产 品 规 格 书

Product Specification Sheet

TOP-XFP-CWDM-ZR-XX

RoHS Compliant 10Gb/s XFP CWDM 80km Optical Transceiver

E-mail : csale@topsfp.com

PRODUCT FEATURES

- Hot pluggable
- Support 9.95Gb/sto11.1Gb/s bit rates
- Below<1.6Wpowerdissipation
- XFPMS A package with duplex LC connector
- Digital Diagnostic Monitor Interface
- Very low EMI and excellent ESD protection
- Cooled CWDMEML laser and APD Receiver
- Up to 80KM for single mode fiber
- operating temperature range0°Cto70°C
- No reference clock requirement

APPLICATIONS

- 10GBASE-ZR/ZWEthernet
- SONETOC-192/SDHSTM-64
- Otheropticallinks

STANDARD

- XFPMSA Compliant
- SFF-8472reversion9.5compliant
- IEEE802.3-2005compliant
- Telcordia GR-468-COREcompliant
- FCC47CFRPart15,ClassBcompliant
- FDA21CFR1040.10and1040.11,class1com-pliant
- RoHS compliant

PRODUCT DESCRIPTIONS

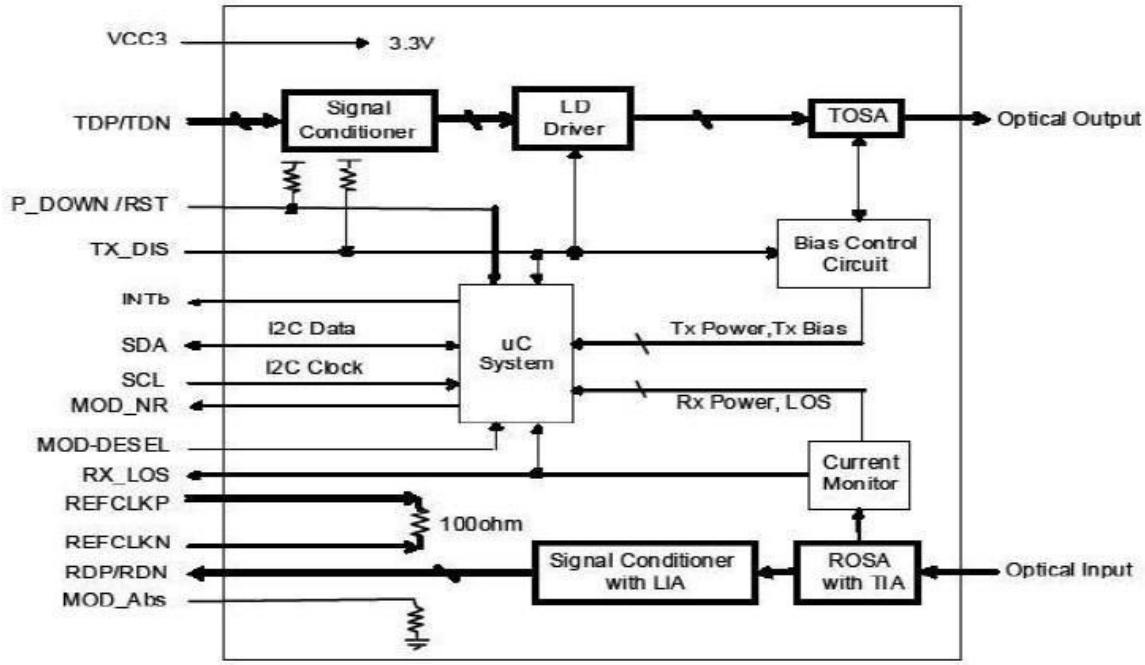
XFP 10G 80KM CWDM transceivers are de-signed for 10G Ethernet10GBASE-ZR/ZW per

802.3ae and10GSOIOC-192/SDHSTM-64,and it can support data-rate from9.953Gb/s to

11.1Gb/s. Digital diagnostics are available via I2C interface as specified in the XFPMSA.

The transceiver designs are optimized for high per-formance and cost effective to supply customers the best solutions for data-comand telecom applications.

FUNCTIONAL DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Mi	Ma	Unit	Note
SupplyVoltage	Vc	-0.5	4.0	V	
StorageTemperature		-40	85	°C	
RelativeHumidity			85	%	

Note:Stress in excess of the maximum absolute ratings can cause permanent damage to the module

GERERAL OPERATING CHARACTERISTICS

Paramet		Symbol	Min.	Typ	Max.	Unit	Note
DataRate	Ethernet			10.3125		Gb/s	
	FiberChannel			9.953			
SupplyVoltage		Vc	3.14	3.	3.46	V	
		Vc				V	
SupplyCurrent		Icc				m	
		Icc			460	m	
OperatingCaseTemp.		T	0		70	°	

ELECTRICAL INPUT/OUTPUT CHARACTERISTICS

Transmitter

Parame		Symbol	Min.	Typ	Max.	Unit	Note
Diff.inputvoltageswing			120		820	mVpp	1
TxDisableinput	H	VIH	2.0		Vcc+0.3	V	
	L	VIL	0		0.8		
TxFaultoutput	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		
InputDiff.Impedance		Zin		100		Ω	

Receiver

Paramet		Symbol	Min.	Typ	Max.	Unit	Note
Diff.outputvoltageswing			340	650	800	mVpp	3
RxLOSOutput	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.		

Note1)TD+/-are internally AC coupled with100Ω differential termination inside the module.
Note2)TxFault and RxLOS are open collector outputs, which should be pulled up with4.7k to10kΩ resistors on the host board. Pull up voltage between2.0VandVcc+0.3V.
Note3)RD+/- outputs are internally AC coupled, and should be terminated with100Ω(differential)at the user
SERDES.

OPTICAL CHARACTERISTICS

Transmitter(0~70 @10.3125Gb/s)

Parame	Symbol	Min.	Typ	Max.	Unit	Note
OperatingWavelength	λ	1470	x	1610	n	
Ave.outputpower(Enabled)	P	0		4	dBm	1
ExtinctionRatio	E	9			dB	1
RMS spectralwidth	Δ			1	nm	
Rise/Falltime(20%~80%)	Tr/Tf			50	ps	2

Opticalmodulationamplitud	OMA	-2.1			dBm	
Dispersionpenalty				2	dB	
OutputOpticalEye	IEEE802.3-2005Compliant					

Notes:
1.“λ”is:1470，1490，1510，1530，1550，1570，1590，1610,pleasethe“productselection”.

Receiver(0~70 @10.3125Gb/s)

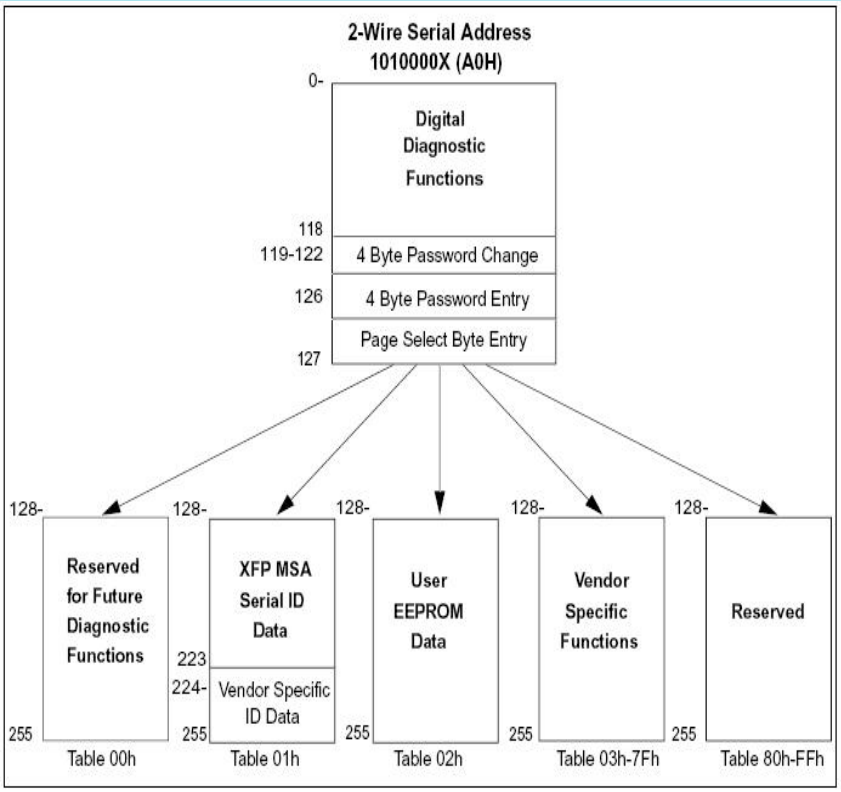
Paramet	Symbol	Min.	Typ	Max.	Unit	Note
OperatingWavelength		1200		1610	n	
Sensitiv	Psen			-23	dBm	3
Min.overload	Pimax	-7			dBm	
LOSAssert	P	-30			dBm	
LOSDe-assert	P			-25	dBm	
LOSHysteresis	Pd-Pa	0.5		4	dB	

Note1)Measured at10.3125b/s with PRBS231–1NRZ test pattern.
Note2)20%~80%
Note3)Under the ER worst case, measured at10.3125Gb/s with PRBS231 -1NRZ test pattern for BER<
1x10-12

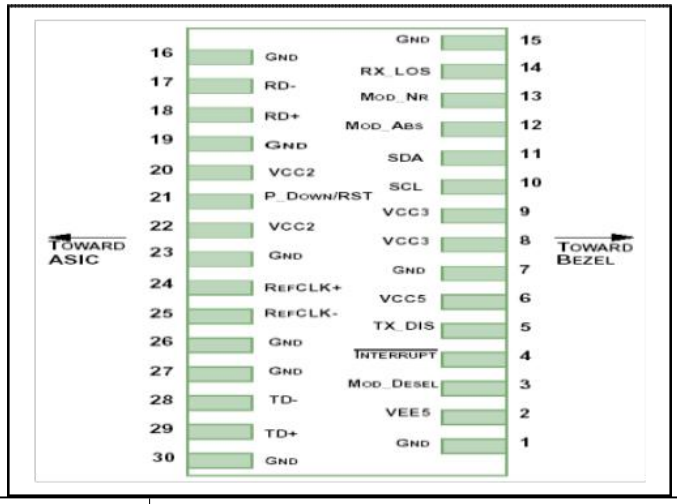
SERIAL INTERFACE FOR ID AND DDM

The XFP modules implement the 2-wire serial communication protocol as defined in the XFP MSA.
The serial ID information of the XFP modules and Digital Diagnostic Monitor parameters can be accessed through the I2C interface at addressA0h and A2h.The memory is mapped in Table1. Detailed ID information(A0h) is listed in Ta-ble2. And the DDM specification(A2h) is described in Table3. For more details of the memory map and byte definitions, please refer to the
SFF-8472(Rev9.3,Aug.2002), “Digital Diagnostic Monitoring Interface for Optical Transceivers”.
The DDM parameters have been internally calibrated.

Table1.DigitalDiagnosticMemoryMap(SpecificDataFieldDescriptions)



PIN DEFINITIONS AND FUNCTIONS

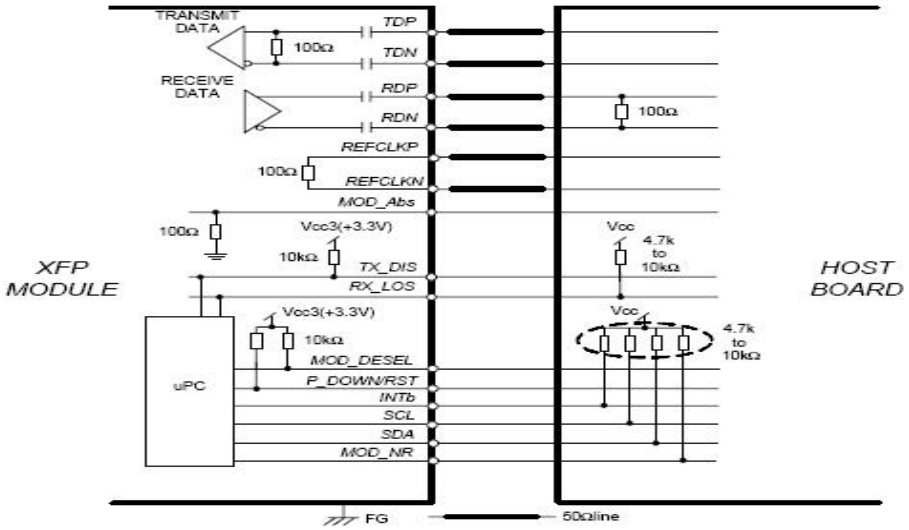


PIN#	Nam	Function	Name/Descri	Notes
1		GND	ModuleGround	1
2		VEE5	Optional-5.2VPowerSupply (Not requireed)	

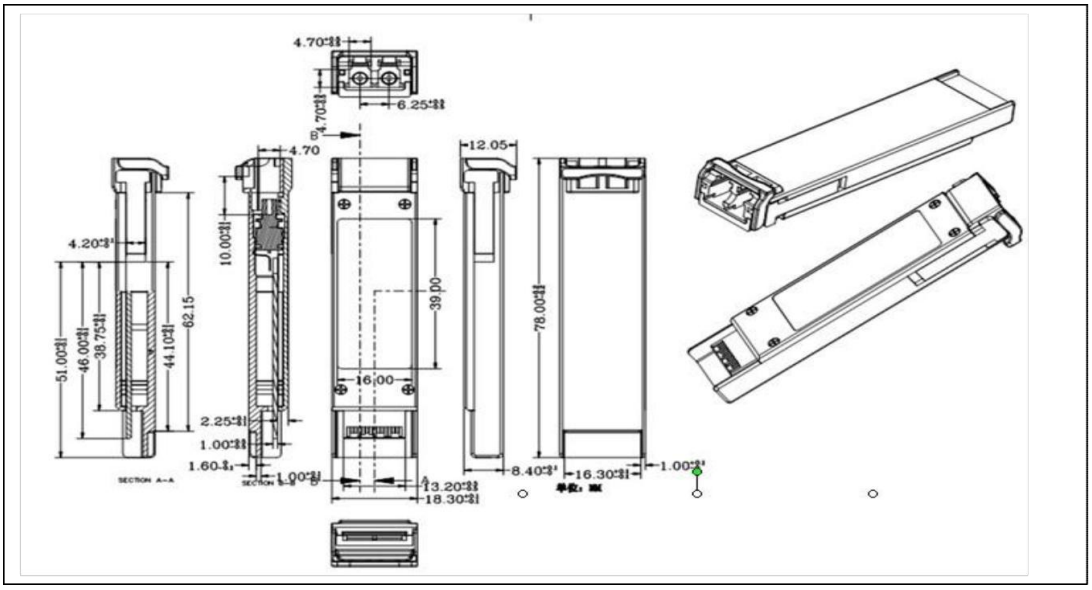
3	LVTTL-I	MOD_DE	ModuleDe-select;Whenheldlowallowsthemoduletorespond to2-wire serialinterface	
4	LVTTL-O	INTb	Interrupt;Indicatespresenceofanimportantconditionwhichcan bereadviathe2-wireserialinterface	2
5	LVTTL-I	TX_DIS	Transmitter Disable;Turns off transmitterlaseroutput	
6		VCC5	+5VPowerSupply(Notrequired)	
7		GND	ModuleGround	1
8		VCC3	+3.3VPowerSupply	
9		VCC3	+3.3VPowerSupply	
10	LVTTL-I/O	SCL	2-WireSerialInterface Clock	2
11	LVTTL-I/O	SDA	2-WireSerialInterface DataLine	2
12	LVTTL-O	MOD_Ab	Indicates Moduleis not present.Groundedin the Module	2
13	LVTTL-O	MOD_NR	Module Not Ready; IndicatingModuleOperationalFault	2
14	LVTTL-O	RX_LOS	ReceiverLoss Of SignalIndicator	2
15		GND	ModuleGround	1
16		GND	ModuleGround	1
17	CML-O	RDN	ReceiverInverted DataOutput	
18	CML-O	RDP	Receiver Non-InvertedDataOutput	
19		GND	ModuleGround	1
20		VCC2	+1.8VPowerSupply(Not required).	3
21	LVTTL-I	P_DOWN/RST	Powerdown; Whenhigh,requiresthemodule tolimitpower consumptionto1.5Worbelow.2-Wireserialinterfacemustbe functionalinthelowpower mode.	
21	LVTTL-I	P_DOWN/RST	Reset;Thefallingedgeinitiatesacompleteresetofthemodule includingthe2-wire serialinterface, equivalent toapower	
22		VCC2	+1.8VPowerSupply(Not required)	3
23		GND	ModuleGround	1
24	PECL-I	REFCLK	Not used, internallyterminatedto50ohm (100ohm diff).	4
25	PECL-I	REFCLK	Not used, internallyterminatedto50ohm (100ohm diff).	4
26		GND	ModuleGround	1
27		GND	ModuleGround	1
28	CML-I	TDN	TransmitterInverted DataInput	
29	CML-I	TDP	Transmitter Non-InvertedData Input	
30		GND	ModuleGround	1

Note:1.Module ground pins GND are isolated from the module case and chassis ground within the module.
2.Open collector; Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.6V on the host board.
3.The pins are open within module.
4.Reference Clock is not required.

TYPICAL INTERFACE CIRCUIT



PACKAGE DIMENSIONS



ORDERING INFORMATION

PartNumber	Description
TOP-XFP-DWDM-ER-XX	XFP ,10.3125Gbps,DWDM,40KM,0~70℃,withDDM
TOP-XFP-DWDM-ZR-XX	XFP ,10.3125Gbps,DWDM,80KM,0~70℃,withDDM
TOP-XFP-CWDM-ER-XX	XFP ,10.3125Gbps,CWDM,40KM,0~70℃,withDDM
TOP-XFP-CWDM-ZR-XX	XFP ,10.3125Gbps,CWDM,80KM,0~70℃,withDDM

Topstar Technology Industrial Co., Ltd

Add: F5, Rongcheng Building, 28 Yayuan Road Wuhe Community, BanTian Street, Shenzhen, China

Tel: +86 755 8255 2969 Email:lisa@topsfp.com

Skype: lisalin6565 Whatsapp: +86 13798265065

Wechat: 251081707

Facebook and Linked in: Topstar Technology Industrial Co., Ltd