Nexolight

Datasheet

NXS10-3312-S1D

SFP+ 10GBASE-BX-D 1330nm/1270nm 10km Singlemode

Features

- SFP+ Form Factor
- 10 Gb/s bitrate
- Up to 10 km over Singlemode
- LC connector
- Tx1330/Rx1270nm, DFB laser, PIN photodiode
- Up to 1W power consumption
- +0/+70°C temperature range
- Built in digital diagnostic monitoring

Applications

- 10GBase-BX Ethernet
- Access, Metro and Enterprise
- 8x/10x Fibre Channel

Optical specifications

Optical budget : 6.2 dB

Transmitter & Receiver optical Specifications

Parameter	Min	Max	Unit
Tx Power	-8.2	0.5	dBm
Rx Sensitivity	-14.4	0.5	dBm

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4.
- ESD to the LC Receptacle: compatible with IEC 61000-4-3.
- EMI/EMC: compatible with FCC Part 15 Subpart B Rules, EN55022:2010.
- Laser Eye Safety: compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1, 2.
- RoHS: compliant with EU RoHS 2.0 directive 2015/863/EU.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		4.0	V	1
Storage Temperature	Tstg	-40		85	°C	2
Operating Case Temperature	Tc	0		70	°C	3
Data Rate	DR	9.83		11.3	Gbps	4
Bit Error Rate	BER			10^{-12}		
Supply Current	Icc		200	350	mA	1

Notes:

1. For electrical power interface.
2. Ambient temperature.
3. Case Temperature.
4. IEEE 802.3ae.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.14	3.3	3.46	V	
Power Dissipation	P_{DISS}		0.65	1.2	W	
Transmitter						
Input Differential Impedance	RIN		100		Ω	
Differential Data Input Swing	VIN,pp	180		700	mV	
Transmit Disable Voltage	VD	2.0		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Receiver						
Differential Data Output Swing	VOUT,pp	300		850	mV	
Data Output Rise Time/Fall Time (20-80%)	Tr/Tf	28			ps	
LOS Assert	LOSA	2		Host_Vcc	V	
LOS De-Assert	LOSD	Vee		Vee+0.5	V	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power	Ptx	-8.2		0.5	dBm	1
Optical Center Wavelength	λC	1320	1330	1340	nm	
Extinction Ratio	ER	3.5			dB	
Spectral Width (-20dB)	Δλ			0.6	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Transmitter Dispersion Penalty	TDP			3.2	dB	
Launch Power of Off Transmitter	Poff			-30	dBm	1
Transmitter Jitter	According to IEEE 802.3ae Requirement					
Receiver						
Receiver Overload		0.5			dBm	
Optical Center Wavelength	λC	1260	1270	1280	nm	
Receiver Sensitivity	S			-14.4	dBm	2
Receiver Reflectance	TRrx			-12	dB	
LOS Assert	LOSA	-30			dBm	
LOS De-Assert	LOSD			-17	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Average.
2. Average. Measured with worst ER: BER< 10^{-12} and 2^{31}-1 PRBS.

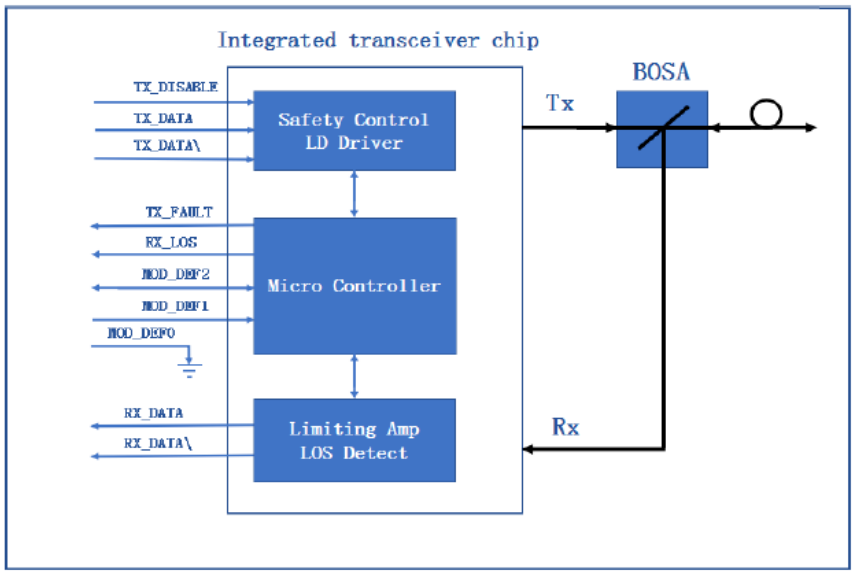
Pin Descriptions

Pin	Symbol	Name/Descriptions	Notes
1	VeeT	Transmitter Ground. Common with receiver ground.	1
2	Tx_Fault	Transmitter Fault.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on "high" or "open."	3
4	SDA	2-Wire Serial Interface Data.	4
5	SCL	2-Wire Serial Interface Clock.	4
6	MOD_ABS	Module Absent. Grounded within the module.	4
7	RS0	No connection required.	
8	LOS	Loss of Signal indication. "Logic 0" indicates normal operation.	5
9	RS1	No connection required.	1
10	VeeR	Receiver Ground. Common with transmitter ground.	1
11	VeeR	Receiver Ground. Common with transmitter ground.	1
12	RD-	Receiver Inverted Data Out. AC coupled.	
13	RD+	Receiver Non-Inverted Data Out. AC coupled.	
14	VeeR	Receiver Ground. Common with transmitter ground.	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground. Common with receiver ground.	1
18	TD+	Transmitter Non-Inverted Data In. AC coupled.	
19	TD-	Transmitter Inverted Data In. AC coupled.	
20	VeeT	Transmitter Ground. Common with receiver ground.	1

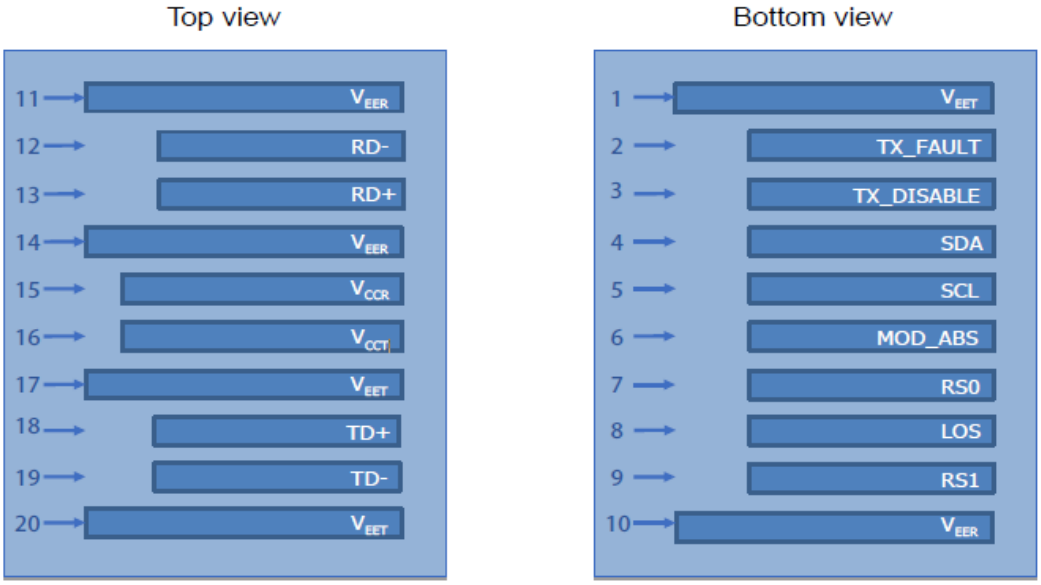
Notes:

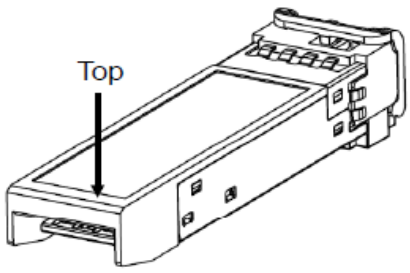
1. Circuit ground is isolated from the chassis ground.
2. Tx_Fault is the open collector output and should be pulled up with 4.7kΩ-10kΩ on the host board to a voltage between 2V and Vcc+0.3V.
3. Disabled: TDIS>2V or open. Enabled TDIS<0.8V.
4. Should be pulled up with the 4.7kΩ-10kΩ on the host board to a voltage between 2V and Vcc+0.3V.
5. LOS is open collector output and should be pulled with 4.7kΩ-10kΩ on the host board to a voltage between 2V and Vcc+0.3V. The logic “0” indicated normal operation, and the logic “1” indicates that the receiver signal is lost.

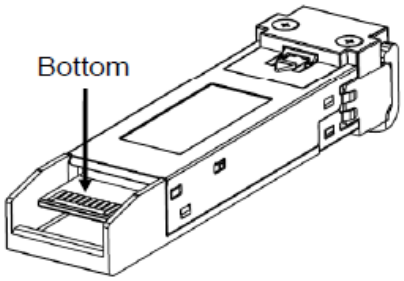
Transceiver Block Diagram



Electical Pad Layout







Mechanical Specifications