Product Specification

10G XFP BIDI Optical Transceiver 20km LC DDM

FEATURES:

- Hot-pluggable XFP footprint
- Supports 9.95Gb/s to 11.3Gb/s bit rates XFI
  Loopback Mode
- RoHS-6 Compliant (lead-free)
- 1270nm DFB laser and PIN receiver for 10GXFP23-20LAT
- 1330nm DFB laser and PIN receiver for 10GXFP32-20LAT Power dissipation<2W
- Single + 3.3V Power Supply
- Up to 20km transmission on SMF
- 2-wire interface with integrated Digital Diagnostic monitoring EEPROM with
  Serial ID Functionality
- Compliant with XFP MSA with LC connector
- Case operating temperature：Commercial: 0°C to +70°C
- Industrial: -40°C to +85°C

APPLICATIONS:

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

PRODUCT DESCRIPTION:

10GXFPXX-20LAT is hot pluggable 3.3V Small-Form-Factor transceiver module. It designed expressly for high-speed communication applications that require rates up to 11.3Gb/s, it designed to be compliant with XFP MSA. The module data link up to 20km in 9/125um single mode fiber.

Absolute Maximum Ratings:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40	-	85	ºC	
Relative Humidity	RH	5	-	95	%	
Power Supply Voltage	VCC	-0.3	-	4	V	
Signal Input Voltage	VCC	Vcc-0.3	-	Vcc+0.3	V	

Recommended Operating Conditions:

Parameter	Symbol	Min	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0	-	70	ºC	Commercial
		-40	-	85	ºC	Industrial
Power Supply Voltage	VCC	3.14	3.3	3.47	V	
Power Supply Current	ICC	-	-	600	mA	
Data Rate	BR	9.95	10.312	11.3	Gbps	
Transmission Distance	TD		-	20	km	
Coupled fiber	Single mode fiber					SMF

Optical Characteristics:

	Symbol	Min.	Typ.	Max.	Unit	Note
Total power supply current	Icc	-	-	600	mA	
Transmitter						
Differential Data Input Voltage	VDT	120	-	820	mVp-p	
Differential line input Impedance	RIN	85	100	115	Ohm	
Transmitter Fault Output-High	VFaultH	2.4	-	Vcc	V	
Transmitter Fault Output-Low	VFaultL	-0.3	-	0.8	V	
Transmitter Disable Voltage- High	VDisH	2	-	Vcc+0.3	V	
Transmitter Disable Voltage- low	VDisL	-0.3	-	0.8	V	
Receiver						
Differential Data Output Voltage	VDR	300	-	850	mVp-p	
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	20	-	-	ps	
LOS Output Voltage-High	VLOSH	2	-	Vcc	V	
LOS Output Voltage-Low	VLOSL	-0.3	-	0.4	V	

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Average Launched Power	Pout	-5	-	0	dBm	
Average Launch power of OFF transmitter	POFF	-	-	-30	dBm	Note (1)

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SCAN ME

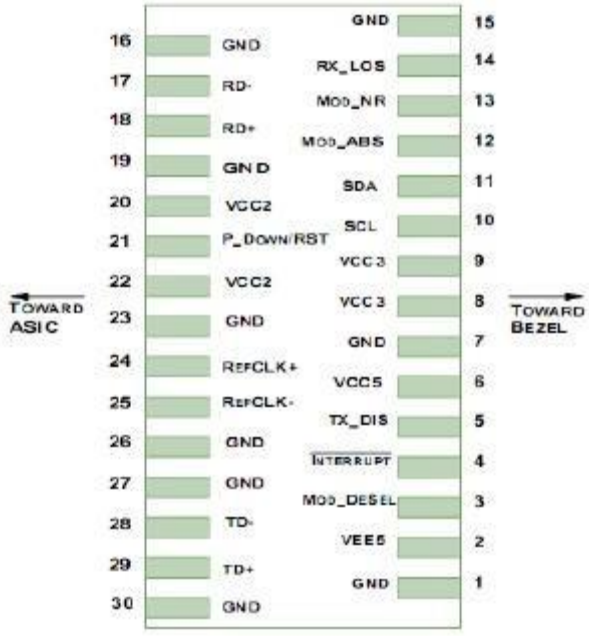
Center Wavelength Range	λC	1260	1270	1280	nm	EXFPB-8823-20DL
		1320	1330	1340	nm	EXFPB-8832-20DL
Side mode suppression ratio	SMSR	30	-	-	dB	
Spectrum Bandwidth(-20dB)	σ	-	-	1	nm	
Extinction Ratio	ER	3.5		-	dB	Note (2)
Output Eye Mask	Compliant with IEEE 802.3ae					Note (2)
Receiver						
Input Optical Wavelength	λIN	1320	1330	1340	nm	EXFPB-8823-20DL
		1260	1270	1280	nm	EXFPB-8832-20DL
Receiver Sensitivity	Psen	-	-	-15	dBm	Note (3)
Input Saturation Power (Overloa	PSAT	0.5	-	-	dBm	Note (3)
LOS Assert	LOSA	-32	-	-	dBm	
LOS De-assert	LOSD	-	-	-17	dBm	
LOS -Hysteresis	PHys	0.5	-	4	dB	

Parameter Note ：

1. The optical power is launched into SMF
2. Measured with RPBS 2^31-1 test pattern @10.3125Gbs
3. Measured with RPBS 2^31-1 test pattern @10.3125Gbs BER=<10^-12

Electrical Interface Characteristics:

Pin Assignment



Pi	Logic	Symbol	Name/Description	Note
1		GND	Module Ground	1
2		VEE5	Optional -5.2 Power Supply – **Not required**	
3	LVTTL-I	Mod-Desel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	LVTTL-O	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	LVTTL-I	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6		VCC5	+5 Power Supply– **Not required**	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
1	LVTTL-I	SCL	Serial 2-wire interface clock	2
1	LVTTL I/O	SDA	Serial 2-wire interface data line	2
1	LVTTL-O	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
1	LVTTL-O	Mod_NR	Module Not Ready; Efylink defines it as a logical OR between RX_LOS and Loss of Lock in TX/RX.	2
1	LVTTL-O	RX_LOS	Receiver Loss of Signal indicator	2
1		GND	Module Ground	1
1		GND	Module Ground	1
1	CML-O	RD-	Receiver inverted data output	
1	CML-O	RD+	Receiver non-inverted data output	
1		GND	Module Ground	1
2		VCC2	+1.8V Power Supply – **Not required**	
2	LVTTL-I	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 including the 2-wire serial interface, equivalent to a power cycle.	
2		VCC2	+1.8V Power Supply – **Not required**	
2		GND	Module Ground	1
2	PECL-I	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board – **Not required**	3
2	PECL-I	RefCLK-	Reference Clock inverted input, AC coupled on the host board – **Not required**	3
2		GND	Module Ground	1
2		GND	Module Ground	1
2	CML-I	TD-	Transmitter inverted data input	
2	CML-I	TD+	Transmitter non-inverted data input	
3		GND	Module Ground	1

Diagram of Host Board Connector Block Pin Numbers and Name

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 10GXFPXX-20LAT. If present, it will be ignored.

Digital Diagnostic Functions:

As defined by the XFP MSA, XFP transceivers provide digital diagnostic functions via a 2-wire serial interface, which allows real-time access to the following operating parameters:

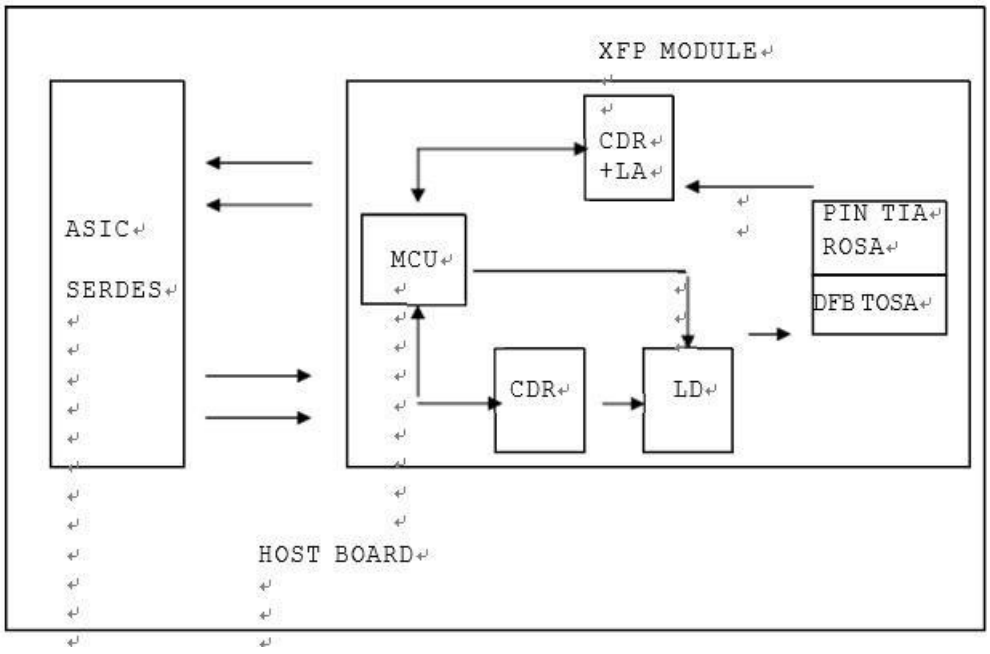
Transceiver temperature Laser bias current Transmitted optical power Received optical power Transceiver supply voltage

It also provides a sophisticated system of alarm and warning flags, which may be used to alert end-users when particular operating parameters are outside of a factory-set normal range.

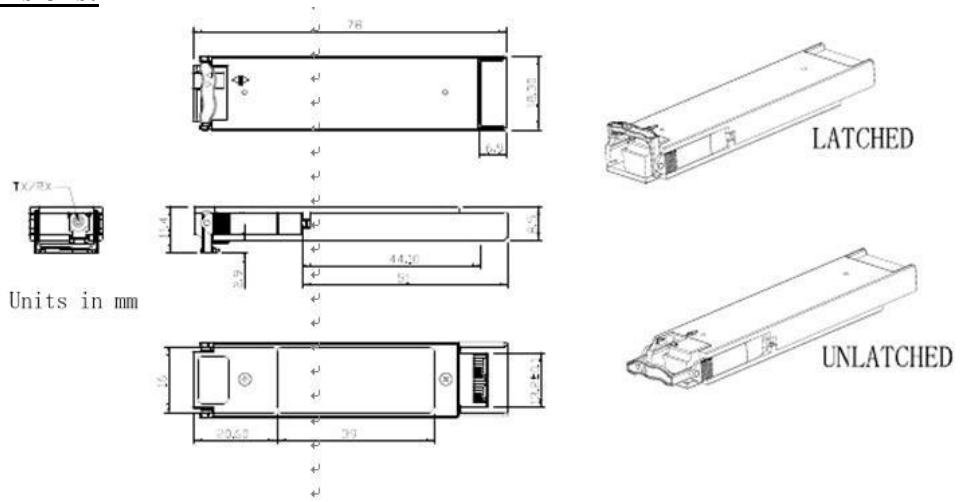
The operating and diagnostics information is monitored and reported by a Digital Diagnostics Transceiver Controller (DDTC) inside the transceiver, which is accessed through the 2-wire serial interface. When the serial protocol is activated, the serial clock signal (SCL pin) is generated by the host. The positive edge clocks data into the XFP transceiver into those segments of its memory map that are not write-protected. The negative edge clocks data from the XFP transceiver. The serial data signal (SDA pin) is bi-directional for serial data transfer. The host uses SDA in conjunction with SCL to mark the start and end of serial protocol activation. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially. The 2-wire serial interface provides sequential or random access to the 8 bit parameters, addressed from 000h to the maximum address of the memory.

For more detailed information including memory map definitions, please see the XFP MSA Specification.

Recommended Block Circuit:



Outline Dimensions:



Order Information:

Part Number	Product Description	
10GXFP23-20LAT	BIDI XFP Tx1270nm/Rx1330nm	20km LC DDM
10GXFP32-20LAT	BIDI XFP Tx1330nm/Rx1270nm	20km LC DDM