Nexolight

Datasheet

NXS10-3312-S2D

SFP+ 10GBASE-BX-D 1330nm/1270nm 20km Singlemode

Features

- SFP+ Form Factor
- 10 Gb/s bitrate
- Up to 20 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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		4	V	1
Storage Temperature	Tstg	-40		85	℃	
Operating Case Temperature	Tc	0		70	℃	
Data Rate	DR	9.83		11.3	Gbps	
Bit Error Rate	BER			10^{-12}		

Notes:

1. For the electrical power interface.
2. IEEE 802.3ae.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.14	3.3	3.46	V	
Power Supply Current	Icc		250	360	mA	
Transmitter						
Input Differential Impedance	RIN		100		Ω	
Differential Data Input Swing	VIN,pp	180		700	mV	
Transmit Disable Voltage	VD	2		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Receiver						
Differential Data Output Swing	VOUT,pp	300		850	mV	
Data Output Rise/Fall Time (20-80%)	Tr/Tf	28			ps	
LOS Assert	VLOSA	2		Host_Vcc	V	
LOS De-Assert	VLOSD	Vee		Vee+0.5	V	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power	PTx	-8.2		0.5	dB	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	2
Transmitter Jitter	According to IEEE 802.3ae Requirements					
Receiver						
Receiver Overload	PoI	0.5			dBm	
Optical Center Wavelength	λC	1260	1270	1280	nm	
Receiver Sensitivity	Rx_sen			-14.4	dBm	3
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. Normal temperature optical power range: -2~0.5dBm.
2. Average.
3. Average. Measured with worst ER: BER<10^{-12} and 2^{31}-1 PRBS.

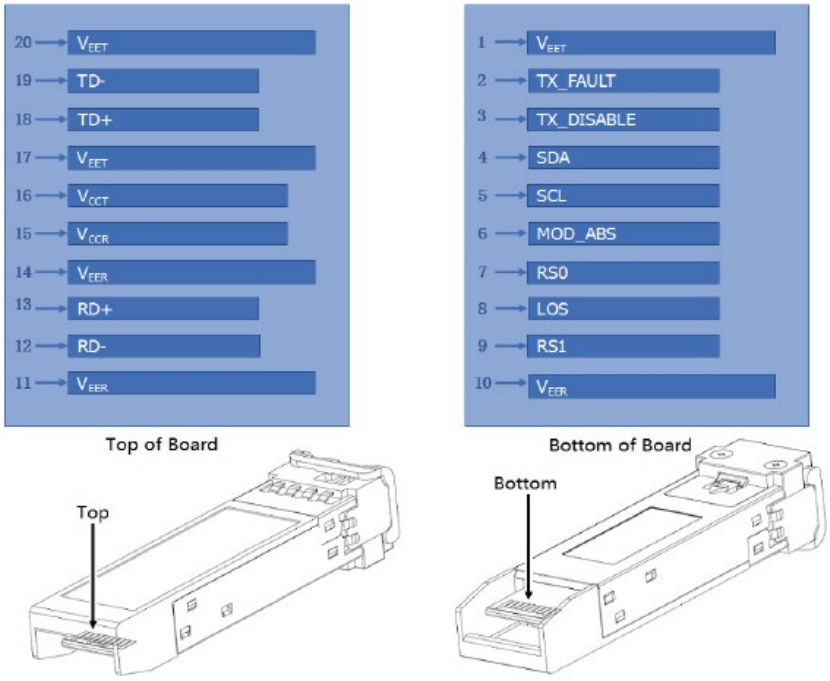
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault.	2
3	Tx_Disable	Transmitter Disable.	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

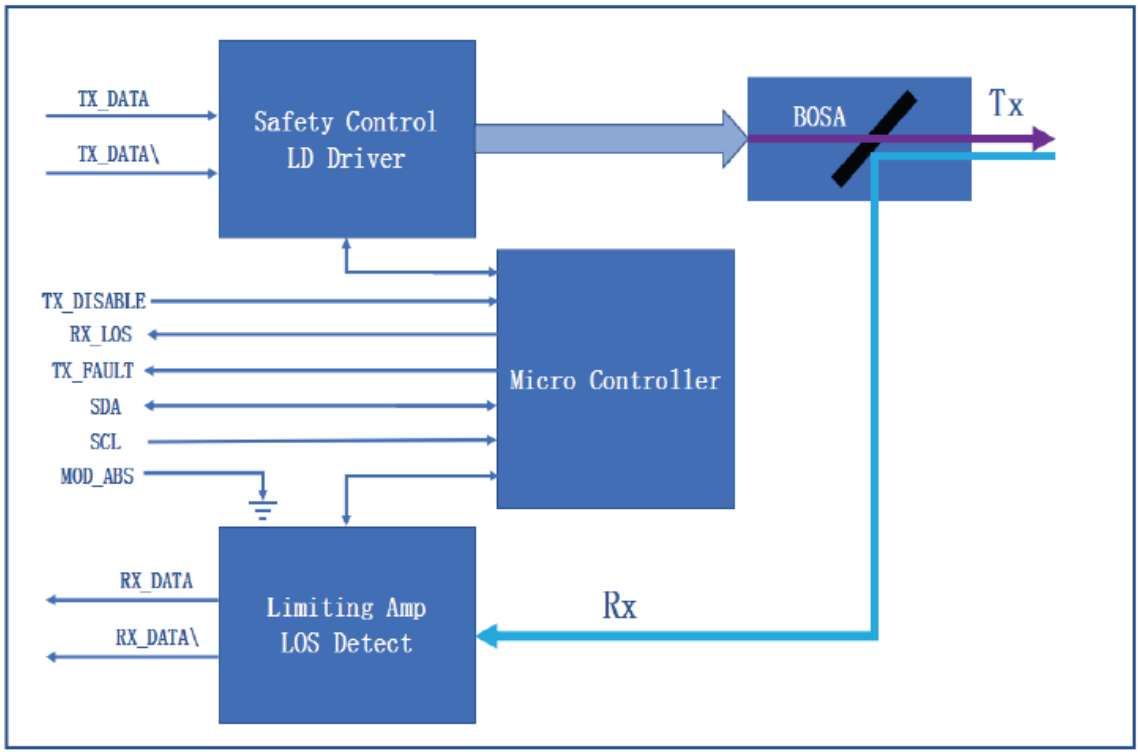
Notes:

1. The circuit ground is isolated from the chassis ground.
2. Tx_Fault is the open collector output and should be pulled up with 4.7kΩ to 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 4.7kΩ to 10kΩ on the host board to a voltage between 2V and Vcc+0.3V.
5. LOS is open collector output and should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and Vcc0.3V. Logic “0” indicates normal operation. Logic “1” indicates that the receiver signal is lost.

Pin Assignments



Block Diagram of Transceiver



Mechanical Specifications