

WDM XFP модули предназначены для создания каналов связи по одноволоконному SM кабелю на расстояние до 40км.

**Особенности:**

- 1270/1330нм DFB лазер
- возможность горячей замены
- LC разъем
- мощность рассеивания < 2Вт
- температурный диапазон от -5 до +70°C
- диагностика в соответствии со спецификацией Rev 4.5 (MSA) на XFP

**Области применения:**

- 10GBASE-LR/EW 10G Ethernet
- 1200-SM-LL-L 10G Fiber Channel

**Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	Unit
Maximum Supply Voltage	Vcc	Vcc-0.5	4.0	V
Storage Temperature	T <sub>s</sub>	-40	85	°C
Case Operating Temperature	XFP-WDM-1270-1330.40 XFP-WDM-1330-1270.40	-5	70	°C

**Recommend operating condition**

Parameter	Symbol	Min	Typ	Max	Units
Case Operating Temperature	XFP-WDM-1270-1330.40 XFP-WDM-1330-1270.40	-5		+70	°C
Power Supply Current	I <sub>cc</sub>	-	-	580	mA
Supply Voltage	V <sub>cc</sub>	3.13	-	3.45	V

**Electrical Characteristics**

(V<sub>CC</sub> = 3.15V to 3.45V)

Parameter	Symbol	Min	Typ	Max	Unit
<b>Transmitter</b>					
Data Rate		9.95	-	10.52	Gbps
Input differential impedance	R <sub>in</sub>	90	100	110	Ω
Differential data input swing* <sup>Note4</sup>	V <sub>in,pp</sub>	120	-	820	mV
Transmit Disable Voltage	V <sub>D</sub>	2.0	-	V <sub>cc</sub>	V
Transmit Enable Voltage	V <sub>EN</sub>	GND	-	GND+ 0.8	V
Transmit Disable Assert Time		-	-	10	us
<b>Receiver</b>					
Differential data output swing* <sup>Note4</sup>	V <sub>out,pp</sub>	340	650	850	mV
Data output rise time* <sup>Note5</sup>	t <sub>r</sub>	-	-	38	ps

Data output fall time*Note5	tf	-	-	38	ps
LOS Fault	V <sub>LOS fault</sub>	2.4	-	V <sub>cc</sub>	V
LOS Normal	V <sub>LOS norm</sub>	GND	-	GND+0.5	V

\*Note4. Internal AC coupling.

\*Note5. 20 – 80 %.

#### XFP-WDM-1270-1330.40 Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
9µm Core Diameter SMF			40		km
Data Rate			9.953/10.3125		Gbps
<b>Transmitter</b>					
Centre Wavelength	$\lambda_C$	1260	1270	1280	nm
Spectral Width (-20dB)	$\Delta\lambda$			1	nm
Average Output Power*note6	P <sub>out, AVG</sub>	<b>2</b>		7	dBm
Extinction Ratio	ER	3.5			dB
Side Mode Suppression Ratio	SMSR	30			dB
Transmitter and Dispersion Penalty	TDP			2	dB
Average Power of OFF Transmitter				-30	dBm
Relative Intensity Noise	RIN			-128	dB/Hz
Input Differential Impedance	Z <sub>IN</sub>	90	100	110	$\Omega$
TX Disable	Disable		2.0	V <sub>cc</sub> +0.3	V
	Enable		0	0.8	
TX Fault	Fault		2.0	V <sub>cc</sub> +0.3	V
	Normal		0	0.8	
TX Disable Assert Time	t <sub>off</sub>			10	us
<b>Receiver</b>					
Centre Wavelength	$\lambda_C$	1320		1340	nm
Sensitivity*note7	PIN			<b>-14</b>	dBm
Receiver Overload	P <sub>MAX</sub>	0.5			dBm
Output Differential Impedance	P <sub>IN</sub>	90	100	110	$\Omega$
LOS De-Assert	LOS <sub>D</sub>			-18	dBm
LOS Assert	LOS <sub>A</sub>	-30			dBm
LOS	High		2.0	V <sub>cc</sub> +0.3	V
	Low		0	0.8	

#### XFP-WDM-1330-1270.40 Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
9µm Core Diameter SMF			40		km
Data Rate			9.953/10.3125		Gbps
<b>Transmitter</b>					
Centre Wavelength	$\lambda_C$	1320	1330	1340	nm
Spectral Width (-20dB)	$\Delta\lambda$			1	nm
Average Output Power*note6	P <sub>out, AVG</sub>	<b>2</b>		7	dBm
Extinction Ratio	ER	3.5			dB
Side Mode Suppression Ratio	SMSR	30			dB
Transmitter and Dispersion Penalty	TDP			2	dB

Average Power of OFF Transmitter					-30	dBm
Relative Intensity Noise		RIN			-128	dB/Hz
Input Differential Impedance		Z <sub>IN</sub>	90	100	110	Ω
TX Disable	Disable		2.0		V <sub>CC</sub> +0.3	V
	Enable		0		0.8	
TX Fault	Fault		2.0		V <sub>CC</sub> +0.3	V
	Normal		0		0.8	
TX Disable Assert Time		t <sub>off</sub>			10	us
<b>Receiver</b>						
Centre Wavelength		λ <sub>C</sub>	1260		1280	nm
Sensitivity <sup>*note7</sup>		PIN			-14	dBm
Receiver Overload		P <sub>MAX</sub>	0.5			dBm
Output Differential Impedance		P <sub>IN</sub>	90	100	110	Ω
LOS De-Assert		LOS <sub>D</sub>			-18	dBm
LOS Assert		LOS <sub>A</sub>	-30			dBm
LOS	High		2.0		V <sub>CC</sub> +0.3	V
	Low		0		0.8	

\*Note6. Output is coupled into a 9/125um SMF.

\*Note7: Measured with a PRBS 2<sup>31</sup>-1 test pattern @10.3125Gbps.

#### Pin Descriptions

Pin	Logic	Symbol	Name/Description	Ref.
1		GND	Module Ground	1
2		VEE5	Optional -5.2 Power Supply – Not required	
3	LVTTL-I	Mod-Desel	Module De-select; When held low allows the module to , respond to 2-wire serial interface commands	
4	LVTTL-O	<u>Interrupt</u>	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	LVTTL-I	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6		VCC5	+5 Power Supply, Not required	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTL-I	SCL	Serial 2-wire interface clock	2
11	LVTTL-I/O	SDA	Serial 2-wire interface data line	2
12	LVTTL-O	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
13	LVTTL-O	Mod_NR	Module Not Ready;	2
14	LVTTL-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	LVTTL-I	P_Down/RST	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

Note1. Module circuit ground is isolated from module chassis ground within the module.

Note2. Open collector; should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.

Note3. A Reference Clock input is not required.

Pin Arrangement

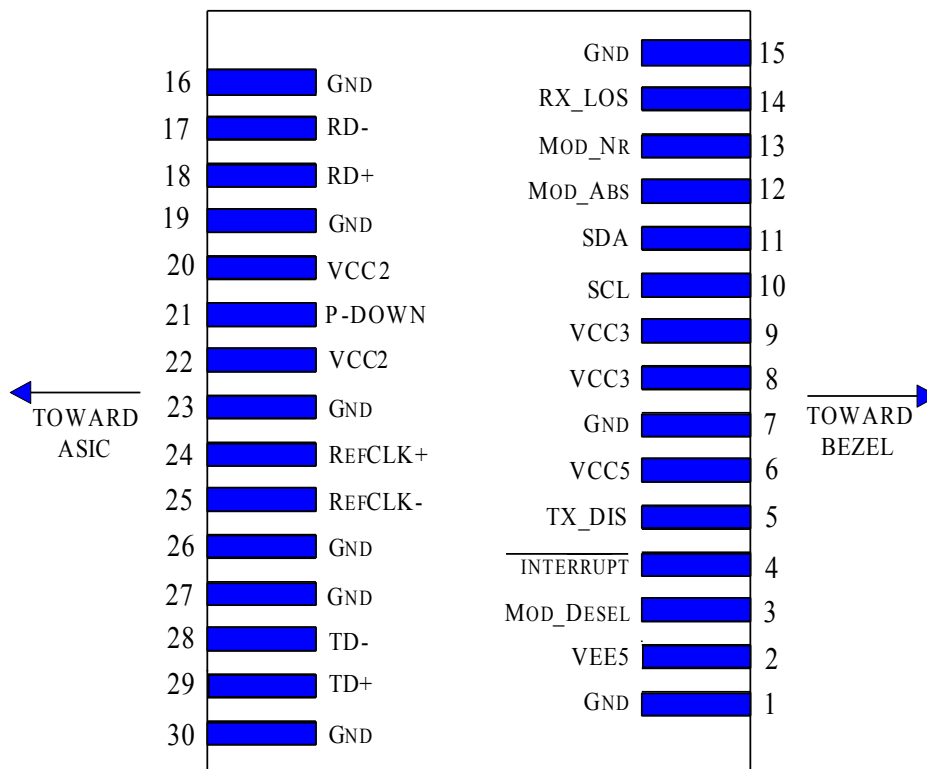


Diagram of Host Board Connector Block Pin Numbers and Name