

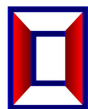
2.5Gbps SFP CWDM Transceiver,1470nm-1610nm,80KM Reach HC-2G-CXXL-80D

Product Features

- Hot-Pluggable
- PIN receiver
- Up to 2.67Gb/s Data Links
- Duplex LC connector
- Maximum Power <1W
- Up to 80km on 9/125μm SMF
- CWDM DFB laser transmitter
- Single +3.3V Power Supply
- Monitoring Interface Compliant with SFF-8472
- Commercial operating temperature range: -0°C to 70°C
- RoHS compliant and Lead Free

Applications

- SONET OC-48 / SDH STM -16
- SONET OC-12 / SDH STM -4
- SONET OC-3 / SDH STM -1
- Gigabit Ethernet
- 1x/2xFibre Channel



Absolute Maximum Ratings

Table 1-Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	TS	-40	85	°C	
Operating Case Temperature	TOP	0	70	°C	
Power Supply Voltage	VCC	-0.5	4	V	
Relative Humidity (non-condensation)	RH	0	85	%	

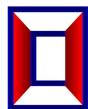
Note:

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

Recommended Operating Conditions

Table 2 -Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Note
Operating Case Temperature	TOP	0		70	°C	
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V	
Power Consumption	P			1	W	
Supply Current	I _{CC}			300	mA	
Data Rate	BRAVE	-	2.5	2.67	Gb/s	
Bit Error Rate	BER			10 ⁻¹²		
Max. Supported Link Length on 9/125μm SMF @ OC-48/STM-16	L _{MAX1}		80		km	
Max. Supported Link Length on 9/125μm SMF @ 2xFibre channel	L _{MAX2}		80		km	
Max. Supported Link Length on 9/125μm SMF @ Gigabit Ethernet	L _{MAX3}		80		km	
Max. Supported Link Length on 9/125μm SMF @ OC-12/STM-4	L _{MAX4}		100		km	
Max. Supported Link Length on 9/125μm SMF @ OC-4/STM-1	L _{MAX5}		100		km	



Optical Characteristics

Table 3 -Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter Section:						
Center Wavelength	λ_c	-6.5	CWDM	+6.5	nm	
Spectral Width@-20dBm	σ			1	nm	
Sidemode Supression ratio	SSRmin	30			dB	
Optical Output Power	Pout	1		5	dBm	1
Extinction Ratio	ER	8.2			dB	
Optical Rise/Fall Time	tr / tf			260	ps	2
Relative Intensity Noise	RIN			-120	dB/Hz	
Total Generated Transmitter Jitter (peak to peak)	JTXp-p			0.07	UI	
Total Generated Transmitter Jitter (rms)	JTXrms			0.007	UI	
Output Eye Mask	Compliant with eye mask Telcordia GR-253-GORE					
Receiver Section						
Optical Input Wavelength	λ_c	1470		1610	nm	
RX Sensitivity @ OC-48/STM-16	Sen1			-27	dBm	3
RX Sensitivity @ 2xFibre channel	Sen2			-27	dBm	4
RX Sensitivity @ Gigabit Ethernet	Sen3			-27	dBm	4
RX Sensitivity @ OC-12/STM-4	Sen4			-32	dBm	5
RX Sensitivity @ OC-4/STM-1	Sen5			-32	dBm	5
RX_LOS Assert	LOS A	-42			dBm	
RX_LOS De-assert	LOS D			-28	dBm	
RX_LOS Hysteresis	LOS H	0.5			dB	



Note:

- 1、Compliant with FDA/CDRH and EN (IEC) 60825 regulations (Class 1 Laser Safety).
- 2、20-80%.
- 3、Measured with PRBS 231-1 at 10-12 BER
- 4、Measured with PRBS 27-1 at 10-12 BER

Electrical Characteristics

The following electrical characteristics are defined over the recommended operating environment

Table 4 -Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter Section						
Input differential impedance	Rin	90	100	110		
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 Section						
Single ended data output swing	Vout,pp	300		800	mv	3
LOS Fault	Vlofault	Vcc – 0.5		VCC_host	V	5
LOS Normal	Vlos norm	Vee		Vee+0.5	V	5
Power Supply Rejection	PSR	100			mVpp	6

Note:

- 1、AC coupled.
- 2、Or open circuit.
- 3、Into 100 ohm differential termination.
- 4、20 – 80 %
- 5、LOS is LVTTTL. 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



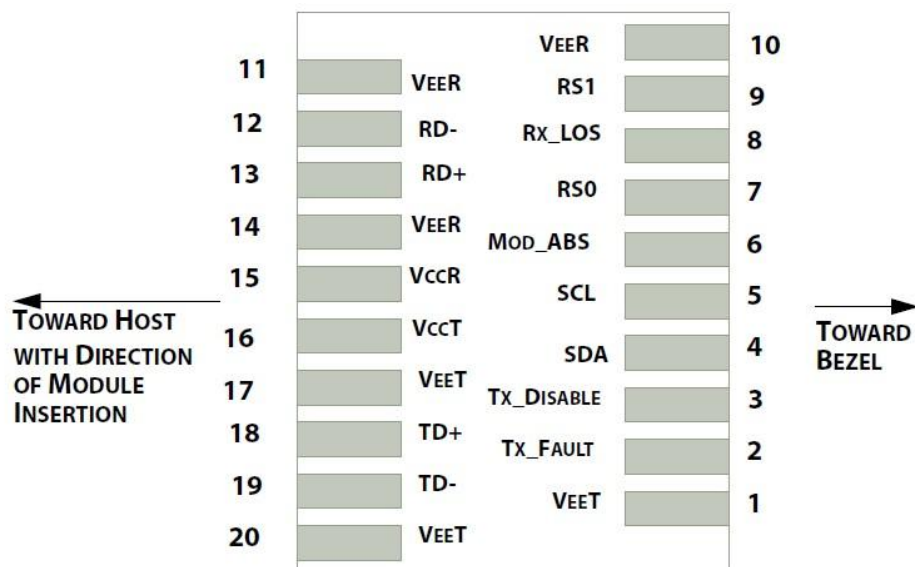
Digital Diagnostics

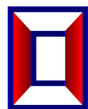
Table5 -Digital Diagnostics

Parameter	Symbol	Min	Max	Unit	Note
Temperature Monitor Absolute Error	DMI_Temp	-3	3	°C	Cover full operating temperature range
Supply Voltage Monitor Absolute Error	DMI_VCC	-0.1	0.1	V	Cover full operating temperature range
Channel RX Power Monitor Absolute Error	DMI_RX_Ch	-3	3	dB	
Channel Bias Current Monitor	DMI_Ibias_Ch	-10%	10%		
Channel TX Power Monitor Absolute Error	DMI_TX_Ch	-3	3	dB	

Edge connector and pinout description

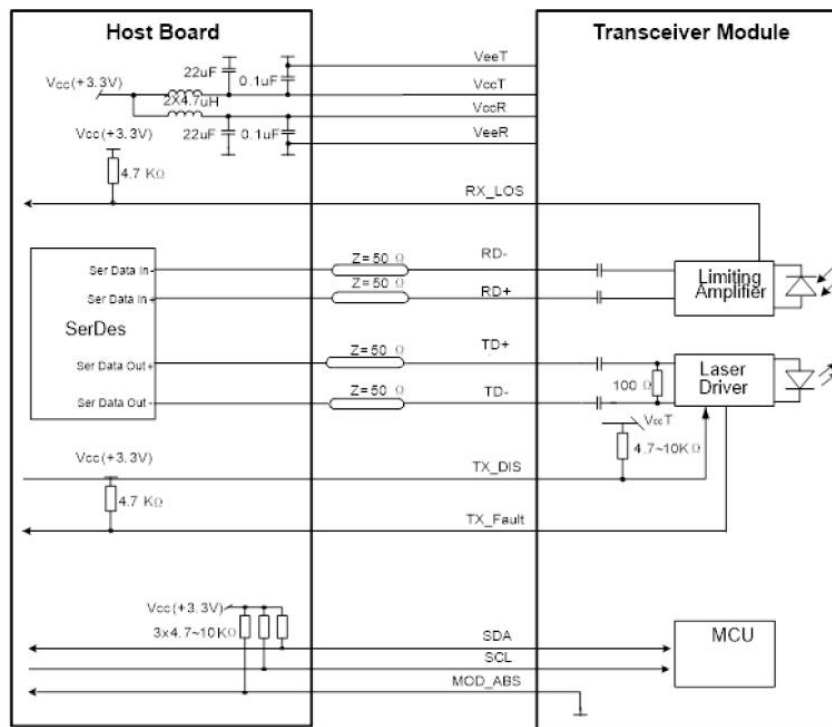
The electrical pinout of the SFP module is shown in Figure below.





PIN #	Name	Function	Notes
1	VeeT	Transmitter Ground	1
2	Tx Fault	Transmitter Fault - High indicates a fault condition	
3	Tx Disable	Transmitter Disable – High or open disables the transmitter	2
4	SDL	2-wire Serial Interface Data Line (MOD-DEF2)	3
5	SCL	2-wire Serial Interface Clock (MOD-DEF1)	3
6	MOD-ABS	Module Absent, connected to VeeT or VeeR in the module	3
7	RS0	Rate Select 0	4
8	RX_LOS	Receiver Loss of Signal(LVTTL-O). Logic 0 indicates normal operation	5
9	RS1	Rate Select 1	1
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Inverse Received Data out (CML-O), AC Coupled	6
13	RD+	Receiver Non-inverted DATA out. AC Coupled	6
14	VeeR	Receiver Ground	1
15	VccR	Receiver Power Supply	1
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	6
19	TD-	Transmitter Inverted DATA in. AC Coupled.	6
20	VeeT	Transmitter Ground	

Recommended Interface Circuit



Mechanical Dimension

