

10Gbps 1270nm DFB / 1577nm APD pigtail BOSA

P/N: WB3-P270-XT4-S31

Description

Wavesplitter BOSA WB3-P270-XT4-S31 is designed for high speed, high performance optical communication applications as well as 10G- XGS PON and 5G networking applications.

Features

- Uncooled DFB laser with superior high temperature performance
- High sensitivity APDTIA package with immunity to WiFi interference
- Pigtail type BOSA with a high coupling efficiency TO56 for high optical output power
- RoHS complaint
- SC/APC pigtail 310mm +/- 10mm

APPLICATIONS

- XGS-PON BOSA-on-Board (BoB) ONU
- Upstream Tx by 9.95Gbps 1270nm DFB TO56
- Downstream Rx by 9.95Gbps 1577nm 5- pin APDTIA TO46 integrated WDM filter
- Compliant with ITU-T G9807.1 standard
- This fiber type is fully compliant with the ITU-T G.652 Recommendations for Standard Single-Mode Fiber

Product Specifications

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Min.	Max.	Unit
Operating Temperature of Laser (BOSA body temperature)	TC	---	-40	+85	°C
Storage Temperature	TStorage	---	-40	+85	°C
Solder Reflow Temperature	STEM	10sec Max.	---	260	°C
Laser Reverse Voltage	Vr	---	---	2	V
Forward Current Transient (LD)	If	---	---	100	mA
Operating Bias Current	Iop	---	---	65	mA
MPD Forward Current	Ipd	---	---	2	mA
MPD Reverse Voltage	VRM	---	---	20	V
APD Reverse Voltage	Vbr	---	---	Vbr	mA
APD Reverse Current	IRA	---	---	2	mA
TIA Supply Voltage	Volt.		-0.4	4	V
ESD Capability	Volt.	HBM	300	---	V

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Electrical and Optical Characteristics

Transmitter Optical And Electrical Characteristics (T=25°C, unless note)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Wavelength	λ	TC = -40°C ~ +85°C	1260	1270	1280	nm
Threshold Current	I_{th}	CW, T _c = 25°C CW, T _c = 85°C	---	5.5 15	12 20	mA
Forward Voltage	V_f	CW, T _c = 25°C $I_{op} = I_{th} + 20mA$	-	-	1.8	V
Series Resistance	R_s	CW, $I_{op} = I_{th} + 20mA$, T _c = -40°C ~ +85°C	---	8	12	Ohm
Output Optical Power	P_f	CW, $I_{op} = I_{th} + 20mA$, T _c = 25°C CW, $I_{op} = I_{th} + 20mA$, T _c = 85°C	4.0 1.0	---	9.0 ---	dBm
Slope Efficiency	SE	CW, $I_{op} = I_{th} + 20mA$, T _c = 25°C CW, $I_{op} = I_{th} + 20mA$, T _c = -40~85°C	0.125 0.063	---	0.4 ---	W/A
Side Mode Suppression Ratio	SMSR	CW, $I_{op} = I_{th} + 20mA$, T _c = -40°C ~ +85°C	30	---	---	dB
Spectrum Linewidth (-20dB)	$\Delta\lambda_{FWHM}$	CW, $I_{op} = I_{th} + 20mA$, T _c = -40°C ~ +85°C	---	---	1.0	nm
Rise Time	T_r	20~80%, $I_{op} = I_{th} + 20mA$	---	50	---	ps
Fall Time	T_f	20~80%, $I_{op} = I_{th} + 20mA$	---	50	---	ps
PD Monitor Current	I_m	CW, $I_{op} = I_{th} + 20mA$	50	---	1200	uA
PD Dark Current	I_d	$V_r = 5V$	---	---	100	nA
PD Capacitance	C_{pd}	$V_r = 5V @ 1MHz$	---	6	30	pF
Tracking Error	TE	CW, T _c = -40°C ~ +85°C	-1.5	---	+1.5	dB

Receiver Optical And Electrical Characteristics (T_c=25°C, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Wavelength	λ	---	1575	1577	1580	nm
Supply Voltage	V_{cc}	No loads	3.0	3.3	3.6	V
TIA Supply Current	I_{cc}	No loads	22	27	42	mA
Reverse Breakdown Voltage	V_{br}	$I_d = 10uA$, T _a = 25°C	26	---	36	V
APD Dark Current	I_d	$V_r = 0.85 * V_{br}$, T _a = 25°C	---	---	150	nA
APD Responsivity	R_e	$\lambda = 1577nm$, M=1	0.7	0.8	---	A/W
Temperature Dependency of V _{br}	TDV	$I_d = 10uA$, T _{op} = -40°C ~ +85°C	---	0.03	---	V/°C
Sensitivity	Sen	CW, $\lambda = 1577nm$, 9.95Gbps, RL=50Ω, $V_{op} = V_{br} - 2.5$; PRBS=2 ₃₁ -1, ER=8.2dB, BER≤10 ⁻³ T _{op} = 25°C	---	---	-30	dBm
		CW, $\lambda = 1577nm$, 9.95Gbps, RL=50Ω, $V_{op} = V_{br} - 2.5$; PRBS=2 ₃₁ -1, ER=8.2dB, BER≤10 ⁻³ T _{op} = -40°C ~ +85°C	---	---	-29.5	dBm

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Overload Power	Pol	CW, $\lambda=1577\text{nm}$, 9.95Gbps, RL=50 Ω , $V_{op}=V_{br}-3$; PRBS=2 ³¹ -1, ER=8.2dB, BER $\leq 10^{-3}$	-8	---	---	dBm
Isolation	ISO	$\lambda=1260\text{nm}\sim 1560\text{nm}$	30	---	---	dB
Isolation	ISO	$\lambda=1600\text{nm}\sim 1675\text{nm}$	30	---	---	dB
Optical Crosstalk	OC	1270/1577nm	45	---	---	dB
Optical Return Loss	ORL	$\lambda=1577\text{nm}$	10	---	---	dB
Optical Return Loss	ORL	$\lambda=1270\text{nm}$	20	---	---	dB
Output Impedance	Ohm	Single end	40	50	60	Ω

Mechanical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Fiber Yield Strength	---	---	---	---	0.61	kgf
Fiber Bend Radius	---	---	16	---	---	mm

Key Components

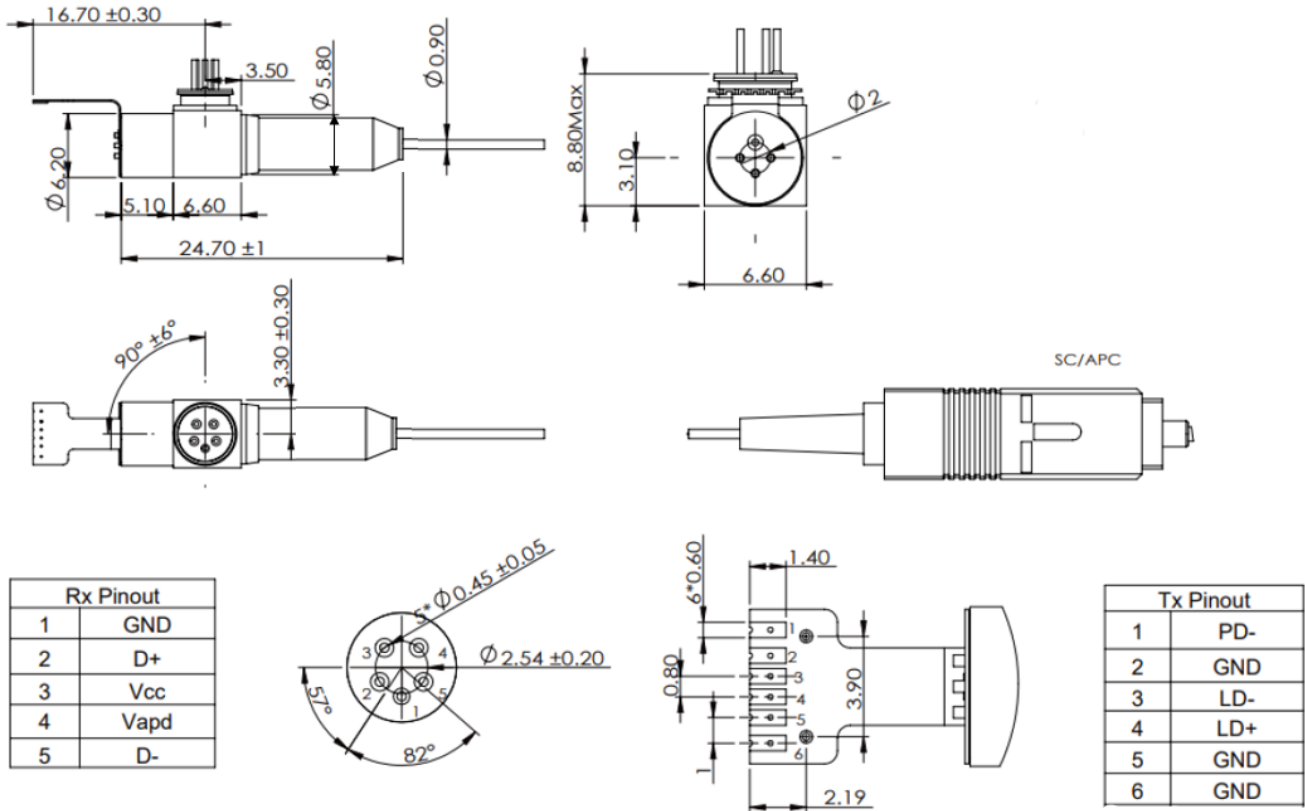
Parts	Vendor	Part Number
1270nm DFB Laser	WST	WT3-P27B-1P7 (for -5~85C) WT3-P27B-4P7 (for -40~85C)
InGaAs Avalanche Photodiode	WST	WC3-AT01-400
Transimpedance Amplifier	Semtech	GN7069-E3

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Outline Dimensions And PIN Assignment

Unit: mm



Other Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Fiber Mode Field Diameter		8	9	10	um	
Gladding Diameter		123	125	127	um	
Optical Connector Insertion Loss		--	--	0.4	dB	SC/APC connector
Fiber Bending Radius		30	--	--	mm	
Fiber Diameter		0.8	0.9	1.0	mm	
Fiber Length		300	310	320	mm	L
Tension Force on Pigtail Fiber		5	--	--	N	

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Order Information

NO	Part number	Description	Note
1	WB3-P270-1T4-S31	10G XGS PON BOSA SC/APC, 310+/- 10mm, Tc -5~85C, only Tx FPC	
2	WB3-P270-4T4-S31	10G XGS PON BOSA SC/APC, 310+/- 10mm, Tc -40~85C, only Tx FPC	