tx/Rx operation at 1310/1577nm
- 1310nm InGaAsP/InP MQW DFB laser diode transmission with high bandwidth InGaAs monitor photodiode
- 1577nm digital APD with integrated 10Gbps, 3.3V continuous mode transimpedance-amplifier
- Optical reflection free with built-in 1310nm free space isolator
- High optical isolation from external 1490nm source, and low optical cross-talk from internal 1310nm source
- 0°C to +70°C commercial temperature with excellent temperature dependent power tracking error

Standard

- IEEE802.3av 10G EPON MSA communication protocol
- 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	–	120	
Reverse Voltage for LD	V	–	2	
Forward Current for MPD	mA	–	2	
Reverse Voltage for MPD	V	–	20	
APD Reverse Current	mA	–	2	
APD Reverse Voltage	V	–	Vbr	
TIA Supply Voltage	V	-0.4	4	
Operating Temp	°C	0	70	
Storage Temperature	°C	-40	85	
Storage Relative Humidity	%	–	85	
Soldering Temperature	°C	–	260	(*1)

(*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	–	8	13	mA
		T _c =0~70°C	–	–	45	mA
Optical Output Power (*2)	P _f	I _f =I _{th} +20mA, T _c =25 °C	2.0	–	–	mW
		I _f =I _{th} +20mA, T _c =70 °C	1.26	–	–	mW
Forward Voltage	V _f	I _f =I _{th} +20mA	–	1.2	1.7	V
Peak Wavelength	λ	I _f =I _{th} +20mA	1290	1310	1330	nm
Spectrum Width (-20dB)	Δλ	I _f =I _{th} +20mA	–	–	1.0	nm
Side Mode Suppression Ratio	SMSR	I _f =I _{th} +20mA	30	–	–	dB
Monitor Current	I _m	P _f =2.3mW	0.08	–	1	mA
Monitor Dark Current	I _d	V _{rp} =10V	–	–	100	nA
Monitor Capacitance	C	V _{rp} =1V, f=1MHz	–	10	20	pF
Tracking Error (*3)	TE	T _c =0~ 70°C	-1.5	–	1.5	dB

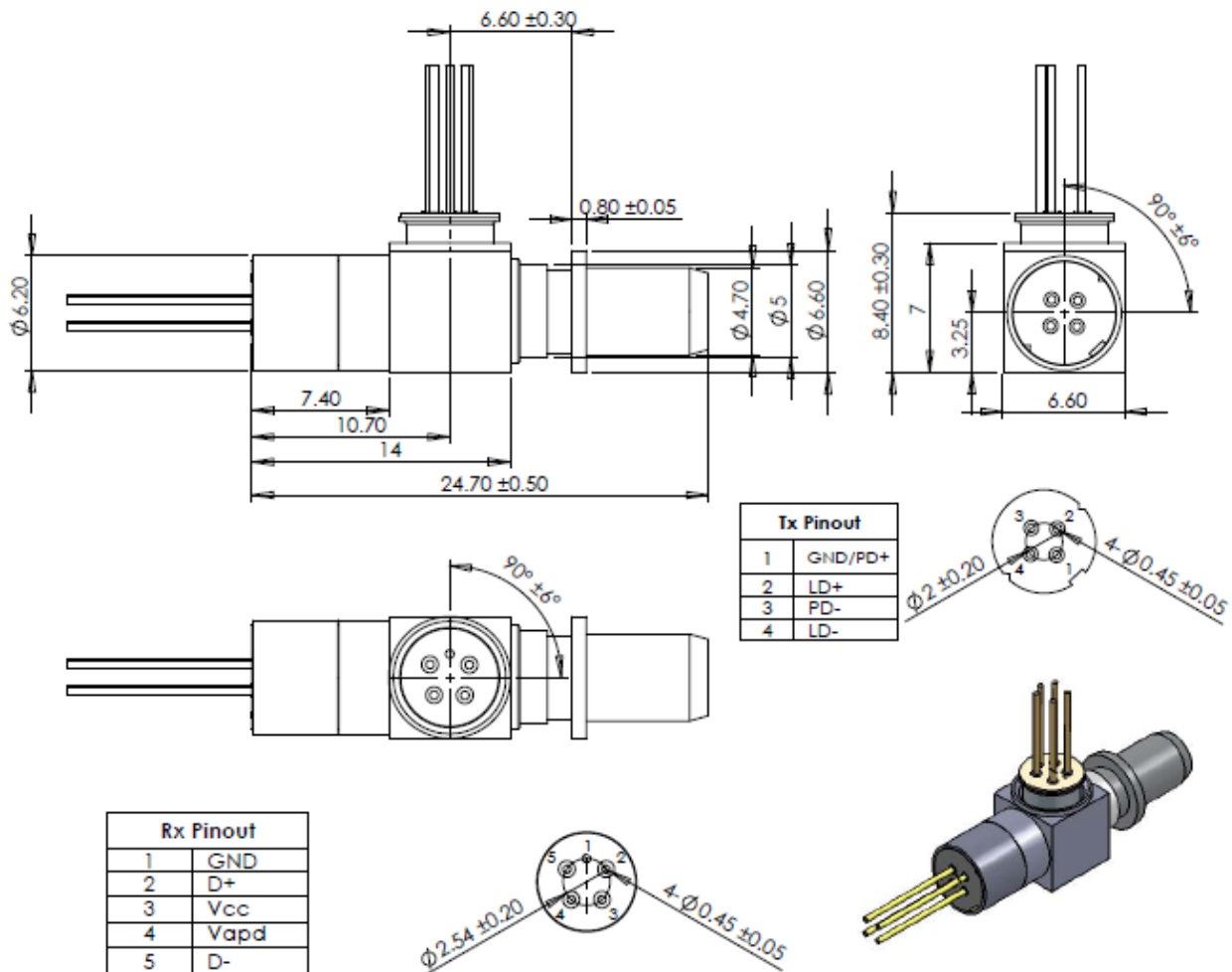
(*2): Launched into 9/125μm SMF, measured with a master plug and an extra receptacle

(*3): $\Delta Pf = 10 \times \log (Pf (Tc) / Pf (25^{\circ}C))$, Im hold(@Pf=2.3mW, 25°C)

3. Digital Receiver Electro-Optical Characteristics (Tc=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	Vcc	40	—	70	mA
Operating Wavelength	λ		1575	1577	1580	nm
Breakdown Voltage	Vbr	Id=10uA	25	—	40	V
Sensitivity	Sen	9.953Gbps, NRZ, PRBS23, ER=8.2dB, BER=10E-3	—	—	-24	dBm
Overload	OL		-7	—	—	dBm
Output Impedence	Rout	Single end	—	50	—	Ω
Optical Crosstalk	X-talk	1310nm/1577nm	—	—	-40	dB
Optical Isolation from External Source	ISO	λ =1260~1560nm	30	—	—	dB
		λ =1600~1675nm	30	—	—	dB

4. Dimension Outline (Unit: mm)



5. Other Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Fiber Mode Field Diameter		8	9	10	μm	
Pull Force on LD Assembly		30	--	--	Kgw	
Pull Force on APD Assembly		15	--	--	Kgw	
Shear Strength on XY Welding		30	--	--	Kgw	
Connector Repeatability (*4)		-1.0	--	+1.0	dB	

(*4): Same plug orientation, same patchcord, 5 times, Launched into 9/125μm SMF, measured with a master plug and an extra receptacle