

NXS28-CWDM-S10D

SFP28 25G LR CWDM 10 km

Features

- SFP28 Form Factor
- 25 Gb/s bitrate
- Up to 10 km over Singlemode
- LC connector
- 1470-1550, DFB laser, PIN photodiode
- Up to 1,5W power consumption
- +0/+70°C temperature range
- Built in digital diagnostic monitoring



Applications

- 25x Gigabit Ethernet over CWDM
- Access, Metro and Enterprise
- 8x/10x Fibre Channel
- Mobile Fronthaul CPRI/OBSAI

Optical specifications

Optical budget : 19 dB

Transmitter & Receiver optical Specifications

Parameter	Min	Max	Unit
Tx Power	0	5	dBm
Rx Sensitivity	-19	4	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.

CWDM Available Wavelengths

Wavelengths	Min.	Typ.	Max.
47	1464.5	1471	1477.5
49	1484.5	1491	1497.5
51	1504.5	1511	1517.5
53	1524.5	1531	1537.5
55	1544.5	1551	1557.5

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0	25	70	°C	
Relative Humidity	RH	5		95	%	
Data Rate			24.33 25.78		Gbps	
Bit Error Rate	BER			5×10^{-5}		1
Supported Link Length on 9/125μm SMF @ 25.78Gbps	L		10		km	2

Notes:

1. Tested with a PRBS 2³¹-1 test pattern for 25.78Gbps operation.
2. Distances are based on FC-PI-6 Rev. 3.1 and IEEE 802.3 standards.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Supply Current	Icc			545	mA	
Power Dissipation	P _D			1800	mW	
Transmitter						
Differential Input Impedance	ZIN		100		Ω	
Differential Data Input Swing	V _{IN,pp}	180		700	mVp-p	
Tx_Fault	Transmitter Fault	V _{OH}	2.0		Host_Vcc	V
	Normal Operation	V _{OL}	0		0.8	V
Tx_Disable	Transmitter Disable	V _{IH}	2.0		Host_Vcc	V
	Transmitter Enable	V _{IL}	0		0.8	V
Receiver						
Differential Output Impedance	Z _{OUT}		100		Ω	
Differential Data Output Swing	V _{OUT,pp}	300		850	mVp-p	1
Data Output Rise Time/Fall Time	Tr/Tf	15			ps	2
Rx_LOS	Loss of Signal (LOS)	V _{OH}	2.0		Host_Vcc	V
	Normal Operation	V _{OL}	0		0.8	V

Notes:

1. Internally AC coupled but requires an external 100Ω differential load termination.
2. 20–80 %.
3. LOS is an open collector output. Should be pulled up with 4.7kΩ on the host board.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	P _o	0		5	dBm	1
Extinction Ratio	ER	4.5			dB	
Center Wavelength Range	λ _C	1464.5		1557.5	nm	
Transmitter and Dispersion Penalty	TDP			4	dB	
Spectral Width	Δλ			1	nm	2
Optical Return Loss Tolerance	ORLT			21	dB	
P _{out} @Tx_Disable Asserted	P _{off}			-30	dBm	
Receiver						
Center Wavelength	λ _C	1460		1620	nm	
Receiver Sensitivity (Avg)	S			-19	dBm	1
Receiver Overload	P _{max}	-4			dBm	
Optical Return Loss	ORL	26			dB	
LOS De-Assert	LOSD			-19	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5			dB	

Notes:

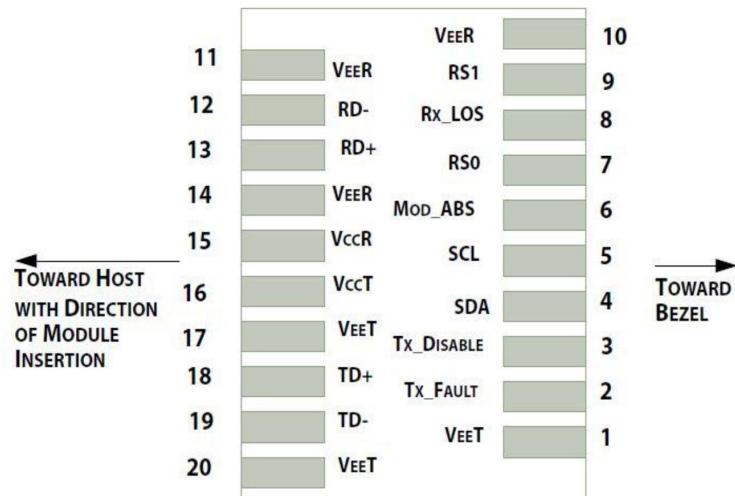
1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. 20dB spectral width.
3. Measured with PRBS 2³¹-1 at 5×10⁻⁵ BER.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. LVTTL-O.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on "high" or "open." LVTT-I.	3
4	SDA	2-Wire Serial Interface Data. Same as MOD-DEF2 in INF-8074i. LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data. Same as MOD-DEF2 in INF-8074i. LVTTL-I.	
6	MOD_ABS	Module Absent. Connect to VeeT or VeeR in the module.	4
7	RS0	Rate Select 0. Not used.	5
8	LOS	Loss of Signal Indication. Logic 0 indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not used.	5
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. CML-O.	
13	RD+	Receiver Non-Inverted Data Out. AC Coupled. CML-O.	
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. CML-I.	
19	TD-	Transmitter Inverted Data In. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

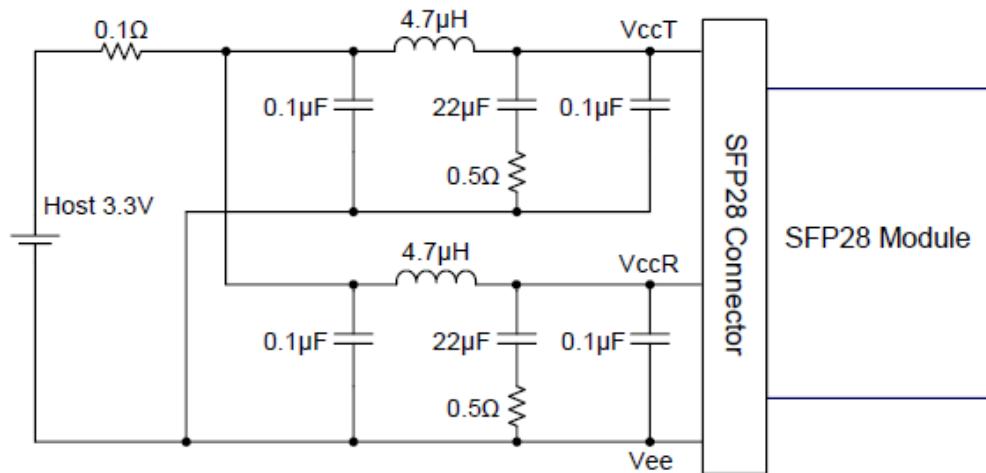
Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Host_Vcc with the resistor in the range $4.7\text{k}\Omega$ - $10\text{k}\Omega$. Pull-ups can be connected to one or several power supplies; however, the host board design shall ensure that no module contact has voltage exceeding module VccT/R+0.5V.
3. Tx_Disable is an input contact with a $4.7\text{k}\Omega$ - $10\text{k}\Omega$ pull-up resistor to the VccT inside the module.
4. MOD_ABS is connected to the VeeT or VeeR in the SFP+ module. The host may pull the contact up to Host_Vcc with a resistor in the range from $4.7\text{k}\Omega$ - $10\text{k}\Omega$. MOD_ABS is asserted "high" when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431.

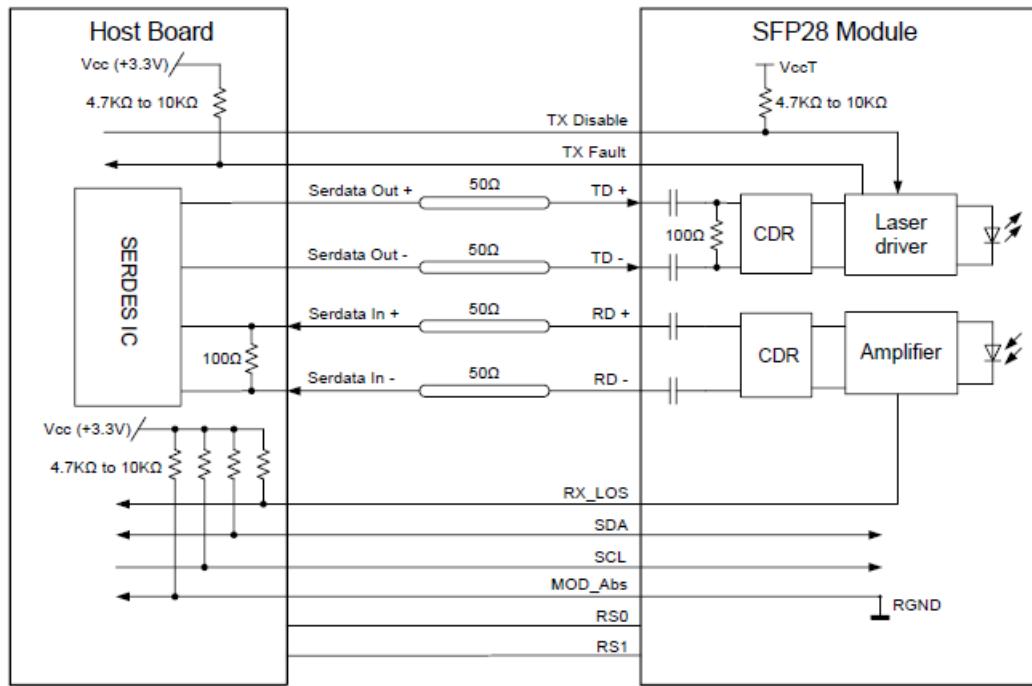


Pin-Out of Connector Block on the Host Board

Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications

