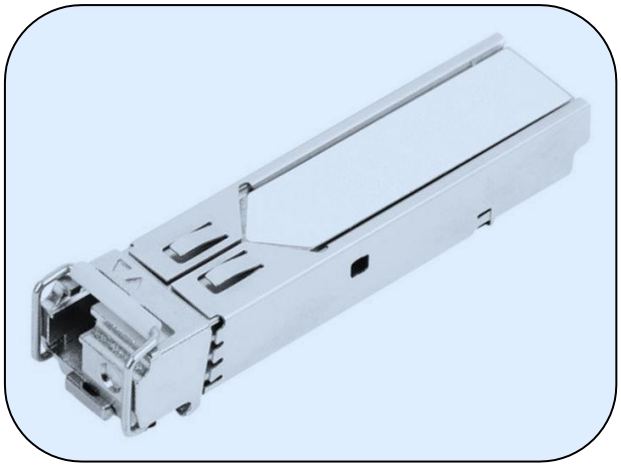
XSB351-10Lx

1.25 Gbps SFP BiDi 10 km Transceiver
Tx 1310 nm/Rx 1550 nm



Features

- Dual data-rate of 1.25 Gbps/1.063 Gbps operation
- 1310 nm FP laser and PIN photodetector for 10 km transmission
- Compliant with SFP MSA and SFF-8472 with simplex LC receptacle
- Digital Diagnostic Monitoring: Internal Calibration or External Calibration
- Compatible with SONET OC-24-LR-1
- +3.3 V single power supply
- Operating case temperature range
  0 °C to +70 °C (Standard)
  -40 °C to +85 °C (Industrial)
- Compatible with RoHS

Applications

- Access and aggregation networks
- Gigabit Ethernet
- Fiber Channel
- Switch to Switch interface
- Switched backplane applications
- Router/Server interface
- Other optical transmission systems

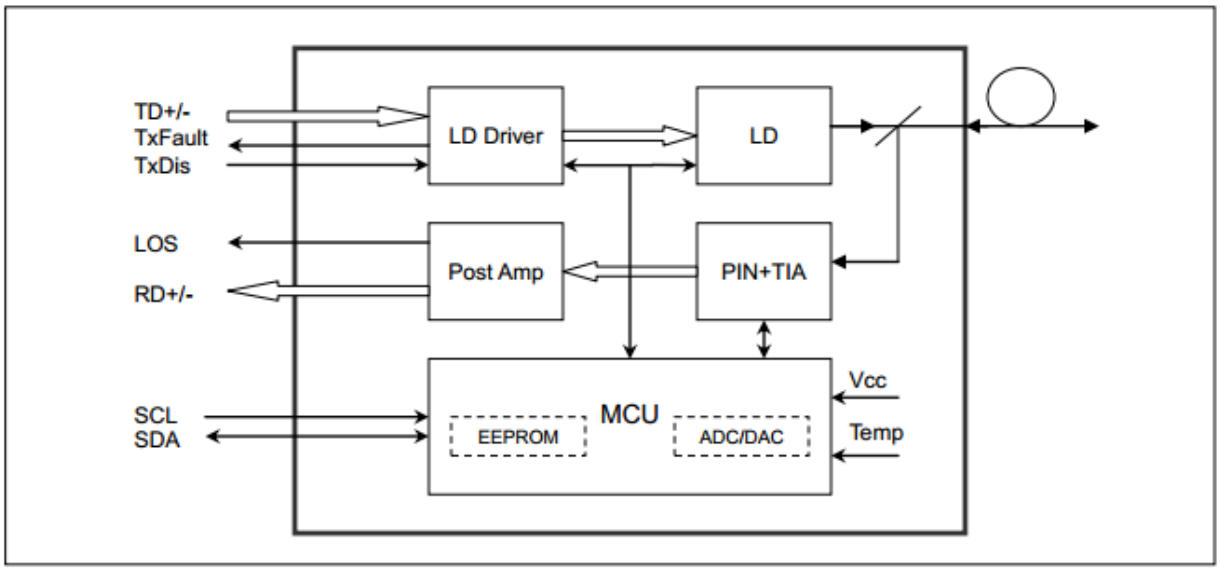
Description

The SFP-BIDI transceivers are high-performance, cost-effective modules that support dual data rates of 1.25 Gbps and 1.0625 Gbps, along with a transmission distance of 10 km using single-mode fiber (SMF).

Each transceiver comprises three main sections: an FP laser transmitter, a PIN photodiode integrated with a trans-impedance amplifier (TIA), and an MCU control unit. All modules meet Class I laser safety requirements.

These transceivers are compatible with the SFP Multi-Source Agreement (MSA) and SFF-8472 standards. For additional information, please refer to the SFP MSA documentation.

Module Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Maximum Supply Voltage	V_{CC}	-0.5		4.7	V
Storage temperature	T_S	-40		85	°C
Case operating temperature	T_{OP}	0		70	°C

Electrical Specifications (TOP = 0 to 70 °C, VCC = 3.15 to 3.60 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage	Vcc	3.15	3.3	3.6	V	
Supply Current	Icc		185	280	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	1
Single ended data input swing	Vin,pp	250		1200	mV	
Transmit Disable Voltage	VD	Vcc–1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	2
Transmit Disable Assert Time				10	us	
Receiver						
Single ended data output swing	Vout,pp	250		800	mV	3
Data output rise time	tr		100	175	ps	4
Data output fall time	tf		100	175	ps	4
LOS Fault	VLOS fault	Vcc–0.5		VccHOST	V	5
LOS Normal	VLOS norm	Vee		Vee+0.5	V	5
Power Supply Rejection	PSR	100			mVpp	6

Notes

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Into 100 ohms differential termination.
4. 20 – 80 %
5. Loss Of Signal is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. Receiver sensitivity is compliant with power supply sinusoidal modulation of 20 Hz to 1.5 MHz up to specified value applied through the recommended power supply filtering network.

Electrical Input/Output Specifications

Transmitter

Parameter		Symbol	Min.	Typ	Max.	Unit	Note
Diff. input voltage swing			120		820	mVpp	1
Tx Disable input	H	VIH	2.0		Vcc+0.3	V	
	L	VIL	0		0.8		
Tx Fault output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		
Input Diff. Impedance		Zin		100		Ω	

Receiver

Parameter		Symbol	Min.	Typ	Max.	Unit	Note
Diff. output voltage swing			340	650	800	mVpp	3
Rx LOS Output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		

Notes

1. TD+/- are internally AC coupled with 100Ω differential termination inside the module.
2. Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7 k to 10 kΩ resistors on the host board. Pull up voltage between 2.0 V and Vcc+0.3 V.
3. RD+/- outputs are internally AC coupled, and should be terminated with 100 Ω (differential) at the user SERDES

Optical Specifications

Transmitter

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Operating Wavelength	λC	1260	1310	1360	nm	
Ave. output power (Enabled)	Po	-9		-3	dBm	1
Extinction Ratio	ER	10			dB	1
RMS spectral width	Δλ			4	nm	
Rise/Fall time (20%~80%)	Tr/Tf			0.26	ps	2
Output Eye Mask	Telcordia GR-253-CORE and ITU-T G.957 compatible					

Notes

1. Measure at 2^23-1 NRZ PRBS pattern
2. Transmitter eye mask definition

Receiver

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Operating Wavelength		1530		1570	nm	
Sensitivity	Psen			-22	dBm	1
Min. overload	Pimax	-3			dBm	
LOS Assert	Pa	-36			dBm	
LOS De-assert	Pd			-24	dBm	2
LOS Hysteresis	Pd-Pa	0.5		6	dB	

Notes

1. Measured with Light source 1310nm (1550nm), ER=10dB; BER =<10^-12 @PRBS=2^23-1 NRZ.
2. When LOS de-asserted, the RX data+/- output is signal output.

Ordering information[1]

Part number	Product Description
XSB351-10LY	SFP BiDi 1310 nm, 1.25 Gbps, 10 km reach, 0°C to 70°C, LC receptacle, DDM
XSB351-10LM	SFP BiDi 1310 nm, 1.25 Gbps, 10 km reach, -40°C to 85°C, LC receptacle, DDM

Notes

[1] For accurate order specification please contact XenOpt reseller before placing an order. The content of this document is subject to change without notice. XenOpt does not guarantee errorless or outdated information.
Please specify any compatibility requirements at time of ordering. Standard MSA compatible pluggable components may not work or some function of these components may not be available in devices that require customized compatible devices. Pluggable components compatible with one type of communications equipment may not work in other type of communications equipment.

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