1.25Gb/s SFP CWDM 1270-1610nm 20km Optical Transceiver

Features

- Up to 1.25Gb/s Data Links
- Hot-Pluggable
- Duplex LC connector
- Up to 20km on 9/125 μ m SMF
- 18-Wavelength CWDM 1270n~1610nm Available
- CWDM DFB laser transmitter
- Single +3.3V Power Supply
- Monitoring Interface Compliant with SFF-8472
- Low power dissipation ＜1W typically
- RoHS compliant and Lead Free
- Case operating temperature： 0 ~ +70℃

Applications

- Gigabit Ethernet
- 1 × Fiber Channel
- CWDM Networks

Compliance

- SFP MSA
- SFF-8472
- IEEE802.3z
- RoHS

Description

The SFP-1G-CW20 Transceiver products provide optical networking equipment manufacturers with a timely and cost effective tool in supporting the unceasing demand for higher bandwidth equipment build-outs in the enterprise access and metropolitan area networks. There are 18 center wavelengths available from 1270nm to 1610nm. The 20nm channel spacing allows for un-cooled laser operation, a high yield manufacturing process, and lower cost Mux/Demux technology, thus providing a complete cost effective solution for various data and telecom applications.

General Specifications

Table1-General Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Data Rate	BR		1.25		Gb/s	
Bit Error Rate	BER			10- 12		
Max Supported Link Length on 9/125 μ m SMF@1.25Gb/s	LMAX		20		km	
Total System Budget	LB	19			dB	

Absolute Maximum Ratings

Table2-Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Storage Temperature	TS	-40		+85	ºC	
Supply Voltage	VCC	-0.5		4	V	
Relative Humidity	RH	0		85	%	

Recommended Operating Environment

Table3-Recommended Operating Environment

Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Case operating Temperature	Tc	0		+70	°C	
Supply Voltage	VCC	3.135		3.465	V	
Supply Current	Icc			250	mA	
Inrush Current	Isurge			Icc+30	mA	
Maximum Power	Pmax			1	W	

Electrical Characteristics(TOP =Tc, VCC = 3.135 to 3.465 Volts)

Table4-Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Transmitter						
Input differential impedance	Rin	90	100	110	W	1
Single ended data input swing	Vin PP	250		1200	mVp-p	
Transmit Disable Voltage	VD	Vcc – 1.3		Vcc	V	2
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	
Transmit Disable Assert Time	Tdessert			10	us	
Receiver						
Single ended data output swing	Vout, pp	300		800	mv	3
Data output rise time	tr			260	ps	4
Data output fall time	tf			260	ps	4
LOS Fault	Vlosfault	Vcc – 0.5		VCC_ host	V	5
LOS Normal	Vlos norm	Vee		Vee+0.5	V	5
Power Supply Rejection	PSR	100			mVpp	6

Notes:

[1] AC coupled.

[2] Or open circuit.

[3] Into 100 ohm differential termination.

[4] 20 – 80 %

[5] LOS is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

[6] All transceiver specifications are compliant with a power supply sinusoidal modulation of 20 Hz to 1.5MHz up to specified value applied through the power supply filtering network shown on page 23 of the Small Form-factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 14, 2000.

Optical Characteristic(TOP =Tc, VCC = 3.135 to 3.465 Volts)

Table5-Optical Characteristic

Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Transmitter						
Center Wavelength	λc	λ-6.5	λ	λ+6.5	nm	
Spectral Width	σ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Optical Output Power	Pout	-9		0	dBm	1
Optical Rise/ Fall Time	tr / tf			260	ps	2
Extinction Ratio	ER	9			dB	
Generated Jitter (peak to peak)	JTXp-p			0.07	UI	3
Generated Jitter (rms)	JTXrms			0.007	UI	3

Eye Mask for Optical Output	Compliant with IEEE802.3z(class 1 laser safety)					
Receiver						
Optical Input Wavelength	λ c	1260		1620	nm	
Receiver Overload	Pol	-8			dBm	4
RX Sensitivity	Sen			-22	dBm	4
RX_ LOS Assert	LOS A	-40			dBm	
RX_ LOS De- assert	LOS D			-25	dBm	
RX_ LOS Hysteresis	LOS H	0.5			dB	

Notes:

[1] The optical power is launched into SMF.

[2] 20-80%.

[3] Jitter measurements taken using Agilent OMNIBERT 718 in accordance with GR-253.

[4] Measured with PRBS 27 - 1at 10- 12 BER

Pin Assignment

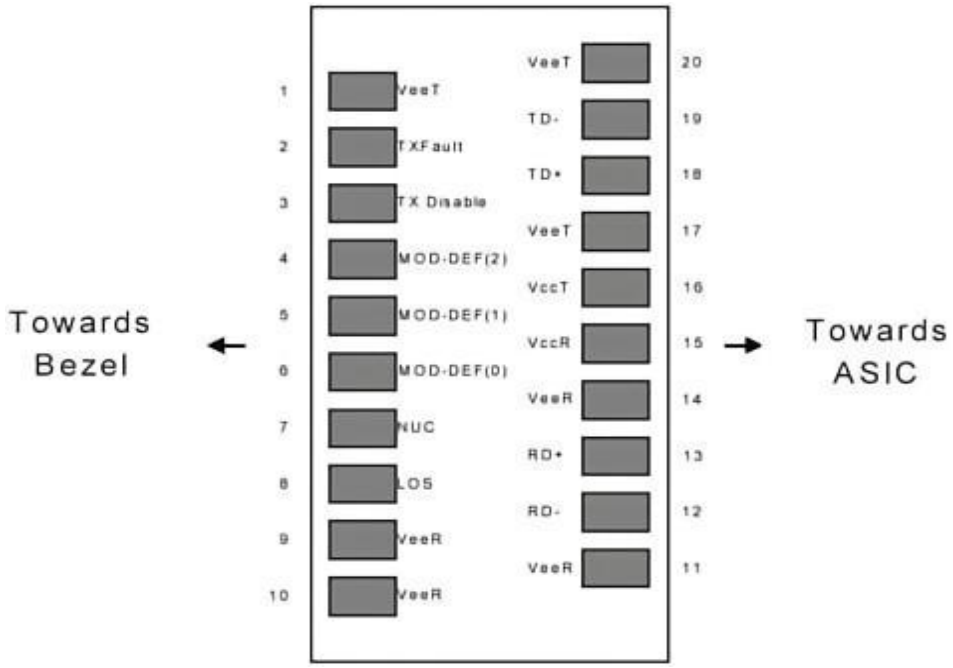


Figure1 Diagram of Host Board Connector Block Pin Numbers and Names

Pin Function Definitions

Table6-Pin Function Definitions

PIN	Name	Function	Plug Seq	Notes
1	VeeT	Transmitter Ground	1	1
2	TX Fault	Transmitter Fault Indication	3	
3	TX Disable	Transmitter Disable	3	2
4	MOD-DEF2	Module Definition	2	3
5	MOD-DEF1	Module Definition 1	3	3
6	MOD-DEF0	Module Definition 0	3	3
7	Rate Select	Not Connected	3	4
8	LOS	Loss of Signal	3	5
9	VeeR	Receiver Ground	1	1
10	VeeR	Receiver Ground	1	1
11	VeeR	Receiver Ground		1
12	RD-	Inv. Received Data Out	3	6
13	RD+	Received Data Out	3	6
14	VeeR	Receiver Ground	3	1
15	VccR	Receiver Power	2	1
16	VccT	Transmitter Power	2	
17	VeeT	Transmitter Ground	1	
18	TD+	Transmit Data In	3	6
19	TD-	Inv. Transmit In	3	6
20	VeeT	Transmitter Ground	1	

[1] Circuit ground is internally isolated from chassis ground.

[2] Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.

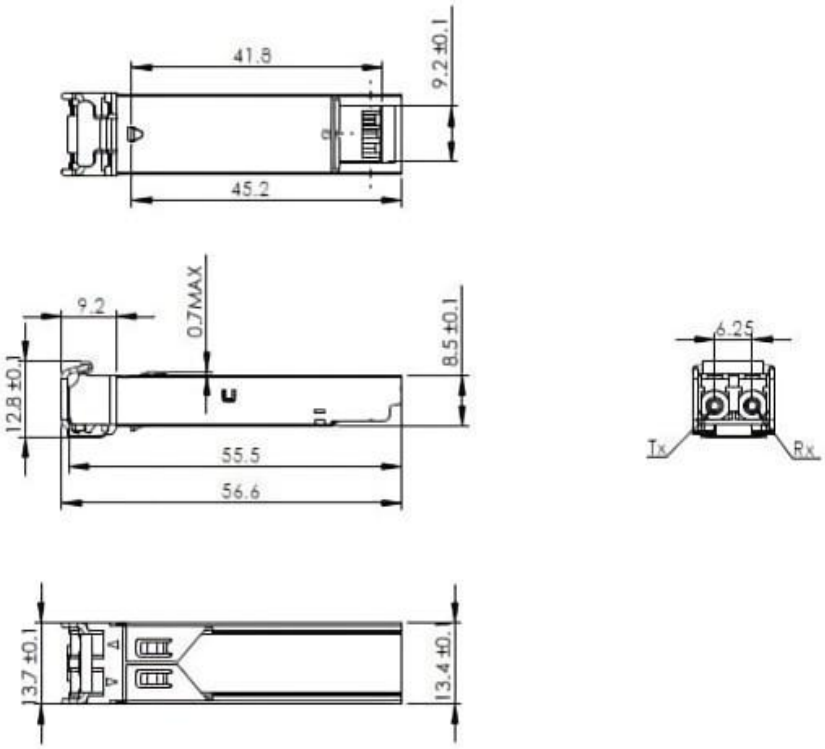
[3] Should be pulled up with 4.7k - 10 kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF(0) pulls line low to indicate module is plugged in.

[4] Rate select is not used

[5] LOS is open collector output. Should be pulled up with 4.7k – 10 kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

[6] AC Coupled

Mechanical Specifications



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1. We are committed to continuous product improvement and feature upgrades, and the contents contained in this manual are subject to change without notice.

2. Nothing herein should be construed as constituting an additional warranty.

3. NADDOD assumes no responsibility for the use or reliability of equipment or software not provided by NADDOD.