

### Свойства

DWDM EML лазер + PIN фотоприемник

100GHz ITU Grid, C Band

до 40км

цифровая диагностика (DDMI)

дуплексный LC коннектор

### Применение

10GBase-ZR/ZW

STM-64/16

10G FC

### ● Модели

OTXFP-D-40-Cxx , где xx: 100GHZ ITU Grid Wavelength

model	Frequency (THZ)	Central Wavelength(nm)
OTXFP-D-40-C17	191,70	1563,86
OTXFP-D-40-C18	191,80	1563,05
OTXFP-D-40-C19	191,90	1562,23
OTXFP-D-40-C20	192,00	1561,42
OTXFP-D-40-C21	192,10	1560,61

OTXFP-D-40-C22	192,20	1559,79
OTXFP-D-40-C23	192,30	1558,98
OTXFP-D-40-C24	192,40	1558,17
OTXFP-D-40-C25	192,50	1557,36
OTXFP-D-40-C26	192,60	1556,55
OTXFP-D-40-C27	192,70	1555,75
OTXFP-D-40-C28	192,80	1554,94
OTXFP-D-40-C29	192,90	1554,13
OTXFP-D-40-C30	193,00	1553,33
OTXFP-D-40-C31	193,10	1552,52
OTXFP-D-40-C32	193,20	1551,72
OTXFP-D-40-C33	193,30	1550,92
OTXFP-D-40-C34	193,40	1550,12
OTXFP-D-40-C35	193,50	1549,32
OTXFP-D-40-C36	193,60	1548,51
OTXFP-D-40-C37	193,70	1547,72

OTXFP-D-40-C38	193,80	1546,92
OTXFP-D-40-C39	193,90	1546,12
OTXFP-D-40-C40	194,00	1545,32
OTXFP-D-40-C41	194,10	1544,53
OTXFP-D-40-C42	194,20	1543,73
OTXFP-D-40-C43	194,30	1542,94
OTXFP-D-40-C44	194,40	1542,14
OTXFP-D-40-C45	194,50	1541,35
OTXFP-D-40-C46	194,60	1540,56
OTXFP-D-40-C47	194,70	1539,77
OTXFP-D-40-C48	194,80	1538,98
OTXFP-D-40-C49	194,90	1538,19
OTXFP-D-40-C50	195,00	1537,40
OTXFP-D-40-C51	195,10	1536,61
OTXFP-D-40-C52	195,20	1535,82
OTXFP-D-40-C53	195,30	1535,04

OTXFP-D-40-C54	195,40	1534,25
OTXFP-D-40-C55	195,50	1533,47
OTXFP-D-40-C56	195,60	1532,68
OTXFP-D-40-C57	195,70	1531,90
OTXFP-D-40-C58	195,80	1531,12
OTXFP-D-40-C59	195,90	1530,33
OTXFP-D-40-C60	196,00	1529,55
OTXFP-D-40-C61	1528,77	196,10

● **Максимальные параметры**

Storage Temperature	T <sub>ST</sub>	-40	+85	°C
Case Operating Temperature	T <sub>IP</sub>	0	+70	°C
Supply Voltage 1	V <sub>CC3</sub>	-0.5	+4.0	V
Supply Voltage 2	V <sub>CC5</sub>	-0.5	+6.0	V

● **Электрические характеристики**

◇ Parameter	Symbol	Min	Typ	Max	Unit	Note
Supply Voltage 1	V <sub>CC5</sub>	4.75		5.25	V	
Supply Voltage 2	V <sub>CC3</sub>	3.13		3.45	V	
Supply Current – V <sub>CC5</sub> supply	I <sub>CC5</sub>			250	mA	

Supply Current – Vcc3 supply	Icc3			500	mA		
Module total power	P			3.5	W		
<b>Transmitter</b>							
Input differential impedance	Rin		100		$\Omega$	1	
Differential data input swing	Vin,pp	150		820	mV		
Transmit Disable Voltage	V <sub>D</sub>	2.0		Vcc	V		
Transmit Enable Voltage	V <sub>EN</sub>	GND		GND+ 0.8	V		
Transmit Disable Assert Time	T <sub>off</sub>			100	ms		
Tx Enable Assert Time	T <sub>on</sub>			100	ms		
<b>Receiver</b>							
Differential data output swing	Vout,pp	300	500	850	mV		
Data output rise time	tr			35	ps	2	
Data output fall time	tf			35	ps	2	
LOS Fault	V <sub>LOS fault</sub>	Vcc – 0.5		V <sub>CCHOST</sub>	V	3	
LOS Normal	V <sub>LOS norm</sub>	GND		GND+0.5	V	3	
Power Supply Rejection	PSR	See Note 4 below					4

**Notes**

1. After internal AC coupling.
2. 20 – 80 %
3. Loss of Signal is open collector to be pulled up with a 4.7k – 10kohm resistor to 3.15 – 3.6V. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
4. Per Section 2.7.1. in the XFP MSA Specification.

### ● Оптические параметры

✧ Parameter	Symbol	Min	Typ	Max	Unit	Ref.
<b>Transmitter</b>						
Operating Date Rate	BR	9.95		11.3	Gb/s	
Bit Error Rate	BER			$10^{-12}$		
Maximum Launch Power	$P_{MAX}$	-1		+4	dBm	1
Optical Wavelength-End Of Life	$\lambda$	X-100	X	X+100	pm	
Optical Wavelength-Beginning Of Life	$\lambda$	X-25	X	X+25	pm	
Optical Extinction Ratio	ER	6			dB	
Spectral Width@-20dB	$\Delta\lambda$			1	nm	
Sidemode Supression ratio	SSRmin	30			dB	
Rise/Fall Time (20%~80%)	Tr/Tf			35	ps	
Average Launch power of OFF Transmitter	$P_{OFF}$			-30	dBm	
Tx Jitter	Txj	Compliant with each standard requirements				
Optical Eye Mask		IEEE802.3ae				2
<b>Receiver</b>						
Operating Date Rate	BR	9.95		11.3	Gb/s	
Receiver Sensitivity	Sen			-16	dBm	2
Maximum Input Power	$P_{MAX}$	0			dBm	2
Optical Center Wavelength	$\lambda_c$	1260		1600	nm	
Receiver Reflectance	Rrx			-27	dB	
LOS De-Assert	LOS <sub>D</sub>			-17	dBm	
LOS Assert	LOS <sub>A</sub>	-27			dBm	

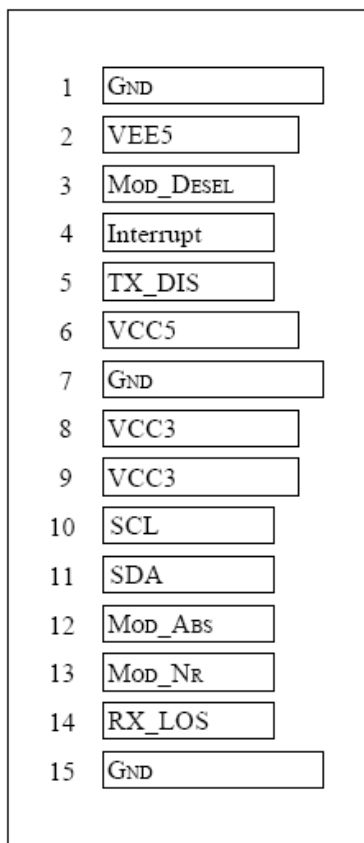
LOS Hysteresis	LOS <sub>H</sub>	0.5		5	dB	
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**Notes:**

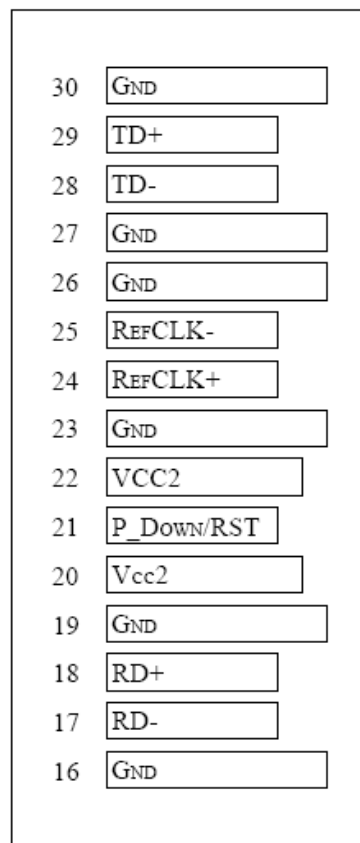
1. The optical power is launched into SMF.
2. Measured with a PRBS 2<sup>31</sup>-1 test pattern @10.3125Gbps BER<10<sup>-12</sup>.

● **Контакты разъема SFP slot**

Diagram of Host Board Connector Block Pin Numbers and Name



Bottom of Board  
(As view through top of board)



Top of Board

● Описание контактов

✧	Logic	Symbol	Name/Description	Ref.
1		GND	Module Ground	1
2		VEE5	Optional –5.2 Power Supply – Not required	
3	LVTTTL-I	Mod-Desel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	LVTTTL-O	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	LVTTTL-I	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6		VCC5	+5 Power Supply	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTTL-I	SCL	Serial 2-wire interface clock	2
11	LVTTTL- I/O	SDA	Serial 2-wire interface data line	2
12	LVTTTL-O	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
13	LVTTTL-O	Mod_NR	Module Not Ready;	2
14	LVTTTL-O	RX_LOS	Receiver Loss of Signal indicator	2
15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RD-	Receiver inverted data output	
18	CML-O	RD+	Receiver non-inverted data output	



19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply – Not required	
21	LVTTTL-I	P_Down/RS T	Power Down; When high, places the module in the low power stand-by mode and on the falling edge of P_Down initiates a module reset	
			Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle.	
22		VCC2	+1.8V Power Supply – Not required	
23		GND	Module Ground	1
24	PECL-I	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board – Not required	3
25	PECL-I	RefCLK-	Reference Clock inverted input, AC coupled on the host board – Not required	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter inverted data input	
29	CML-I	TD+	Transmitter non-inverted data input	
30		GND	Module Ground	1

## Note

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector; should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.45V.
3. A Reference Clock input is not required.

**● EEPROM и DDMI**

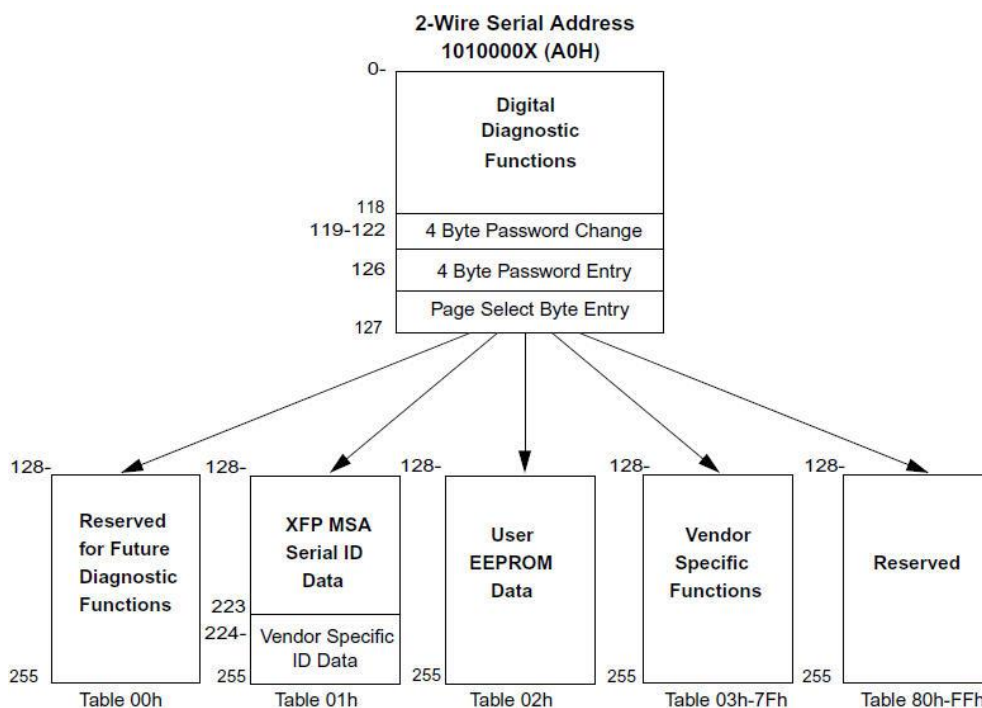
As defined by the XFP MSA 1, FTXFP transceivers provide digital diagnostic functions via a 2-wire serial interface, which allows real-time access to the following operating parameters:

- ✓ Transceiver temperature
- ✓ Laser bias current
- ✓ Transmitted optical power
- ✓ Received optical power
- ✓ Transceiver supply voltage

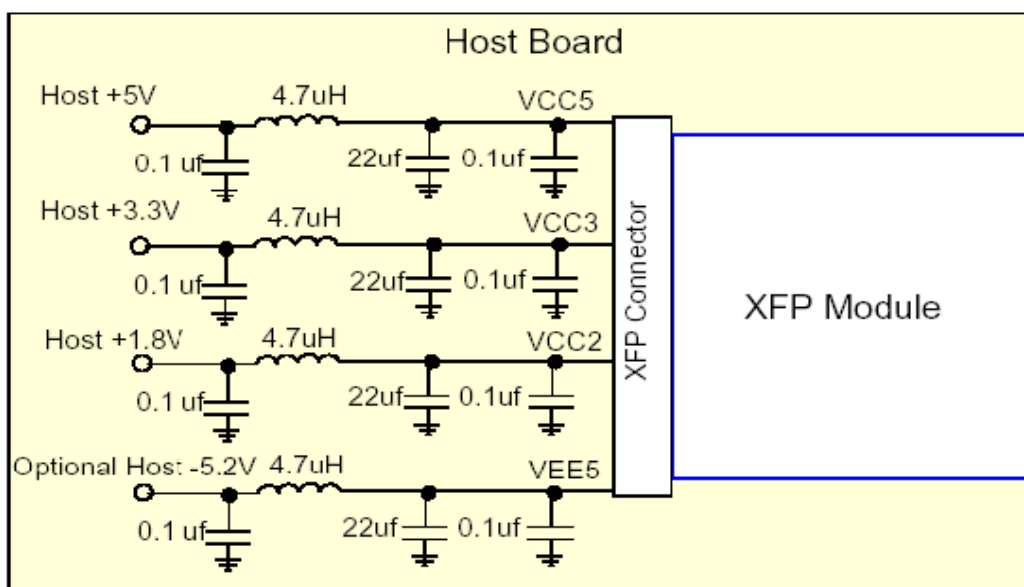
It also provides a sophisticated system of alarm and warning flags, which may be used to alert end-users when particular operating parameters are outside of a factory-set normal range.

The operating and diagnostics information is monitored and reported by a Digital Diagnostics Transceiver Controller (DDTC) inside the transceiver, which is accessed through the 2-wire serial interface. When the serial protocol is activated, the serial clock signal (SCL pin) is generated by the host. The positive edge clocks data into the XFP transceiver into those segments of its memory map that are not write-protected. The negative edge clocks data from the XFP transceiver. The serial data signal (SDA pin) is bi-directional for serial data transfer. The host uses SDA in conjunction with SCL to mark the start and end of serial protocol activation. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially. The 2-wire serial interface provides sequential or random access to the 8 bit parameters, addressed from 000h to the maximum address of the memory.

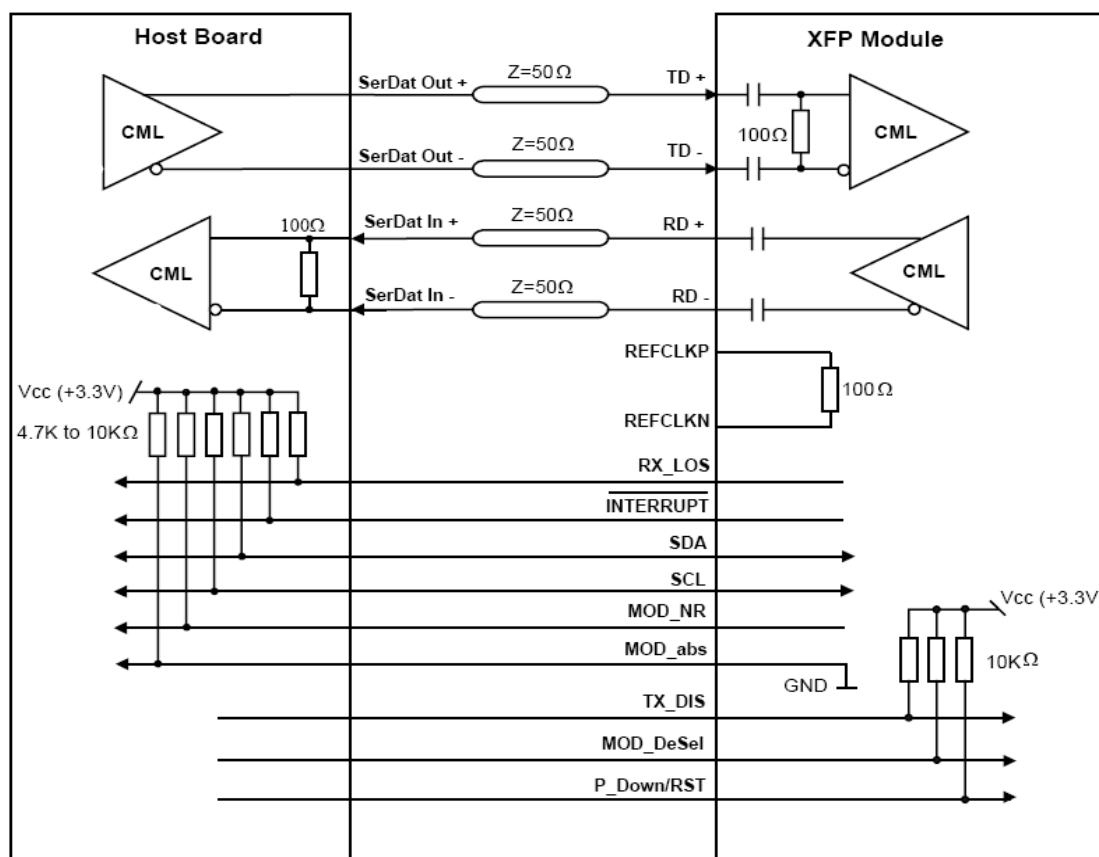
For more detailed information including memory map definitions, please see the XFP MSA Specification.



● **Рекомендованная схема включения**



**Recommended Host Board Power Supply Circuit**



Recommended High-speed Interface Circuit

● **Размеры**

