NMSFP-1000-03-1A-SC

1.25Gbps SFP Bi-Directional Transceiver, 3km Reach, SC connector

1310nm TX / 1550 nm RX

Features

- Up to 1.25Gb/s bi-directional data links
- Compliant with SONET/SDH Standard
- Compliant with Fast Ethernet standard
- 1310nm FP laser and PIN photodetector
- Industry standard small form pluggable (SFP)
- Package
- Simplex SC connector
- Differential LVPECL inputs and outputs
- Single power supply 3.3V
- TTL signal detect indicator
- Hot Pluggable
- Up to 3KM point to point transmission
- Class 1 laser product complies with EN 60825-1
- RoHS Compliant

Applications

- 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 supporting dual data-rate of 1.25Gbps/1.0625Gbps and 3km transmission distance

Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTE
Storage Temperature	*TS*	-40	+100	℃	
Supply Voltage	Vcc	-0.5	6.0	V	
Input Voltage	VIN	-0.5	Vcc	V	
Output Current	Io		50	mA	
Operating Current	IOP		400	mA	
Case Operating Temperature	TC	0	+70	℃	

Supply Voltage	Vcc	3.1	3.5	V	
Supply Current	ITX + IRX	--	-250	mA	

Transmitter Electro-optical Characteristics

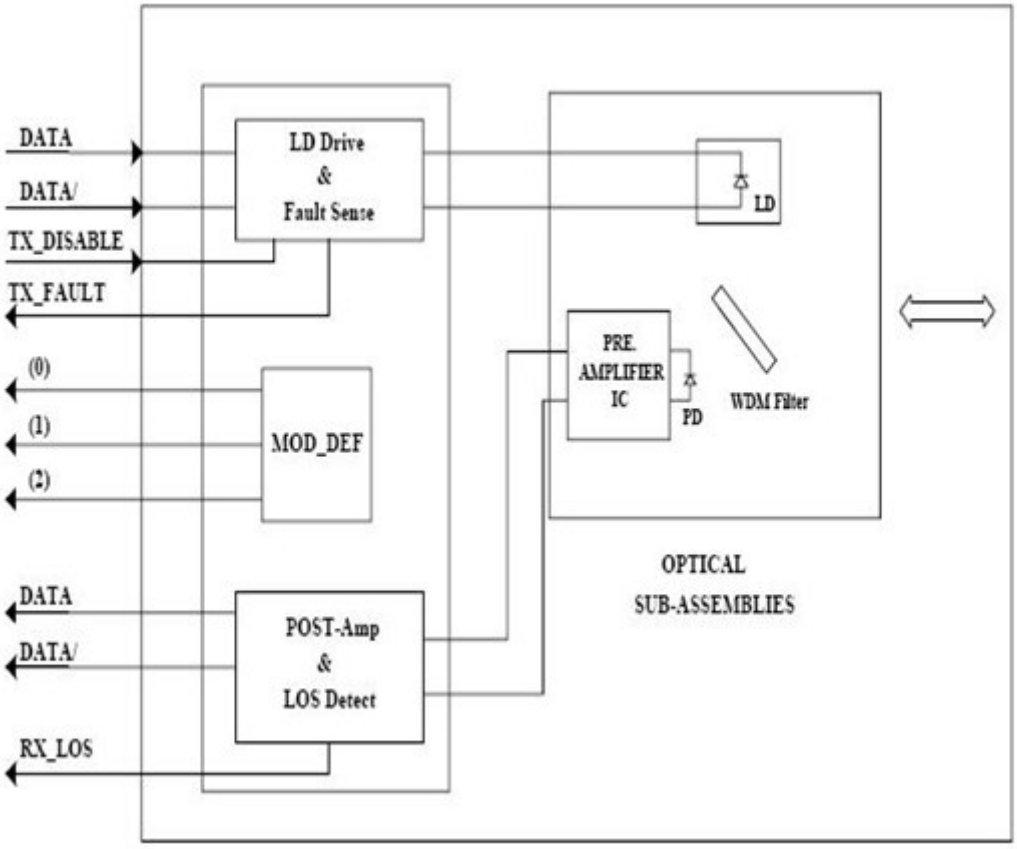
PARAMETER	SYMBOL	MIN	TYPE	MAX	UNITS	NOTE
Output Optical Power 9/125 µm fiber	*Pout*	-12	---	-3	dBm	Average
Extinction Ratio	*ER*	9	---	---	dB	
Center Wavelength	**λ***C*	1278	1310	1351	nm	
Spectral Width (RMS)	**Δλ**	---	---	3	nm	
Rise/Fall Time, (20−80%)	*Tr, f*	---	---	260	ps	
Relative Intensity Noise	*RIN*	---	---	-120	dB/Hz	
Total Jitter	*TJ*	---	---	267	PS	
Output Eye	Compliant with IEEE802.3z					
Max. *Pout* TX-DISABLE Asserted	*POFF*	---	---	-45	dBm	
Differential Input Voltage	*VDIFF*	0.4	---	2.0	V	

Receiver Electro-optical Characteristics

Vcc = 3.1 V to 3.5 V, TC =0℃ to +70 ℃

PARAMETER	SYMBOL	MIN	TYPE	MAX	UNITS	NOTE
Optical Input Power-maximum	*PIN*	0	---	---	dBm	BER < 10−10
Optical Input Power-minimum (Sensitivity)	*PIN*	---	---	-23	dBm	BER < 10−10
Operating Center Wavelength	λ*C*	1480		1580	nm	
Optical Return Loss	*ORL*	45	---	---	dB	λ=1480~1580nm
Optical isolation	ISO	---	---	-35	dB	λ=1480~1580nm
Signal Detect-Asserted	*PA*	---	---	-23	dBm	
Signal Detect--Deasserted	PD	-35	---		dBm	
Differential Output	VDIFF	0.5	---	1.6	V	
Data Output Rise, Fall Time (20−80%)	*T r, f*	---	---	2	ns	
Receiver Loss of Signal Output Voltage-Low	*RX_LOSL*	0	---	0.5	V	
Receiver Loss of Signal Output Voltage-High	*RX_LOSH*	2.4	---	Vcc	V	

Block Diagram of Transceiver



Transmitter and Receiver Optical Sub-assembly Section

A 1310 nm InGaAsP laser and an InGaAs PIN photodiode integrate with an WDM filter to form a bi-directional single fiber optical subassembly (OSA). The laser of OSA is driven by a LD driver IC which converts differential input LVPECL logic signals into an analog laser driving current. And, The photodiode of OSA is connected to a circuit providing post-amplification quantization, and optical signal detection.

TX_DISABLE

The TX_DISABLE signal is high (TTL logic “1”) to turn off the laser output.

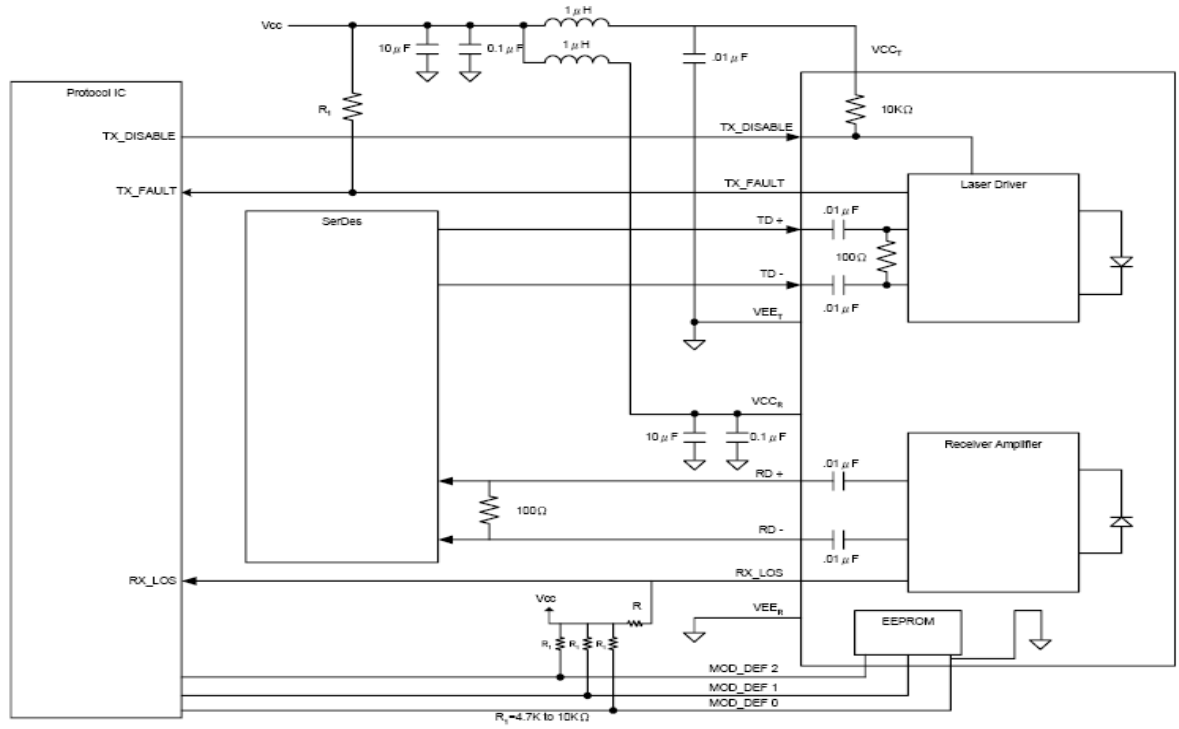
Receive Loss (RX_LOS)

The RX_LOS is high (logic “1”) when there is no incoming light from the companion transceiver. This signal is normally used by the system for the diagnostic purpose. The signal is operated in TTL level.

Pin Assignment

Pin	Signal Name	Description
1	T_{GND}	Transmit Ground
2	*TX_FAULT*	Transmit Fault
3	*TX_DISABLE*	Transmit Disable
4	*MOD_DEF (2)*	SDA Serial Data Signal
5	*MOD_DEF (1)*	SCL Serial Clock Signal
6	*MOD_DEF (0)*	TTL Low
7	*RATE SELECT*	Open Circuit
8	*RX_LOS*	Receiver Loss of Signal, TTL High, open collector
9	R_{GND}	Receiver Ground
10	R_{GND}	Receiver Ground
11	R_{GND}	Receiver Ground
12	*RX–*	Receive Data Bar, Differential PECL, ac coupled
13	*RX+*	Receive Data, Differential PECL, ac coupled
14	R_{GND}	Receiver Ground
15	V_{CCR}	Receiver Power Supply
16	V_{CCT}	Transmitter Power Supply
17	T_{GND}	Transmitter Ground
18	*TX+*	Transmit Data, Differential PCEL, ac coupled
19	*TX–*	Transmit Data Bar, Differential PCEL, ac coupled
20	T_{GND}	Transmitter Ground

Suggested Transceiver Interface



Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.
Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Mechanical Dimensions: