

XFP-B1045L-100

Optical XFP Module

10Gbps XFP Transceiver Bi-Di TX1490/RX1550nm 100KM LC



Features

- Supports 11.1Gbps bit rates
- 1490nm EML laser and APD receiver
- Up to 100km for SMF transmission
- Hot-pluggable XFP footprint
- XFI Loopback Mode
- Compliant with XFP MSA with single LC receptacle
- 2-wire interface with integrated Digital Diagnostic monitoring
- EEPROM with Serial ID Functionality
- Single +3.3V power supply
- Power dissipation <3W
- Compatible with RoHS
- Operating case temperature:
 - Standard: 0 to +70° C
 - Industrial: -40 to +85° C

Application

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

Standard

- Compliant with XFP MSA
- Compliant with SFF-8472
- Compliant with IEEE 802.3ae

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	85	%

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}	3.13	3.3	3.47	V
Power Supply Current	I _{cc}			850	mA
Data Rate		9.95	10.3	11.3	Gbps
Transmission Distance		-		100	km

Optical and Electrical Characteristics

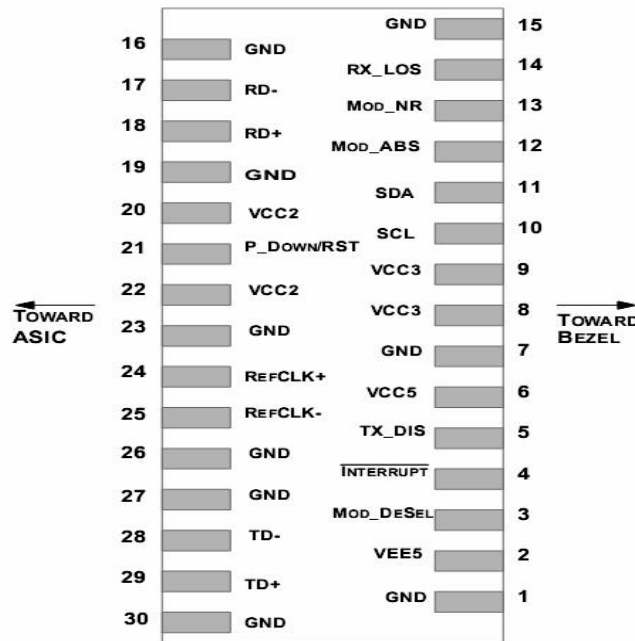
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ_c	1480	1490	1500	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side-Mode Suppression Ratio	SMSR	30	-		dB	
Average Output Power	P _{out}	0		5	dBm	

Average Launch power of OFF transmitter	P_{off}			-45	dBm	1
Extinction Ratio	ER	6			dB	
Data Input Swing Differential	V_{IN}	120		820	mV	2
Input Differential Impedance	Z_{IN}	80	100	120	Ω	
Supply Voltage – 1.8V supply	V_{cc2}	1.71		1.89	V	
Supply Voltage – 3.3V supply	V_{cc3}	3.13		3.47	V	
Supply Current – 1.8V supply	I_{cc2}			200	mA	
Supply Current – 3.3V supply	I_{cc3}			650	mA	
Module total power	P			2.5	W	
Interrupt Assert Delay	Interrupt_on			200	ms	
Interrupt Negate Delay	Interrupt_off			500	us	
Mod_NR Assert / Negate Delay				1	ms	
P-Down reset time		10			us	
XFP Interrupt, Mod_NR	Vol	0		0.4	V	
	Voh	$V_{ccHOST} - 0.5$		$V_{ccHOST} + 0.3$	V	
P_Down/RST	Vil	-0.3		0.8	V	
	Vih	2.0		$V_{cc3} + 0.3$	V	
TX Disable	Disable	2		V_{cc}	V	
	Enable	GND		$GND + 0.8$	V	
Receiver						
Centre Wavelength	λ_c	1540	1550	1560	nm	
Receiver Sensitivity				-24	dBm	3
Receiver Overload		-6			dBm	3
LOS De-Assert	LOS_D			-25	dBm	
LOS Assert	LOS_A	-38			dBm	
LOS Hysteresis		0.5		4	dB	
Differential Output Impedance	R_{out}	80	100	120	Ω	
Differential data output swing	$V_{out,pp}$	340		850	mV	
Data Output Rise/Fall time	tr/tf		20		ps	
LOS Output Voltage-High	V_{LOSH}	$V_{cc} - 0.5$		V_{cc}	V	
LOS Output Voltage-Low	V_{LOSL}	GND		$GND + 0.5$	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 ≤1×10⁻¹².

Pin Description



Pin	Signal Name	Description	Plug Seq.	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	LVTTTL-I	
4	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	LVTTTL-O	2
5	TX_DIS	Transmitter Disable; Transmitter laser source turned off	LVTTTL-I	
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	LVTTTL-I	2
11	SDA	Serial 2-wire interface data line	LVTTTL-I/O	2

12	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	LVTTL-I	2
13	Mod_NR	Module Not Ready; XGIGA defines it as a logical OR between RX_LOS and Loss of Lock in TX/RX.	LVTTL-I	2
14	RX_LOS	Receiver Loss of Signal indicator	LVTTL-I	2
15	GND	Module Ground		1
16	GND	Module Ground		1
17	RD-	Receiver inverted data output	CML-O	
18	RD+	Receiver non-inverted data output	CML-O	
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	LVTTL-I	
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	PECL-I	3
25	RefCLK-	Reference Clock inverted input, AC coupled on the host board – Not required	PECL-I	3
26	GND	Module Ground		1
27	GND	Module Ground		1
28	TD-	Transmitter inverted data input	CML-I	
29	TD+	Transmitter non-inverted data input	CML-I	
30	GND	Module Ground		1

Notes:

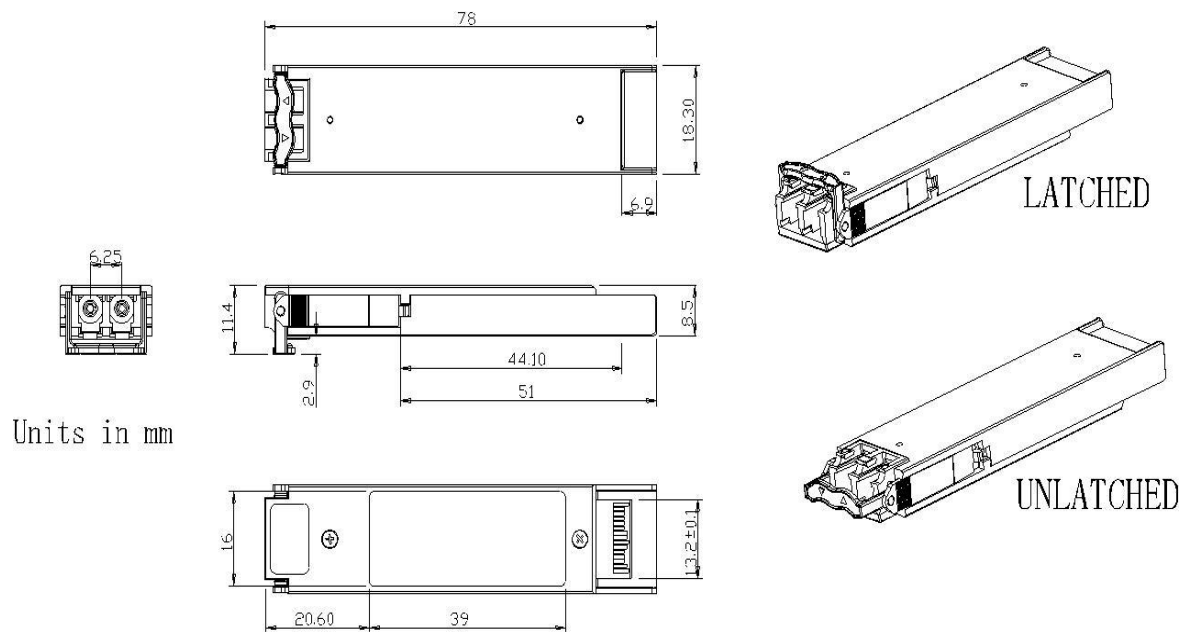
Plug Seq.: Pin engagement sequence during hot plugging.

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.

Mechanical Dimensions



Ordering information

Model No.	Product Description
XFP-B1045L-100	10Gbps, Bidi TX1490/RX1550nm, SMF, 100km, 0°C ~ +70°C, with DDM
XFP-B1045L-100I	10Gbps, Bidi TX1490/RX1550nm, SMF, 100km, -40°C~+85°C, with DDM



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