

### 10Gbps 100GHz Single-mode 80km DWDM XFP Optical Transceiver DXFP-10GXX-80-xx



#### Features

- Supports 9.95Gb/s to 11.1Gb/s data rates
- Available in all C-Band Wavelength on the 100GHz ITU-T Grid
- Temperature-Stabilized DWDM Rated EML Transmitter
- Built-in Digital Diagnostic Functions
- Duplex LC Connector
- Support Line Side Loopback
- Support XFI Loopback
- Auxiliary 1 Monitoring Laser Temperature
- Auxiliary 2 Monitoring 5V Supply
- Operating Case temperature range: 0 ~ +70°C

#### Applications

- 10GBASE-ZR/ZW Ethernet
- 10G Fiber Channel
- SONET OC-192/STM-64

#### Description

FiberStore DXFP-10GXX-80-xx Small Form Factor 10Gb/s (XFP) transceivers comply with the current XFP Multi-Source Agreement (MSA) Specification<sup>1</sup>. This module is designed for single mode fiber and operates at a nominal DWDM wavelength from 1528nm to 1563nm as specified by the ITU-T. It is designed to deploy in the DWDM networking equipment in metropolitan access and core networks.

They exceed the requirements for DWDM 10Gb/s SONET/SDH interfaces per ITU-T G.698.1 S-D100S1-2D, and support DWDM 10-Gigabit Ethernet, 10-Gigabit Fiber Channel, and 10-Gigabit Ethernet. Digital diagnostics functions are available via a 2-wire serial interface, as specified in the XFP MSA.

### Specifications

**Table 1 - Absolute Maximum Ratings**

Parameter	Symbol	Min	Typical	Max	Unit
Maximum Supply Voltage 1	Vcc3	-0.5		4.0	V
Maximum Supply Voltage 2	Vcc5	-0.5		6.0	V
Storage Temperature	Ts	-40		85	°C
Case Operating Temperature	Tc	-5		70	°C
Maximum Input Power	Pm			-8	dBm

**Table 2 - Recommend Operating Condition**

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	-5	-	70	°C
Supply Voltage 1	Vcc3	3.13	3.3	3.45	V
Supply Voltage 2	Vcc5	4.75	5	5.25	v

**Table 3 - C-band  $\lambda_c$  Wavelength Guide**

Channel(XX) *note 1	Part No.	Frequency (THz)	Center Wavelength (nm)
17*	DXFP-10G17-80-xx	191.7	1563.86
18*	DXFP-10G18-80-xx	191.8	1563.05
19*	DXFP-10G19-80-xx	191.9	1562.23
20*	DXFP-10G20-80-xx	192.0	1561.42
21	DXFP-10G21-80-xx	192.1	1560.61
22	DXFP-10G22-80-xx	192.2	1559.79
23	DXFP-10G23-80-xx	192.3	1558.98
24	DXFP-10G24-80-xx	192.4	1558.17
25	DXFP-10G25-80-xx	192.5	1557.36
26	DXFP-10G26-80-xx	192.6	1556.55
27	DXFP-10G27-80-xx	192.7	1555.75
28	DXFP-10G28-80-xx	192.8	1554.94
29	DXFP-10G29-80-xx	192.9	1554.13
30	DXFP-10G30-80-xx	193.0	1553.33
31	DXFP-10G31-80-xx	193.1	1552.52
32	DXFP-10G32-80-xx	193.2	1551.72
33	DXFP-10G33-80-xx	193.3	1550.92
34	DXFP-10G34-80-xx	193.4	1550.12
35	DXFP-10G35-80-xx	193.5	1549.32
36	DXFP-10G36-80-xx	193.6	1548.51
37	DXFP-10G37-80-xx	193.7	1547.72
38	DXFP-10G38-80-xx	193.8	1546.92

39	DXFP-10G39-80-xx	193.9	1546.12
40	DXFP-10G40-80-xx	194.0	1545.32
41	DXFP-10G41-80-xx	194.1	1544.53
42	DXFP-10G42-80-xx	194.2	1543.73
43	DXFP-10G43-80-xx	194.3	1542.94
44	DXFP-10G44-80-xx	194.4	1542.14
45	DXFP-10G45-80-xx	194.5	1541.35
46	DXFP-10G46-80-xx	194.6	1540.56
47	DXFP-10G47-80-xx	194.7	1539.77
48	DXFP-10G48-80-xx	194.8	1538.98
49	DXFP-10G49-80-xx	194.9	1538.19
50	DXFP-10G50-80-xx	195.0	1537.40
51	DXFP-10G51-80-xx	195.1	1536.61
52	DXFP-10G52-80-xx	195.2	1535.82
53	DXFP-10G53-80-xx	195.3	1535.04
54	DXFP-10G54-80-xx	195.4	1534.25
55	DXFP-10G55-80-xx	195.5	1533.47
56	DXFP-10G56-80-xx	195.6	1532.68
57	DXFP-10G57-80-xx	195.7	1531.90
58	DXFP-10G58-80-xx	195.8	1531.12
59	DXFP-10G59-80-xx	195.9	1530.33
60*	DXFP-10G60-80-xx	196.0	1529.55
61*	DXFP-10G61-80-xx	196.1	1528.77

**Note:**

1. Please contact with FiberStore for the channel availability.

**Table 4 - Optical Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
<b>Transmitter</b>						
Center Wavelength Spacing	$\lambda_c$		100		Ghz	
Frequency Range		191.7		196.1	THz	
Output Opt. Pwr: 9/125 SMF	Pout	0		5	dBm	
Average Launch Power of OFF transmitter	POFF			-30	dBm	
Optical Extinction Ratio	ER	9			dB	
Dispersion Tolerance	DT			1600	ps/nm	
Transmitter Center Wavelength End Of Life	$\lambda$	X-100	X	X+100	pm	
Transmitter Center Wavelength Beginning Of Life	$\lambda$	X-25	X	X+25	pm	
TX Jitter Generation (Peak-to-Peak)	Txj			0.1	UI	
TX Jitter Generation (RMS)	TxjRMS			0.01	UI	
<b>Receiver</b>						

Receive Sensitivity @ 10.7Gbps	Pin			-24	dBm	3
Receive Overload @ 10.7Gbps	Pin	-7			dBm	
Receiver Reflectance	Rrx			-27	dB	
Dispersion Penalty				2	dB	
LOS De-Assert	LOSD			-26	dBm	
LOS Assert	LOSA	-38			dBm	
LOS Hysteresis		0.5			dB	

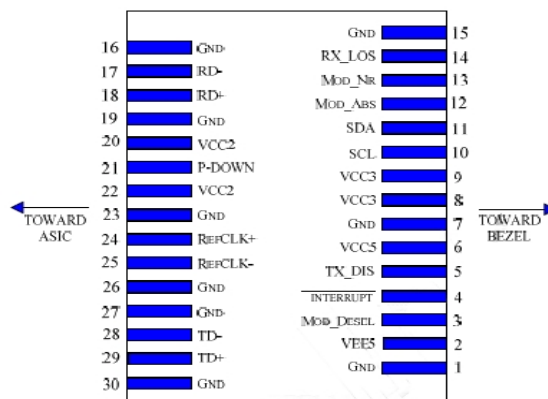
**Table 5 - Electrical Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
<b>Transmitter</b>						
Input Differential Impedance	Rin		100		Ω	
Differential Data Input Swing*2	Vin, pp	120		820	mV	
Transmit Disable Voltage	VD	2.0		Vcc	V	
Transmit Enable Voltage	VEN	GND		GND+ 0.8	V	
Transmit Disable Assert Time				10	us	
<b>Receiver</b>						
Differential Data Output Swing*2	Vout, pp	340	650	850	mV	3
Rise Time (20~80%)	tr			38	ps	
Fall Time (20~80%)	tf			39	ps	
LOS Fault*3	VLOS fault	Vcc - 0.5		VccHOST	V	
LOS Normal*3	VLOS norm	GND		GND+0.5	V	

**Note:**

2. After internal AC coupling.
3. Loss of signal is open collector output. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

**Host board Connector Pinout**



**Diagram of Host Board Connector Block Pin Numbers and Name**

### Table5 – Pinout Definition

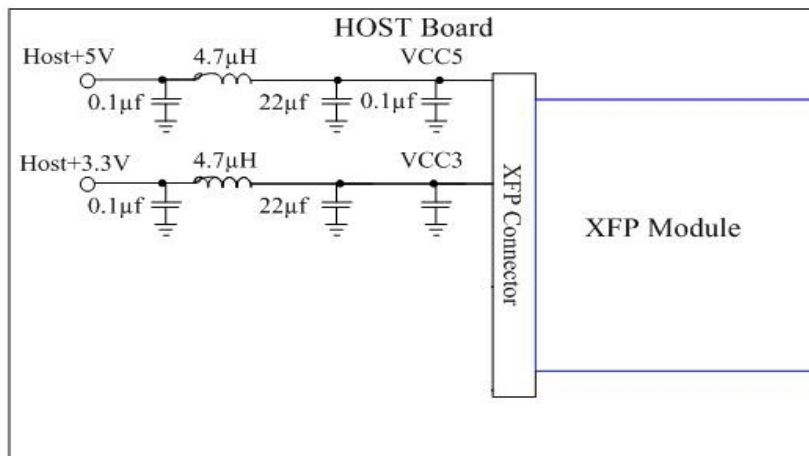
Pin	Symbol	Name/Description	Notes
1	GND	Module Ground	4
2	VEE5	Optional –5.2 Power Supply – Not Required	
3	Mod-Desel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	Interrupt	Interrupt; Indicates presence of an important condition which can be read over the serial 2-wire interface	5
5	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6	VCC5	+5 Power Supply	
7	GND	Module Ground	4
8	VCC3	+3.3V Power Supply	
9	VCC3	+3.3V Power Supply	
10	SCL	Serial 2-wire interface clock	5
11	SDA	Serial 2-wire interface data line	5
12	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	5
13	Mod_NR	Module Not Ready;	5
14	RX_LOS	Receiver Loss of Signal indicator	5
15	GND	Module Ground	4
16	GND	Module Ground	4
17	RD-	Receiver inverted data output	
18	RD+	Receiver non-inverted data output	
19	GND	Module Ground	4
20	VCC2	+1.8V Power Supply – Not required	
21	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	4
24	Ref CLK+	Reference Clock non-inverted input, AC coupled on the host board – Not required	6
25	Ref CLK	Reference Clock inverted input, AC coupled on the host board – Not required	6
26	GND	Module Ground	4

27	GND	Module Ground	4
28	TD-	Transmitter inverted data input	
29	TD+	Transmitter non-inverted data input	
30	GND	Module Ground	4

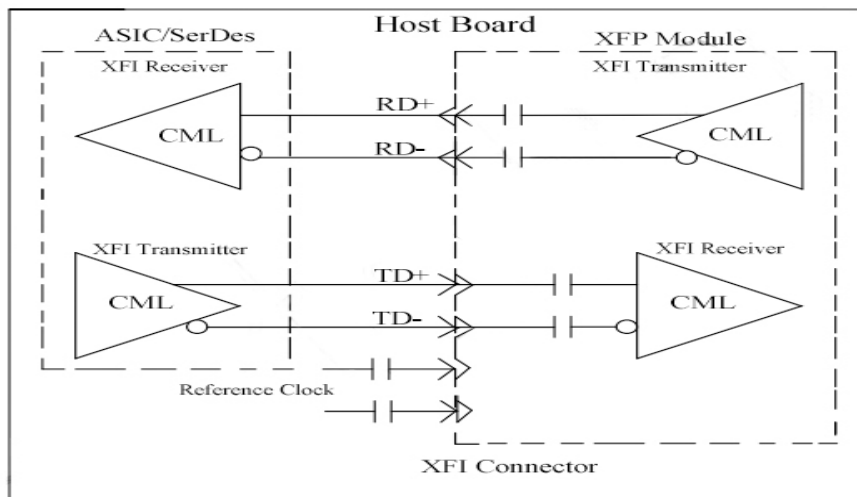
**Notes:**

- 4. Module circuit ground is isolated from module chassis ground within the module.
- 5. Open connect should be pulled up with 4.7k – 10k ohm on host board to a voltage between 3.15V and 3.6V.
- 6. A Reference Clock input is not required.

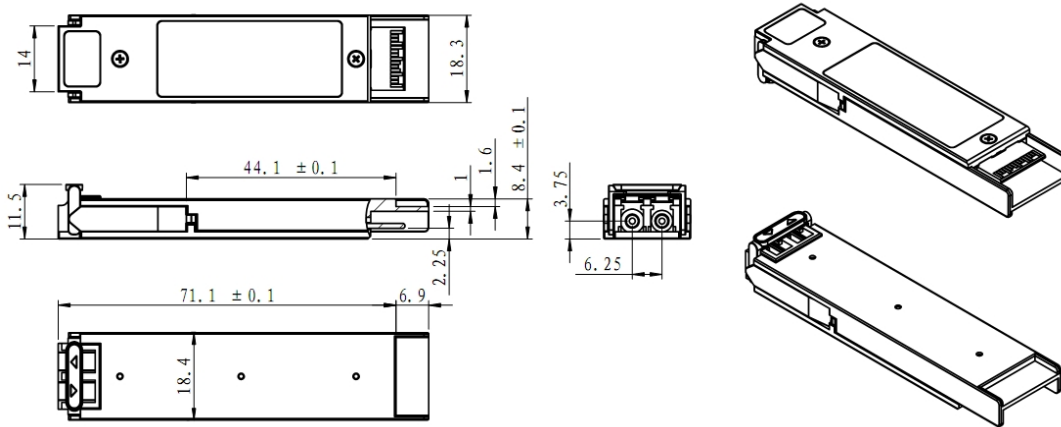
**Recommended Host Board Power Supply Circuit**



**Recommended High-speed Interface Circuit**



### Mechanical Dimensions



### Ordering Information

Part No.	Data Rate (Gbps)	Frequency (GHz)	ITU Channel/ Wavelength (nm)	Connector Type	Transmission Distance (km)	Operating case temperature (° C)	Digital Diagnostics
<b>DXFP-10GXX-80-xx</b>	10	100GHz	CH17~CH61 (1563.86~1528.77)	LC	80	-5 to +70	Yes

#### Notes:

XX means DWDM ITU Channel (CH17= channel 17, CH61 = channel 61, etc.)

xx means compatible brand. (For example: CO= Cisco, JU=Juniper, FD=Foundry, EX=Extreme, NE=Netgear.)

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