1.25Gb/s SFP CWDM 1270-1610nm10km Optical Transceiver

Features

- Up to 1.25Gb/s Data Links

- Hot-Pluggable

- Duplex LC connector

- Up to 10km on 9/125μm 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-CW10 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 μm SMF@1.25Gb/s	LMAX		10		km	
Total System Budget	LB	19			dB	

Absolute Maximum Ratings

Table2-Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Storage Temperature	T_S	-40		+85	°C	
Supply Voltage	V_{CC}	-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 1.5 MHz 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	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	-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	λc	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.

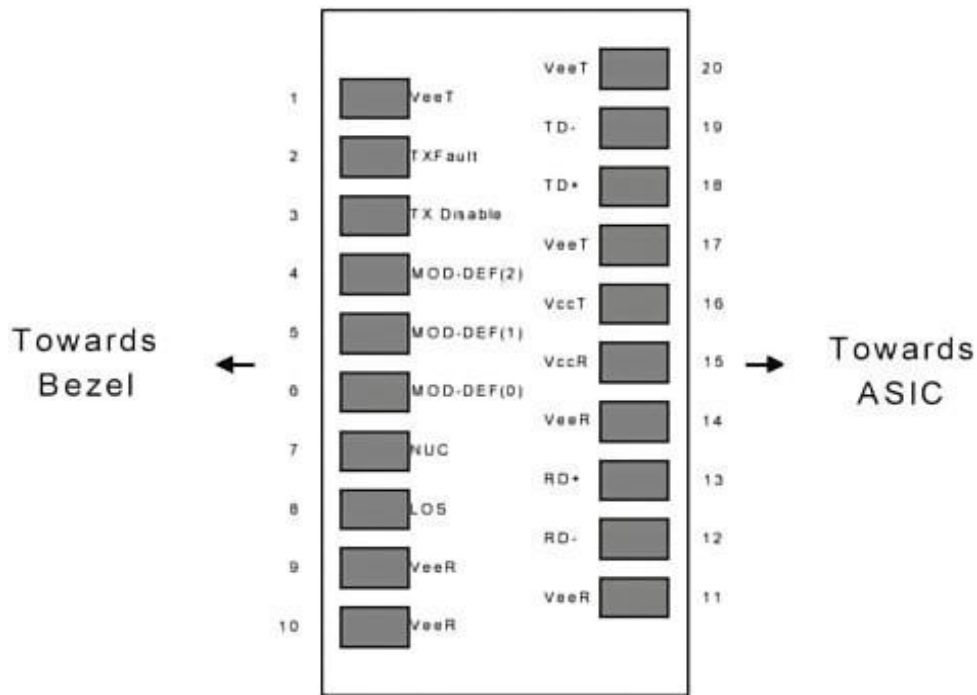[4] Measured with PRBS 27 - 1at 10- 12 BER

Pin Assignment

Figure1 Diagram of Host Board Connector Block Pin Numbers and Names

Pin Function Definitions

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	

Notes：

[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
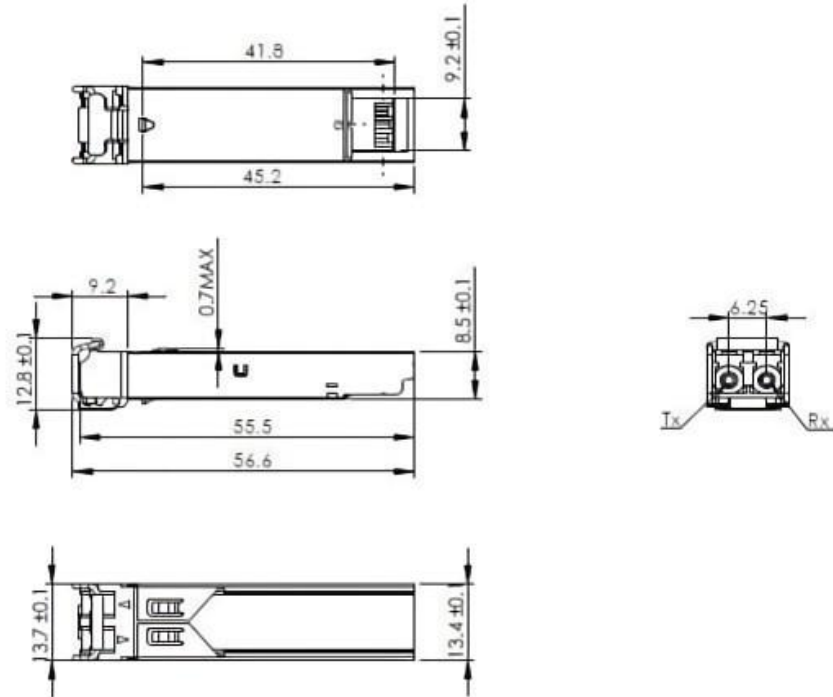
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