

PRODUCT SPECIFICATION

Part No.:	AC-XPBL-23G10-10/AC-XPBL-32G10-10	
Description:	10G SFP+ Transceiver, BIDI TX1270nm/RX1330nm 10km 10G SFP+ Transceiver, BIDI TX1330nm/RX1270nm 10km	
Release Date	Rev.	Revision Change Description
2017/06/07	A0	New Release
2020/12/28	A1	Template Update

Features

- ✧ Supports up to 11.3Gbps bit rates
- ✧ Hot-pluggable SFP+ footprint
- ✧ 1270nm DFB laser and PIN receiver for AC-XPBL-23G10-10
- ✧ 1330nm DFB laser and PIN receiver for AC-XPBL-32G10-10
- ✧ Up to 10km for SMF transmission
- ✧ Compliant with single LC receptacle
- ✧ Compatible with RoHS
- ✧ Single +3.3V power supply
- ✧ Power dissipation<1.0W
- ✧ 2-wire interface with integrated Digital Diagnostic monitoring
- ✧ EEPROM with Serial ID Functionality
- ✧ Operating case temperature:
 - ✧ Standard: 0 to +70°C
 - ✧ Industrial: -40 to +85°C

Application

- ✧ 10GBASE-BX at 10.3125 Gb/s
- ✧ 10GBASE-BX at 9.953 Gb/s

Standard

- ✧ Compliant with SFF-8472
- ✧ Compliant with SFP+ MSA
- ✧ Compliant to SFF-8431

Specification

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V _{cc}	-0.3	4	V
Storage Temperature	T _s	-40	+85	°C
Operating Humidity	-	5	95	%
Signal Input Voltage		V _{cc} -0.3	V _{cc} +0.3	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard	0		+70	°C
	Industrial	-40		+85	°C
Power Supply Voltage	V _{cc}	3.135	3.30	3.465	V
Power Supply Current	I _{cc}		270	350	mA
Data Rate			10.3	11.3	Gbps
Fiber Length 9/125μm core SMF		-	10	-	km

Optical and Electrical Characteristics

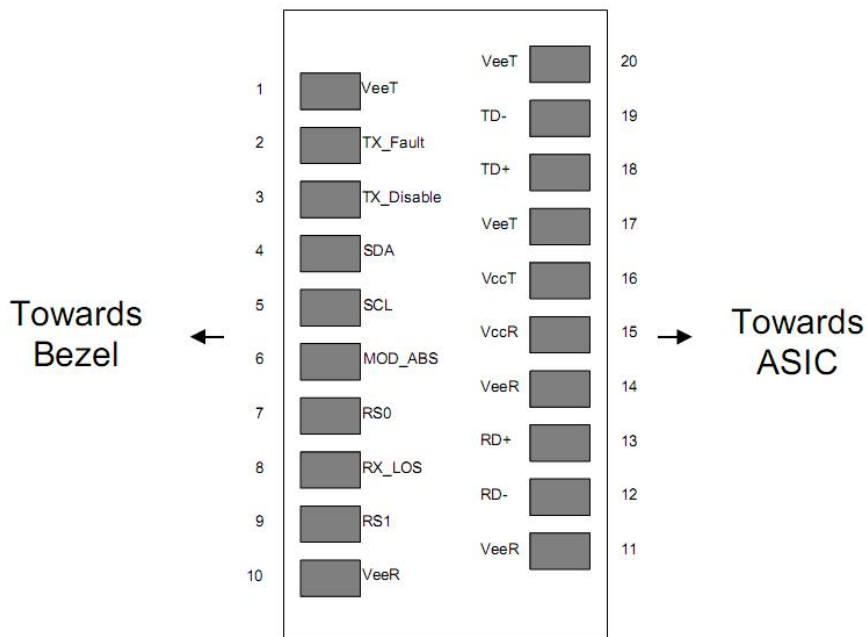
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ _c	1260	1270	1280	nm	AC-XPBL-23G10-10
		1320	1330	1340	nm	AC-XPBL-32G10-10
Spectral Width (-20dB)	Δλ			1	nm	
Optical Modulation Amplitude	OMA	-3			dBm	
Side-Mode Suppression Ratio	SMSR	30	-		dB	
Average Output Power	P _{out}	-6		0.5	dBm	1
Extinction Ratio	ER	3.5			dB	
Data Input Swing Differential	V _{IN}	180		700	mV	2
Input Differential Impedance	Z _{IN}	85	100	115	Ω	
TX Disable	Disable	2.4		V _{cc}	V	
	Enable	-0.3		0.8	V	
TX Fault	Fault	2.0		V _{cc} +0.3	V	
	Normal	-0.3		0.8	V	

Output Eye Diagram	Complies with IEEE802.3z eye masks when filtered					
Receiver						
Centre Wavelength	λ_c	1320	1330	1340	nm	AC-XPBL-23G10-10
		1260	1270	1280	nm	AC-XPBL-32G10-10
Receiver Sensitivity				-14.4	dBm	3
Receiver Overload		0.5			dBm	3
LOS De-Assert	LOS _D			-17	dBm	
LOS Assert	LOS _A	-30			dBm	
LOS Hysteresis		0.5		5	dB	
Data Output Swing Differential	V _{out}	300		850	mV	4
Differential line Output Impedance	ROUT	80	100	120	Ohm	
Receiver LOS Pull up Resistor	RLOS	4.7		10	KOhm	
Data Output Rise/Fall time	tr/tf			38	ps	
LOS	Fault	2		VccHost	V	
	Norm	-0.3		+0.4	V	

Notes:

1. The optical power is launched into SMF.
2. PECL input, internally AC-coupled and terminated.
3. Measured with a PRBS²³¹-1 test pattern @10312Mbps, BER $\leq 1 \times 10^{-12}$.
4. Internally AC-coupled.

Pin Descriptions



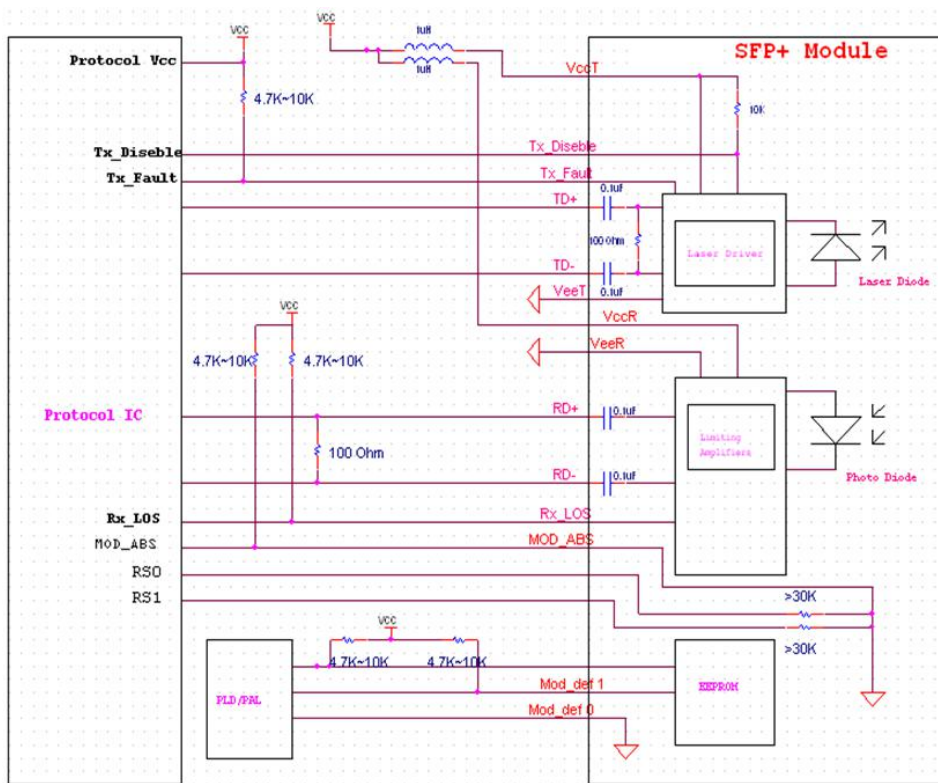
Pin	Signal Name	Description	Plug Seq.	Notes
1	V _{EET}	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note 1
3	TX DISABLE	Transmitter Disable	3	Note 2
4	SDA	SDA Serial Data Signal	3	
5	SCL	SCL Serial Clock Signal	3	
6	MOD_ABS	Module Absent. Grounded within the module	3	
7	RS0	Not Connected	3	
8	LOS	Loss of Signal	3	Note 3
9	RS1	Not Connected	3	
10	V _{EER}	Receiver ground	1	
11	V _{EER}	Receiver ground	1	
12	RD-	Inv. Received Data Out	3	Note 4
13	RD+	Received Data Out	3	Note 4
14	V _{EER}	Receiver ground	1	
15	V _{CCR}	Receiver Power Supply	2	
16	V _{CCT}	Transmitter Power Supply	2	
17	V _{EET}	Transmitter Ground	1	
18	TD+	Transmit Data In	3	Note 5
19	TD-	Inv. Transmit Data In	3	Note 5
20	V _{EET}	Transmitter Ground	1	

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

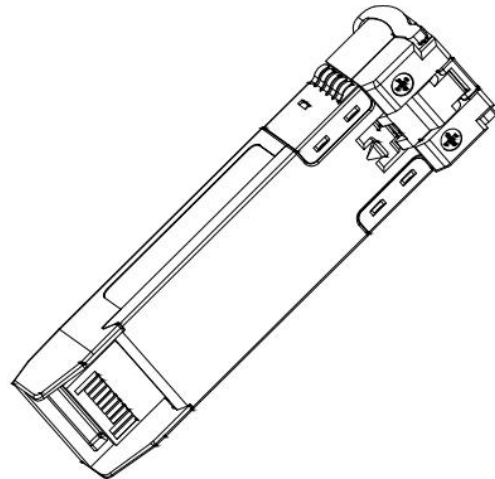
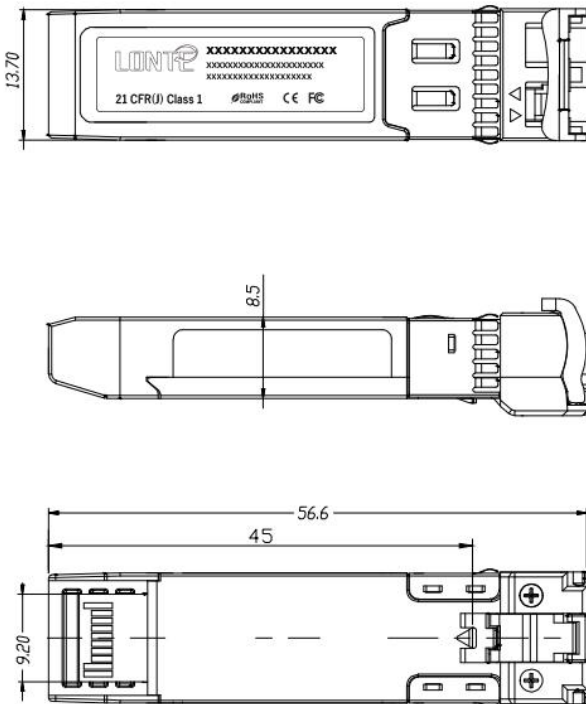
- 1) TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and V_{cc}+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
- 2) Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
- 3) LOS is open collector output Should be pulled up with 4.7k~10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
- 4) RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.
- 5) TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Recommended Interface Circuit



Package Outline

Dimensions are in millimeters. All dimensions are $\pm 0.2\text{mm}$ unless otherwise specified. (Unit: mm)



All dimensions are $\pm 0.2\text{mm}$ unless otherwise specified.
Unit: mm

Regulatory Compliance

Feature	Test	Method
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1 (>1.5kV) – Human Body Model
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	Class 2(>4.0kV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B FCC Class B CENELEC EN55022 VCCI Class 1	Comply with standard
Immunity	IEC61000-4-3	Comply with standard
Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1,2	Compatible with Class I laser Product

Ordering information

Part. No	Specifications								
	Pack	Rate (Gbps)	Tx (nm)	Po (dBm)	RX	Sen (dBm)	Temp (°C)	Reach (km)	DDM
AC-XPBL-23G10-10	SFP+	10.3125	1270	-6~0.5	PIN	<-14.4	0~70	10	Y
AC-XPBL-32G10-10	SFP+	10.3125	1330	-6~0.5	PIN	<-14.4	0~70	10	Y
AC-XPBL-23G10-10F	SFP+	10.3125	1270	-6~0.5	PIN	<-14.4	-40~85	10	Y
AC-XPBL-32G10-10F	SFP+	10.3125	1330	-6~0.5	PIN	<-14.4	-40~85	10	Y