

## 10Gb/s XFP BIDI 1490/1550nm& 1550/1490nm 80km Transceiver

### BX9511Z-CN/BX5911Z-CN Product Specification

#### FEATURES

- Typical data rate 10.3125Gbps
- 1490nm EML Laser and APD photo detector
- 1550nm EML Laser and APD photo detector
- Duplex LC receptacle
- Single +3.3V power supply
- Hot-pluggable XFP footprint
- International Class1 laser safety certified
- Operating temperature range: 0 ~ +70°C
- RoHS Compliant
- Support Digital Diagnostic Monitoring interface
- Max reach 80km over SMF

#### APPLICATIONS

- 10GBASE-BX 10.3125Gb/s Ethernet
- ➤ 10GBASE-BX 9.953Gb/s Ethernet
- ➤ SONET OC-192 SR-1 SDH STM I-64.1

#### ORDERING INFORMATION

Part Number	Form Factor	Data Rate	Media	Distance (km)	Wavelength (nm)	Temperature (°C)
BX9511Z-CN	XFP	10.3Gbps	SMF	80	1490/1550	0~70
BX5911Z-CN	XFP	10.3Gbps	SMF	80	1550/1490	0~70

## ABSOLUTE MAXIMUM RATINGS

Exceeding the limits below may damage the transceiver permanently.

Parameter	Symbol	Min	Typ	Max	Unit.	Note
Storage Temperature	TSTG	-40	-	85	°C	
Operating Relative Humidity	RH	5	-	95	%	
Supply Voltage	VCC	-0.5	-	4	V	

## RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Unit.	Note
Operating Case Temperature	Tc	0	-	70	°C	
Supply Voltage	VCC3	3.13	3.3	3.47	V	
Supply Current	ICC3	-	-	750	mA	+3.3V Supply
Data Rate	DR	-	10.3125	-	Gbps	

## ELECTRICAL and OPTICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit.	Note
<b>Transmitter@10.3125Gbps</b>						
Tx Differential Input Amplitude	Vin p-p	180	-	700	mV	
Input Differential Impedance	Zin	80	100	120	Ω	
Output Optical Power	PO	-1	-	4	dBm	
Extinction Ratio	ER	6	-	-	dB	
Center Wavelength Range	$\lambda_c$	1480	1490	1500	nm	
		1540	1550	1560	nm	
Spectrum Width(-20dB)	$\Delta \lambda$	-	-	1	nm	
Optical Return Loss Tolerance	RL	12	-	-	dB	
Tx Disable Voltage	VOH	2	-	VCC	V	LVTTTL
	VOL	0	-	0.4	V	LVTTTL
Optical Power at Tx Disable	Ptxdis	-	-	-30	dBm	
<b>Receiver@10.3125Gbps</b>						
Rx Differential Output Amplitude	Vout p-p	300	-	850	mV	
Receiver Optical Wavelength	$\lambda_c$	1320	1330	1340	nm	
		1260	1270	1280	nm	
Receiver Sensitivity	Sen	-	-	-23	dBm	Note 1
Receiver Overload	OL	-6	-	-	dBm	
LOS Voltage	Normal	2	-	Vcc	V	LVTTTL
	Fault	0	-	0.4	V	LVTTTL
LOS Assert Level	LOSA	-35	-	-	dBm	
LOS De-Assert Level	LOSD	-	-	-25	dBm	
LOS Hysteresis	LOSH	0.5	-	6	dB	

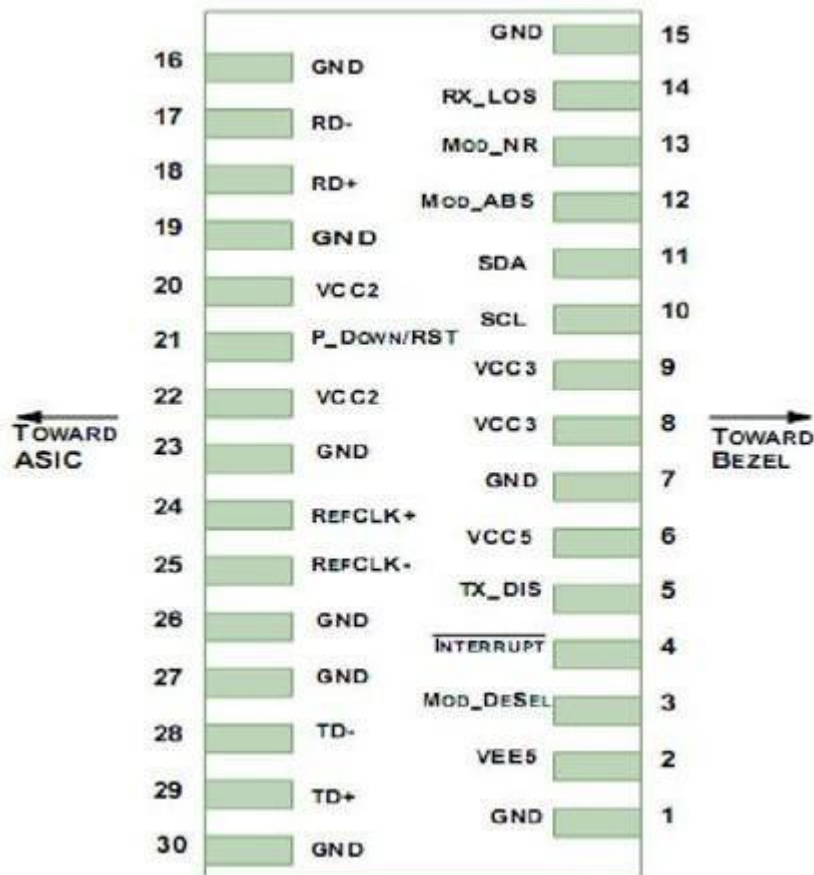
**Notes:**

1. Measured with 2<sup>31</sup>-1 NRZ Pattern. BER≤1E-12@10Gpbs, ER=3.5dB

**Digital Diagnostic Functions**

Parameter	Symbol	Min.	Max.	Unit	Repeatability	Notes
Temperature	DDMI_Temp	-3	3	°C	± 1°C	1LSB=1/256°C
Supply Voltage	DDMI_VCC	-3%	3%	V	± 1 %	1LSB=0.1mV
Bias Current	DDMI_Ibias	-10%	10%	mA	± 5 %	1LSB=2uA
TX Optical Power	DDMI_TX	-3	+3	dB	± 0.5 dB	1LSB=0.1uW
RX Optical Power	DDMI_RX	-3	+3	dB	± 1.5 dB	1LSB=0.1uW

**PIN DIAGRAM**



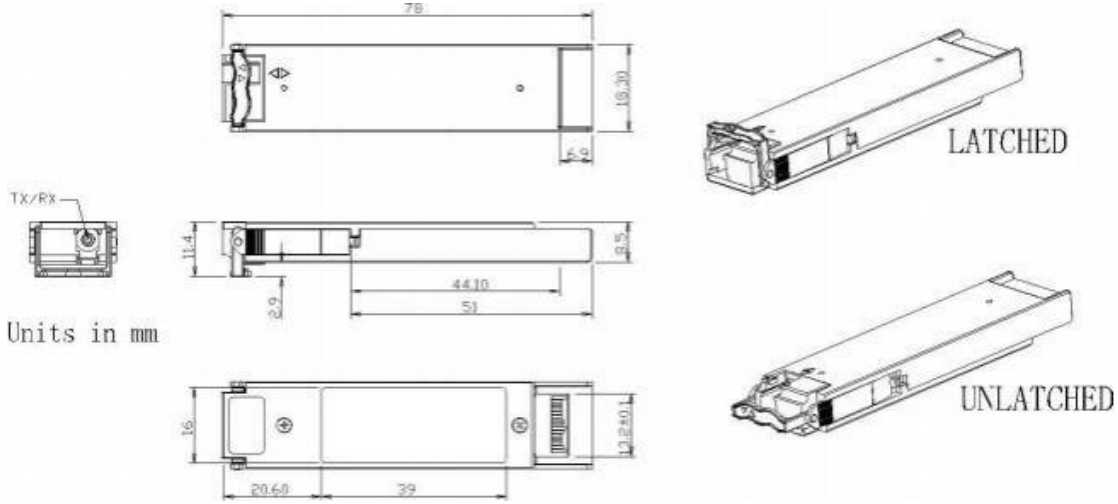
## PIN DESCRIPTIONS

Pin	Symbol	Description	Notes
1	GND	Module Ground	1
2	VEE5	Optional -5.2 Power Supply - Not required	
3	Mod-Desel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6	VCC5	+5 Power Supply	
7	GND	Module Ground	1
8	VCC3	+3.3V Power Supply	
9	VCC3	+3.3V Power Supply	
10	SCL	Serial 2-wire interface clock	2
11	SDA	Serial 2-wire interface data line	2
12	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
13	Mod_NR	Module Not Ready; XGIGA defines it as a logical OR between RX_LOS and Loss of Lock in TX/RX.	2
14	RX_LOS	Receiver Loss of Signal indicator	2
15	GND	Module Ground	1
16	GND	Module Ground	1
17	RD-	Receiver inverted data output	
18	RD+	Receiver non-inverted data output	
19	GND	Module Ground	1
20	VCC2	+1.8V Power Supply - Not required	
21	P_Down/RST	Power Down; When high, places the module in the low power stand-by mode and on the falling edge of P_Down initiates a module reset Reset; The falling edge initiates a complete reset of the module	
22	VCC2	including the 2-wire serial interface, equivalent to a power cycle. +1.8V Power Supply - Not required	
23	GND	Module Ground	1
24	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board - Not required	3
25	RefCLK-	Reference Clock inverted input, AC coupled on the host board - Not required	3
26	GND	Module Ground	1
27	GND	Module Ground	1
28	TD-	Transmitter inverted data input	
29	TD+	Transmitter non-inverted data input	
30	GND	Module Ground	1

**Notes:**

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector; should be pulled up with 4.7k - 10kohms on host board to a voltage between 3.15V and 3.6V.
3. A Reference Clock input is not required by the AC-XFBL-23/32G10-20. If present, it will be ignored

**MECHANICAL SPECIFICATION**



**LABEL DIAGRAM**



**BX9511Z-CN**

XFP 10G BIDI 1490/1550nm 80km LC

Class 1 Laser

MADE IN CHINA

S/N: ??????????



X.XX.XX.XXX



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