SFP-10G-CWDM-20

SFP+ 10Gb/s CWDM Single-mode 20km DDM

PRODUCT FEATURES

- Operating data rate up to 10.3125Gbps
- Up to 20km transmission distance
- High sensitivity Pin photodiode and TIA
- Rate Adaptation
- LC duplex connector
- Hot pluggable 20pin connector
- Low power consumption <1.2W
- Single +3.3V±5% power supply
- Compliant with SFF-8472
- Fully RoHS Compliant
- Operating temperature range:

  Commercial: 0°C to +70°C

  External: -20°C to +85°C

APPLICATIONS

- 10GBASE-LR/LW & 10G Ethernet
- CPRI Option 3/4/5/6/7/8

Ordering information

Part No.	Data Rate	CWDM Wavelength	Distance	Optical Interface	Temp	DDMI
SFP-10G-CWDM-20	10 Gbps	1271nm~1571nm	20km	LC	0~70°C	Y
SFP-10G-CWDM-20-E	10 Gbps	1271nm~1571nm	20km	LC	-20~85°C	Y

I. Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	Ts	ºC	-40	85
Relative Humidity	RH	%	0	85

II. Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature Range	Tc	ºC	0		70
		ºC	-20		85
Power Supply Voltage	Vcc	V	3.14	3.3	3.46
Bit Rate	BR	Gb/s		10.3125	
Bit Error Ratio	BER				$1*10^{-12}$
Max Supported Link Length	L	Km			20

III. Optical Characteristics(Vcc= 3.14 to 3.46V)

Parameter	Symbol	Unit	Min	Typ	Max	Note
Nominal Wavelength	λ	nm	1271~1571			
Wavelength Drift	Δλ	nm	-6.5		+6.5	
Average Output Power	Pav	dBm	1		7	
Spectral Width (-20dB)	σ	nm			1	
Extinction Ratio	ER	dB	3.5			
Side Mode Suppression Ratio	SMSR	dB	30			
Average Launch Power of OFF Transmitter	POFF	dBm			-30	
Relative Intensity Noise	RIN	dB/Hz			-128	
Center Wavelength	λC	nm	1260		1620	
Receiver Sensitivity(OMA)	RSENSE	dBm			-16	1
Receiver Overload (OMA)	Pmax	dBm	2			
Optical Return Loss		dB			-12	
LOS Assert	LOSA	dBm	-30			
LOS De-Assert LOS	LOSD	dBm			-17	
LOS Hysteresis		dB	0.5			

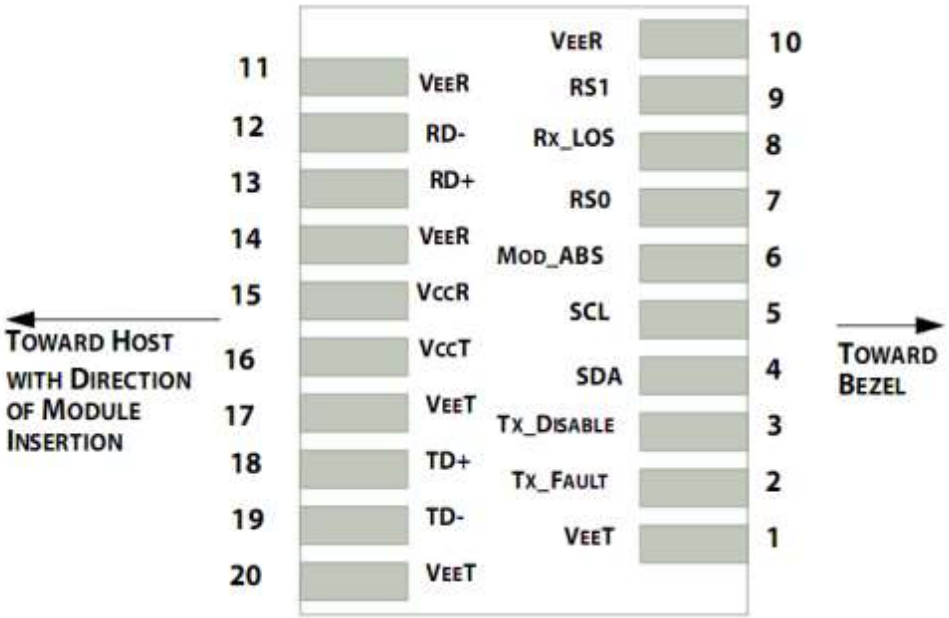
Note:

1. Measured at 10.3125Gb/s, ER>4dBm, PRBS 2^{31}-1 and BER better than or equal to 1E-12;

IV. Electric Ports Definition

Parameter	Symbol	Unit	Min	Typ	Max	Note
Transmitter						
Input Differential Impedance	R_{IN}	Ω		100		
Single-ended Data Input Swing	V_{IN}	mVp-p	90		450	
Transmit Disable Voltage	V_{DIS}	V	2		V_{CCHOST}	
Transmit Enable Voltage	V_{EN}	V	V_{EE}		V_{EE}+0.8	
Transmit Fault Assert Voltage	V_{FA}	V	2		V_{CCHOST}	
Transmit Fault De-Assert Voltage	V_{FDA}	V	V_{EE}		V_{EE}+0.4	
Receiver						
Single-ended Data Output Swing	V_{OD}	mVp-p	200		450	
LOS Fault	V_{LOSFT}	V	2		V_{CCHOST}	
LOS Normal	V_{LOSNR}	V	V_{EE}		V_{EE}+0.4	

V. Pin Diagram



VI. Pin Descriptions

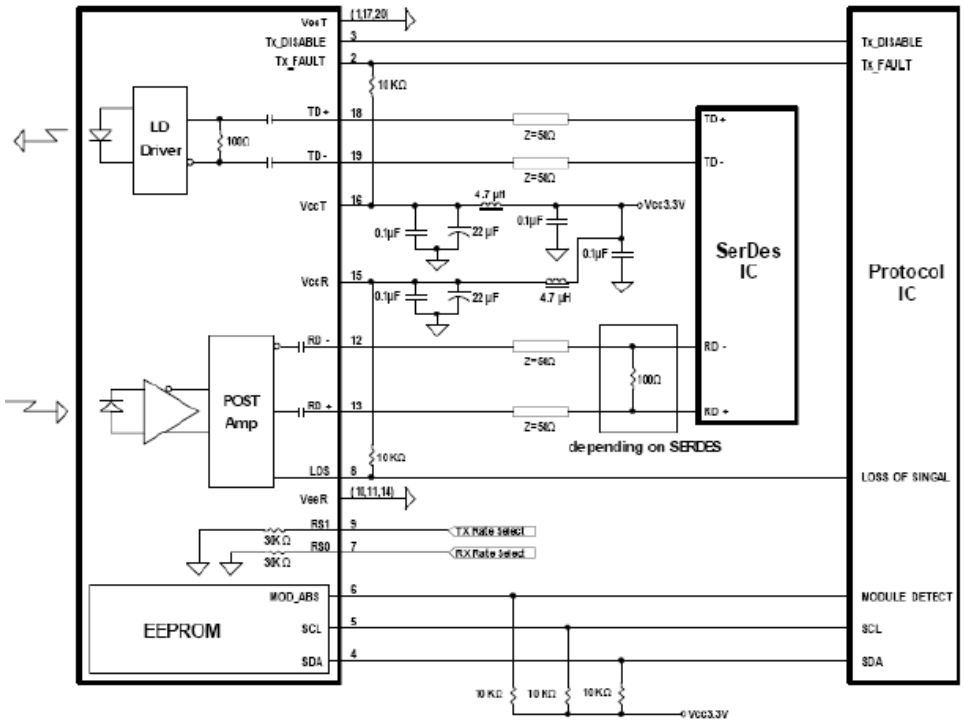
Pin	Symbol	Name	Description
1,17,20	VeeT	Transmitter Signal Ground	Connected to signal ground on the host board.
2	TX Fault	Transmitter Fault Out (OC)	Module transmitter fault output.
3	TX Disable	Transmitter Disable In (LVTTL)	Module transmitter disable control.
4	SDA	Module Definition Identifiers	Serial ID with SFF 8472 Diagnostics Module Definition pins should be pulled up to Host Vcc with 10 kΩ resistors.
5	SCL		
6	MOD-ABS		

7	RS0	Receiver Rate Select (LVTTL) Transmitter Rate Select (LVTTL)	No connection required
9	RS1		
8	LOS	Loss of Signal Out (OC)	Receiver loss of signal.
10,11,14	VeeR	Receiver Signal Ground	Connected to signal ground on the host board.
12	RD-	Receiver Negative DATA Out (CML)	Receiver inverted data output, internally AC coupled and terminated
13	RD+	Receiver Positive DATA Out (CML)	Receiver non-inverted data output, internally AC coupled and terminated.
15	VccR	Receiver Power Supply	Receiver Power 3.3V Supply.
16	VccT	Transmitter Power Supply	Transmitter Power 3.3V Supply.
18	TD+	Transmitter Positive DATA In (CML)	Transmitter non-inverted data input, internally AC coupled and terminated.
19	TD-	Transmitter Negative DATA In (CML)	Transmitter inverted data Input, internally AC coupled and terminated.

VII. Digital Diagnostic

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	deg.C
Internally measured transceiver supply voltage	+/-3	%
Measured Tx bias current	+/-10	%
Measured Tx output power	+/-3	dB
Measured Rx received average optical power	+/-3	dB

VIII.Recommended Interface Circuit



IX. Mechanical Specifications(Unit: mm)