

1.25Gbps SFP CWDM Transceiver, 1270nm-1610nm, 100KM

Product Features

- Up to 1.25Gb/s Data Links
- Hot-Pluggable
- Duplex LC connector
- Up to 100km on 9/125μm SMF
- 18-Wavelength CWDM 1270nm~1610nm Available
- CWDM DFB laser transmitter
- Single +3.3V Power Supply
- Monitoring Interface Compliant with SFF-8472
- Low power dissipation <1W typically
- Operating temperature range: 0°C to 70°C
- RoHS compliant and Lead Free

Applications

- 2Gigabit Ethernet
- 1X Fiber Channel
- CWDM Networks

Description

This transceiver provides 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.

Absolute Maximum Ratings

Table 2-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	3.6	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 3-Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Note
Operating Case Temperature	TOP	0		70	°C	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Power Consumption	P			1	W	
Supply Current	Icc			300	mA	
Bit Error Rate	BER			10 ⁻¹²		
Aggregate Bit Rate	BRAVE	-	1.25	-	Gb/s	
Transmission Distance	TD		-	100	KM	Over SMF

Optical Characteristics

Table 4-Optical Characteristics

Transmitter Optical Specification						
Parameter	Symbol	Min	Typ	Max	Units	Notes
Center Wavelength	λ_c	λ -6.5	λ	λ +6.5	nm	
Spectral Width	σ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Optical Output Power	Pout	-1		+5	dBm	
Optical Rise/Fall Time	tr / tf			260	ps	
Extinction Ratio	ER	8.2			dB	
Generated Jitter (peak to peak)	JTXp-p			0.07	UI	
Generated Jitter (rms)	JTXrms			0.007	UI	
Eye Mask for Optical Output		Compliant with IEEE802.3z(class 1 laser safety)				
Receiver Optical Specification						
Optical Input Wavelength	λ_c	1260		1620	nm	
Receiver Overload	Pol	-3			dBm	
RX Sensitivity	Sen			-28	dBm	
RX_LOS Assert	LOS A	-45			dBm	
RX_LOS De-assert	LOS D			-29	dBm	
RX_LOS Hysteresis	LOS H	0.5			dB	

Electrical Characteristics

The following electrical characteristics are defined over the recommended operating environment

Table 5-Electrical Characteristics

Parameter	Symbol	Mi	Typ	Max	Units	Notes
Transmitter (Module Input)						
Input differential impedance	Rin	90	100	110		
Single ended data input swing	Vin PP	250		1200	mVp-p	1
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 (Module Output)						
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

Note:

- 1、AC coupled.
- 2、Or open circuit.
- 3、Into 100 ohm differential termination. 4. 20 – 80 %
- 4、LOS is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
- 5、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.

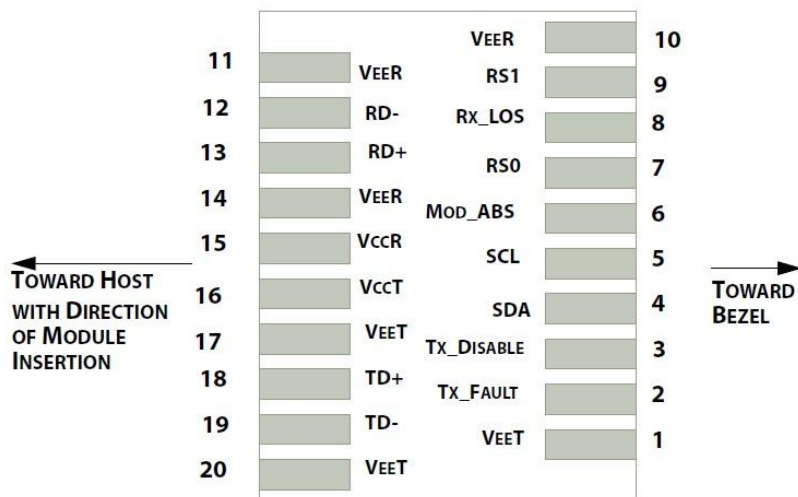
Digital Diagnostics

Table 6-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	

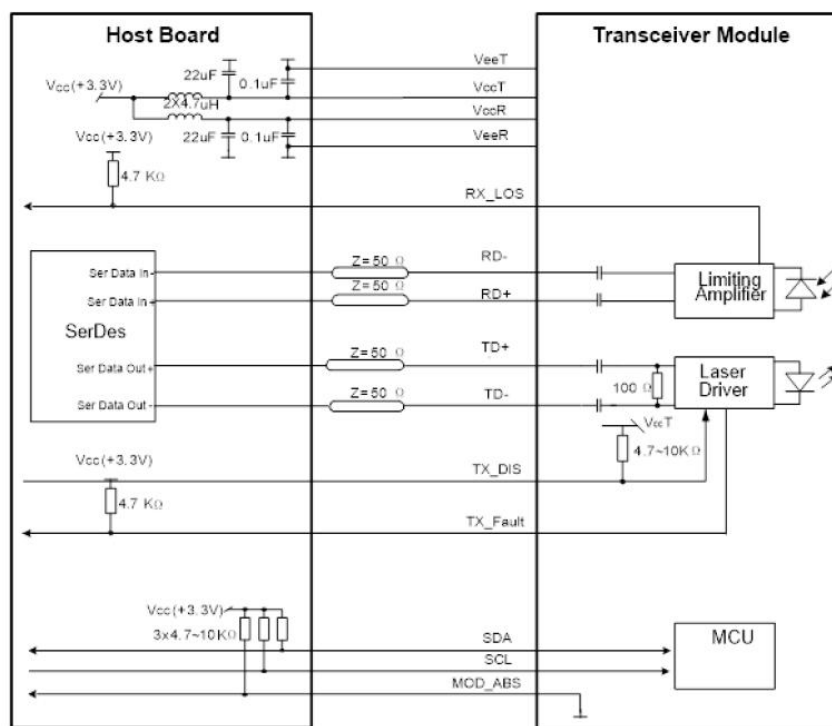
Edge connector and pinout description

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

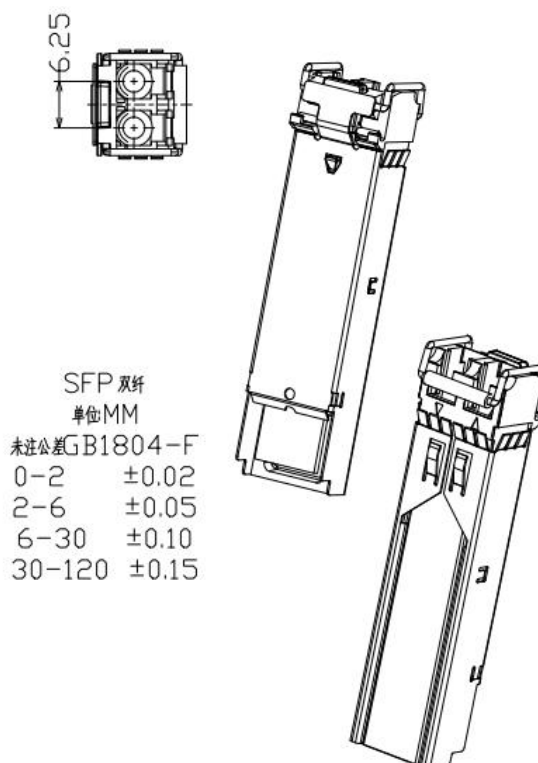
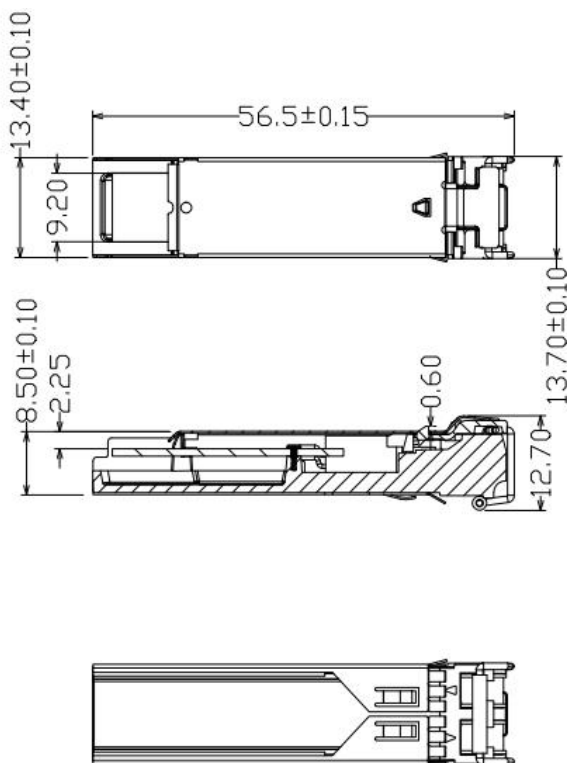


PIN #	Name	Function	Notes
1	VeeT	Transmitter Ground	1
2	Tx Fault	Transmitter Fault - High indicates a fault condition	2
3	Tx Disable	Transmitter Disable – High or open disables the transmitter	
4	SDL	2-wire Serial Interface Data Line (MOD-DEF2)	3
5	SCL	2-wire Serial Interface Clock (MOD-DEF1)	3
6	MOD-ABS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

Recommended Interface Circuit



Mechanical Dimension



SFP 规格
单位MM
未注公差 GB1804-F
0-2 ±0.02
2-6 ±0.05
6-30 ±0.10
30-120 ±0.15

Order Information

Part No.	Data Rate	Laser	Fiber Type	Distance	Optical Interface	Temp	DDM
HC-GE-CXXL-100D	1.25Gbps	DFB	SMF	100KM	Duplex LC	0-70℃	Y