#### Datasheet

# 10Gbps 100GHz DWDM XFP Single-mode 40km Optical Transceiver DXFP-10GXX-40-xx



#### Features

- Supports 9.95Gb/s to 11.1Gb/s data rates
- 14dBPower budget
- Temperature-Stabilized DWDM Rated EML Transmitter
- > 100GHz ITU Grid, C Band
- Duplex LC Connector
- Built-in Digital Diagnostic Functions
- Support Line Side Loopback
- Support XFI Loopback
- Auxiliary 1 Monitoring Laser Temperature
- Auxiliary 2 Monitoring 5V Supply
- Operating Case temperature range:
  Standard: 0~+70 °C

#### Applications

- 10GBASE-ER/EW Ethernet
- > 1200-SM-LL-L 10G Fiber Channel
- SONET OC-192 IR-2
- SDH STM S-64.2b
- SONET OC-192 IR-3
- SDH STM S-64.3b
- ITU-T G.709

#### Description

FiberStore DXFP-10GXX-40-xx Small Form Factor 10Gb/s (XFP) transceivers comply with the current XFP Multi-Source Agreement (MSA) Specification1. 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.

Datasheet

### 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	-0.3		6.0	V
Storage Temperature	TS	-40		85	°C

### **Table 2-Recommend Operating Condition**

Parameter	Symbol	Min	Typical	Max	Unit
Cose Operating Temperature	TC,	0	-	70	°C
Case Operating Temperature	ΤС,	-20	-	85	°C
Supply Voltage 1	Vcc3	3.13	3.3	3.45	V
Supply Voltage 2	Vcc5	4.75	5	5.25	v

### **Table 3-Electrical Characteristics**

Parameter	Symbol	Min	Тур.	Typ. Max	Unit	Note
Main Supply Voltage	Vcc5	4.75		5.25	V	
Supply Voltage #2	Vcc3	3.13		3.45	V	
Supply Current – Vcc5 supply	Icc5			500	mA	
Supply Current – Vcc3 supply	lcc3			750	mA	
	Tra	nsmitter	-			
Input Differential Impedance	Rin		100		Ω	1
Differential Data Input Swing	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	μs	
	R	eceiver				
Differential Data Output Swing	Vout,pp	340	650	850	mV	
Data Output Rise Time	Tr			38	ps	2
Data Output Fall Time	Tf			38	ps	2
LOS Fault	VLOS Fault	Vcc – 0.5		VccHOST	V	3
LOS Normal	VLOS Normal	GND		GND+0.5	V	3
Power Supply Noise Rejection	PSNR	Compl	iant to Sectio	n 2.7.1 of XFP MS	A	

### Notes:

1. 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.

Datasheet

### **Table 4- Optical Characteristics**

Please note that the transmitter becomes operational within 60 seconds of power-up. This is due to the time required for the EML to reach its optimum operating temperature.

Parameter	Symbol	Min	Тур.	Max	Unit
	Transm	nitter			
Output Opt. Pwr: 9/125 SMF	Pout	-1		4	dBm
Conten Weyelen ath Species			100		GHz
Center wavelength Spacing			0.8		nm
Optical Wavelength-EOL	λc	X-100	х	X+100	pm
Transmitter Center	) c	X 40	v	X.40	
Wavelength –BOL	λC	۸-40	^	A+40	рш
Optical Extinction Ratio	ER	8.2			dB
Transmitter and Dispersion	סחד			2	db
Penalty	TDF			2	ub
Side Mode Suppression Ratio	SMSR	30			dB
TX Jitter Generation	туі			0.1	111
(peak-to-peak)	17,			0.1	61
TX Jitter Generation (RMS)	TXjRMS			0.01	UI
	Recei	ver			
Receiver Sensitivity @ 10.7Gb/s	Pmin			-15	dBm
Maximum Input Power	Pmax	0.5			dBm
Optical Center Wavelength	λc	1270		1600	nm
Path Penalty				2	dB
Receiver Reflectance	Rrx			-27	dB
LOS De-Assert	LOSD			-17	dBm
LOS Assert	LOSA	-29			dBm
LOS Hysteresis		1			dB

## Table 5-XX- Channel refers to the following table:

Channel(XX) *note 1	Part No.	Frequency (THz)	Center Wavelength (nm)
17*	DXFP-10G17-40-xx	191.7	1563.86
18*	DXFP-10G18-40-xx	191.8	1563.05
19*	DXFP-10G19-40-xx	191.9	1562.23
20*	DXFP-10G20-40-xx	192.0	1561.42
21	DXFP-10G21-40-xx	192.1	1560.61
22	DXFP-10G22-40-xx	192.2	1559.79
23	DXFP-10G23-40-xx	192.3	1558.98
24	DXFP-10G24-40-xx	192.4	1558.17
25	DXFP-10G25-40-xx	192.5	1557.36
26	DXFP-10G26-40-xx	192.6	1556.55

Datasheet

27      DXFP-10628-40-xx      132.7      1553.75        28      DXFP-10628-40-xx      132.8      1554.94        29      DXFP-10632-40-xx      132.9      1554.13        30      DXFP-10632-40-xx      193.0      1553.33        31      DXFP-10632-40-xx      193.1      1552.52        32      DXFP-10632-40-xx      193.3      1550.92        34      DXFP-10634-40-xx      193.5      1549.32        35      DXFP-10634-40-xx      193.5      1549.32        36      DXFP-10634-40-xx      193.7      1547.72        38      DXFP-10638-40-xx      193.7      1546.92        37      DXFP-10638-40-xx      193.8      1566.12        38      DXFP-10638-40-xx      193.8      1546.92        39      DXFP-10638-40-xx      194.0      1545.32        41      DXFP-10644-0-xx      194.1      1545.32        42      DXFP-10644-40-xx      194.1      1544.53        44      DXFP-10644-40-xx      194.4      1542.14        45      DXFP-10644-40-xx      194.5      1541.35 <th>27</th> <th>DVED 40027 40 m</th> <th>102.7</th> <th></th>	27	DVED 40027 40 m	102.7	
28      DXFP-10628-40-xx      192.8      1554.94        29      DXFP-10629-40-xx      193.0      1553.33        30      DXFP-10631-40-xx      193.1      1552.52        32      DXFP-10632-40-xx      193.3      1550.92        34      DXFP-10633-40-xx      193.4      1550.12        35      DXFP-10635-40-xx      193.5      1548.51        36      DXFP-10635-40-xx      193.6      1548.51        37      DXFP-10635-40-xx      193.8      1546.92        38      DXFP-10638-40-xx      193.8      1546.92        39      DXFP-10638-40-xx      193.8      1546.92        34      DXFP-10638-40-xx      193.8      1546.92        39      DXFP-10639-40-xx      193.8      1546.92        40      DXFP-10644-40-xx      194.1      1544.53        41      DXFP-10644-40-xx      194.1      1544.53        42      DXFP-10644-40-xx      194.4      1542.94        44      DXFP-10644-0-xx      194.5      1541.35        46      DXFP-10644-0-xx      194.6      1540.56	27	DXFP-10G27-40-XX	192.7	1555.75
29      DXFP-10630-40-xx      192.9      1554.13        30      DXFP-10631-40-xx      193.0      1553.33        31      DXFP-10631-40-xx      193.1      1552.52        32      DXFP-10632-40-xx      193.3      1550.92        34      DXFP-10634-40-xx      193.3      1550.92        34      DXFP-10634-40-xx      193.5      1549.32        36      DXFP-10635-40-xx      193.6      1548.51        37      DXFP-10637-40-xx      193.8      1546.92        38      DXFP-10638-40-xx      193.8      1546.92        39      DXFP-10638-40-xx      193.8      1546.92        38      DXFP-10638-40-xx      193.8      1546.92        39      DXFP-10640-40-xx      194.1      1545.32        41      DXFP-10640-40-xx      194.1      1545.32        42      DXFP-10644-40-xx      194.2      1543.73        43      DXFP-10644-40-xx      194.4      1542.94        44      DXFP-10644-40-xx      194.4      1542.94        44      DXFP-10644-40-xx      194.5      1541.35 <td>28</td> <td>DXFP-10G28-40-xx</td> <td>192.8</td> <td>1554.94</td>	28	DXFP-10G28-40-xx	192.8	1554.94
30      DKFP-10G30-40-xx      193.0      1553.33        31      DKFP-10G31-40-xx      193.1      1552.52        32      DKFP-10G32-40-xx      193.2      1551.72        33      DXFP-10G32-40-xx      193.3      1550.92        34      DXFP-10G33-40-xx      193.4      1550.12        35      DXFP-10G35-40-xx      193.5      1549.32        36      DXFP-10G36-40-xx      193.7      1547.72        38      DXFP-10G38-40-xx      193.8      1546.92        39      DXFP-10G38-40-xx      193.9      1546.12        40      DXFP-10G34-40-xx      194.0      1545.32        41      DXFP-10G4-40-xx      194.1      1544.53        42      DXFP-10G4-40-xx      194.2      1543.73        43      DXFP-10G4-40-xx      194.4      1542.94        44      DXFP-10G4-40-xx      194.5      1541.35        45      DXFP-10G4-40-xx      194.5      1543.73        44      DXFP-10G4-40-xx      194.5      1541.35        50      DXFP-10G4-40-xx      194.5      1540.56	29	DXFP-10G29-40-xx	192.9	1554.13
31      DXFP-10631-40-xx      193.1      1552.52        32      DXFP-10632-40-xx      193.2      1551.72        33      DXFP-10633-40-xx      193.3      1550.92        34      DXFP-10633-40-xx      193.4      1550.12        35      DXFP-10635-40-xx      193.5      1549.32        36      DXFP-10637-40-xx      193.7      1547.72        38      DXFP-10638-40-xx      193.8      1546.92        39      DXFP-10638-40-xx      193.8      1546.92        40      DXFP-10638-40-xx      193.9      1546.12        40      DXFP-10638-40-xx      194.0      1543.37        41      DXFP-10644-40-xx      194.1      1543.73        42      DXFP-10642-40-xx      194.1      1542.94        44      DXFP-10644-40-xx      194.4      1542.14        45      DXFP-10644-40-xx      194.4      1542.14        45      DXFP-10644-40-xx      194.7      1533.77        48      DXFP-10645-40-xx      194.5      1541.35        45      DXFP-10645-40-xx      194.5      1542.14 <td>30</td> <td>DXFP-10G30-40-xx</td> <td>193.0</td> <td>1553.33</td>	30	DXFP-10G30-40-xx	193.0	1553.33
32      DXFP-10G32-40-xx      193.2      1551.72        33      DXFP-10G33-40-xx      193.3      1550.92        34      DXFP-10G34-40-xx      193.4      1550.12        35      DXFP-10G35-40-xx      193.5      1549.32        36      DXFP-10G37-40-xx      193.6      1548.51        37      DXFP-10G37-40-xx      193.7      1547.72        38      DXFP-10G39-40-xx      193.8      1546.92        39      DXFP-10G39-40-xx      193.9      1546.12        40      DXFP-10G49-40-xx      194.0      1545.32        41      DXFP-10G49-40-xx      194.1      1544.53        42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G43-40-xx      194.4      1542.94        44      DXFP-10G42-40-xx      194.5      1541.35        44      DXFP-10G42-40-xx      194.5      1541.35        45      DXFP-10G42-40-xx      194.6      1540.56        47      DXFP-10G42-40-xx      194.6      1540.56        46      DXFP-10G42-40-xx      194.7      1538.19 <td>31</td> <td>DXFP-10G31-40-xx</td> <td>193.1</td> <td>1552.52</td>	31	DXFP-10G31-40-xx	193.1	1552.52
33      DXFP-10G33-40-xx      193.3      1550.92        34      DXFP-10G34-40-xx      193.4      1550.12        35      DXFP-10G35-40-xx      193.5      1549.32        36      DXFP-10G37-40-xx      193.6      1548.51        37      DXFP-10G37-40-xx      193.8      1546.52        38      DXFP-10G38-40-xx      193.8      1546.52        39      DXFP-10G39-40-xx      193.9      1546.12        40      DXFP-10G38-40-xx      194.0      1545.32        41      DXFP-10G42-40-xx      194.1      1544.53        42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G42-40-xx      194.3      1542.94        44      DXFP-10G42-40-xx      194.3      1542.94        44      DXFP-10G42-40-xx      194.3      1542.94        44      DXFP-10G42-40-xx      194.3      1543.73        45      DXFP-10G42-40-xx      194.3      1543.73        44      DXFP-10G42-40-xx      194.5      1541.35        45      DXFP-10G42-40-xx      194.7      1539.77 <td>32</td> <td>DXFP-10G32-40-xx</td> <td>193.2</td> <td>1551.72</td>	32	DXFP-10G32-40-xx	193.2	1551.72
34      DXFP-10G34-40-xx      193.4      1550.12        35      DXFP-10G35-40-xx      193.5      1549.32        36      DXFP-10G37-40-xx      193.6      1548.51        37      DXFP-10G37-40-xx      193.7      1547.72        38      DXFP-10G37-40-xx      193.9      1546.32        39      DXFP-10G34-40-xx      193.9      1546.12        40      DXFP-10G41-40-xx      194.0      1545.32        41      DXFP-10G41-40-xx      194.1      1544.53        42      DXFP-10G43-40-xx      194.3      1542.94        43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.4      1542.94        45      DXFP-10G47-40-xx      194.5      1541.35        46      DXFP-10G47-40-xx      194.7      1539.76 <td>33</td> <td>DXFP-10G33-40-xx</td> <td>193.3</td> <td>1550.92</td>	33	DXFP-10G33-40-xx	193.3	1550.92
35      DXFP-10G35-40-xx      193.5      1549.32        36      DXFP-10G36-40-xx      193.6      1548.51        37      DXFP-10G37-40-xx      193.7      1547.72        38      DXFP-10G38-40-xx      193.8      1546.92        39      DXFP-10G30-40-xx      193.9      1546.12        40      DXFP-10G40-40-xx      194.0      1545.32        41      DXFP-10G41-40-xx      194.2      1543.73        42      DXFP-10G42-40-xx      194.2      1542.94        44      DXFP-10G42-40-xx      194.3      1542.94        44      DXFP-10G42-40-xx      194.3      1542.94        44      DXFP-10G42-40-xx      194.3      1542.94        45      DXFP-10G42-40-xx      194.4      1542.14        46      DXFP-10G42-40-xx      194.5      1541.35        47      DXFP-10G42-40-xx      194.6      1540.56        48      DXFP-10G42-40-xx      194.7      1533.19        50      DXFP-10G42-40-xx      194.7      1538.19        51      DXFP-10G54-40-xx      195.0      1537.40 <td>34</td> <td>DXFP-10G34-40-xx</td> <td>193.4</td> <td>1550.12</td>	34	DXFP-10G34-40-xx	193.4	1550.12
36      DXFP-10G36-40-XX      193.6      1548.51        37      DXFP-10G37-40-XX      193.7      1547.72        38      DXFP-10G38-40-XX      193.8      1566.92        39      DXFP-10G39-40-XX      193.9      1546.12        40      DXFP-10G40-40-XX      194.0      1545.32        41      DXFP-10G41-40-XX      194.1      1544.53        42      DXFP-10G42-40-XX      194.2      1543.73        43      DXFP-10G42-40-XX      194.3      1542.94        44      DXFP-10G42-40-XX      194.3      1542.14        45      DXFP-10G42-40-XX      194.4      1542.14        46      DXFP-10G42-40-XX      194.5      1541.35        46      DXFP-10G42-40-XX      194.4      1542.14        45      DXFP-10G42-40-XX      194.5      1541.35        46      DXFP-10G42-40-XX      194.5      1541.35        47      DXFP-10G42-40-XX      194.6      1540.56        47      DXFP-10G42-40-XX      194.7      1538.9        50      DXFP-10G42-40-XX      194.5      1537.40 <td>35</td> <td>DXFP-10G35-40-xx</td> <td>193.5</td> <td>1549.32</td>	35	DXFP-10G35-40-xx	193.5	1549.32
37      DXFP-10G37-40-xx      193.7      1547.72        38      DXFP-10G38-40-xx      193.8      1546.92        39      DXFP-10G39-40-xx      193.9      1546.12        40      DXFP-10G40-40-xx      194.0      1545.32        41      DXFP-10G41-40-xx      194.1      1544.53        42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.4      1542.14        45      DXFP-10G44-40-xx      194.4      1542.14        46      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G45-40-xx      194.5      1540.56        47      DXFP-10G49-40-xx      194.8      1538.98        49      DXFP-10G50-40-xx      194.8      1538.98        50      DXFP-10G51-40-xx      195.1      1537.40        51      DXFP-10G51-40-xx      195.2      1535.82        53      DXFP-10G54-40-xx      195.4      1534.25        54      DXFP-10G54-40-xx      195.4      1534.25 <td>36</td> <td>DXFP-10G36-40-xx</td> <td>193.6</td> <td>1548.51</td>	36	DXFP-10G36-40-xx	193.6	1548.51
38      DXFP-10G38-40-xx      193.8      1546.92        39      DXFP-10G39-40-xx      193.9      1546.12        40      DXFP-10G40-40-xx      194.0      1545.32        41      DXFP-10G41-40-xx      194.1      1544.53        42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.3      1542.94        45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G46-40-xx      194.6      1540.56        48      DXFP-10G46-40-xx      194.7      1539.77        48      DXFP-10G46-40-xx      194.8      1538.98        49      DXFP-10G48-40-xx      194.9      1538.19        50      DXFP-10G49-40-xx      194.9      1538.19        51      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.3      1531.42 <td>37</td> <td>DXFP-10G37-40-xx</td> <td>193.7</td> <td>1547.72</td>	37	DXFP-10G37-40-xx	193.7	1547.72
39      DXFP-10G39-40-xx      193.9      1546.12        40      DXFP-10G40-40-xx      194.0      1545.32        41      DXFP-10G41-40-xx      194.1      1544.53        42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.4      1542.14        45      DXFP-10G45-40-xx      194.4      1542.14        45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G45-40-xx      194.5      1541.35        47      DXFP-10G45-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G47-40-xx      194.8      1538.98        49      DXFP-10G47-40-xx      194.9      1538.19        50      DXFP-10G54-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.2      1535.61        52      DXFP-10G54-40-xx      195.4      1534.25 <td>38</td> <td>DXFP-10G38-40-xx</td> <td>193.8</td> <td>1546.92</td>	38	DXFP-10G38-40-xx	193.8	1546.92
40      DXFP-10G40-40-xx      194.0      1545.32        41      DXFP-10G41-40-xx      194.1      1544.53        42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.4      1542.14        45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G48-40-xx      194.8      1538.98        49      DXFP-10G50-40-xx      194.9      1538.19        50      DXFP-10G51-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.64        53      DXFP-10G54-40-xx      195.3      1534.25        54      DXFP-10G54-40-xx      195.5      1533.47        55      DXFP-10G54-40-xx      195.7      1531.90        55      DXFP-10G54-40-xx      195.7      1531.40 <td>39</td> <td>DXFP-10G39-40-xx</td> <td>193.9</td> <td>1546.12</td>	39	DXFP-10G39-40-xx	193.9	1546.12
41      DXFP-10G41-40-xx      194.1      1544.53        42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.4      1542.14        45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G48-40-xx      194.8      1538.98        49      DXFP-10G49-40-xx      194.9      1538.19        50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G54-40-xx      195.2      1535.82        53      DXFP-10G54-40-xx      195.4      1534.25        54      DXFP-10G54-40-xx      195.5      1533.47        55      DXFP-10G54-40-xx      195.6      1532.68        57      DXFP-10G54-40-xx      195.7      1531.90        58      DXFP-10G54-40-xx      195.7      1531.42 <td>40</td> <td>DXFP-10G40-40-xx</td> <td>194.0</td> <td>1545.32</td>	40	DXFP-10G40-40-xx	194.0	1545.32
42      DXFP-10G42-40-xx      194.2      1543.73        43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.4      1542.14        45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G48-40-xx      194.8      1538.98        49      DXFP-10G49-40-xx      194.9      1538.19        50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.82        53      DXFP-10G54-40-xx      195.4      1534.25        54      DXFP-10G54-40-xx      195.5      1533.47        55      DXFP-10G55-40-xx      195.7      1531.90        56      DXFP-10G56-40-xx      195.7      1531.90        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G57-40-xx      195.9      1530.33 <td>41</td> <td>DXFP-10G41-40-xx</td> <td>194.1</td> <td>1544.53</td>	41	DXFP-10G41-40-xx	194.1	1544.53
43      DXFP-10G43-40-xx      194.3      1542.94        44      DXFP-10G44-40-xx      194.4      1542.14        45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G47-40-xx      194.8      1538.98        49      DXFP-10G49-40-xx      194.9      1538.19        50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.82        53      DXFP-10G52-40-xx      195.4      1535.04        54      DXFP-10G54-40-xx      195.5      1533.47        55      DXFP-10G55-40-xx      195.6      1532.68        55      DXFP-10G57-40-xx      195.7      1531.90        56      DXFP-10G57-40-xx      195.7      1531.90        57      DXFP-10G57-40-xx      195.7      1531.12        58      DXFP-10G59-40-xx      195.9      1530.33 <td>42</td> <td>DXFP-10G42-40-xx</td> <td>194.2</td> <td>1543.73</td>	42	DXFP-10G42-40-xx	194.2	1543.73
44      DXFP-10G44-40-xx      194.4      1542.14        45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G48-40-xx      194.8      1538.98        49      DXFP-10G49-40-xx      194.9      1538.19        50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.82        53      DXFP-10G52-40-xx      195.3      1535.04        54      DXFP-10G52-40-xx      195.4      1534.25        55      DXFP-10G55-40-xx      195.5      1533.47        56      DXFP-10G55-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G56-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55 </td <td>43</td> <td>DXFP-10G43-40-xx</td> <td>194.3</td> <td>1542.94</td>	43	DXFP-10G43-40-xx	194.3	1542.94
45      DXFP-10G45-40-xx      194.5      1541.35        46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G48-40-xx      194.8      1538.98        49      DXFP-10G49-40-xx      194.9      1538.19        50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.82        53      DXFP-10G54-40-xx      195.3      1535.04        54      DXFP-10G54-40-xx      195.5      1533.47        55      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G58-40-xx      195.9      1530.33        59      DXFP-10G59-40-xx      195.9      1530.33        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1522.55 </td <td>44</td> <td>DXFP-10G44-40-xx</td> <td>194.4</td> <td>1542.14</td>	44	DXFP-10G44-40-xx	194.4	1542.14
46      DXFP-10G46-40-xx      194.6      1540.56        47      DXFP-10G47-40-xx      194.7      1539.77        48      DXFP-10G48-40-xx      194.8      1538.98        49      DXFP-10G49-40-xx      194.9      1538.19        50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.82        53      DXFP-10G53-40-xx      195.3      1535.04        54      DXFP-10G54-40-xx      195.4      1534.25        55      DXFP-10G54-40-xx      195.5      1533.47        56      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.6      1531.90        58      DXFP-10G59-40-xx      195.7      1531.90        58      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	45	DXFP-10G45-40-xx	194.5	1541.35
47DXFP-10G47-40-xx194.71539.7748DXFP-10G48-40-xx194.81538.9849DXFP-10G49-40-xx194.91538.1950DXFP-10G50-40-xx195.01537.4051DXFP-10G51-40-xx195.11536.6152DXFP-10G52-40-xx195.21535.8253DXFP-10G52-40-xx195.31535.0454DXFP-10G54-40-xx195.41534.2555DXFP-10G56-40-xx195.51533.4756DXFP-10G56-40-xx195.71531.9057DXFP-10G57-40-xx195.71531.9058DXFP-10G58-40-xx195.81531.1259DXFP-10G59-40-xx195.91530.3360*DXFP-10G60-40-xx196.01529.5561*DXFP-10G61-40-xx196.11528.77	46	DXFP-10G46-40-xx	194.6	1540.56
48      DXFP-10G48-40-xx      194.8      1538.98        49      DXFP-10G49-40-xx      194.9      1538.19        50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.82        53      DXFP-10G53-40-xx      195.3      1535.04        54      DXFP-10G54-40-xx      195.4      1534.25        55      DXFP-10G55-40-xx      195.5      1533.47        56      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G56-40-xx      195.6      1531.90        58      DXFP-10G56-40-xx      195.7      1531.90        58      DXFP-10G56-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      195.0      1529.55        61*      DXFP-10G61-40-xx      196.0      1529.57	47	DXFP-10G47-40-xx	194.7	1539.77
49DXFP-10G49-40-xx194.91538.1950DXFP-10G50-40-xx195.01537.4051DXFP-10G51-40-xx195.11536.6152DXFP-10G52-40-xx195.21535.8253DXFP-10G53-40-xx195.31535.0454DXFP-10G55-40-xx195.41534.2555DXFP-10G55-40-xx195.51533.4756DXFP-10G56-40-xx195.61532.6857DXFP-10G57-40-xx195.71531.9058DXFP-10G58-40-xx195.81531.1259DXFP-10G59-40-xx195.91530.3360*DXFP-10G60-40-xx196.01529.5561*DXFP-10G61-40-xx196.11528.77	48	DXFP-10G48-40-xx	194.8	1538.98
50      DXFP-10G50-40-xx      195.0      1537.40        51      DXFP-10G51-40-xx      195.1      1536.61        52      DXFP-10G52-40-xx      195.2      1535.82        53      DXFP-10G53-40-xx      195.3      1535.04        54      DXFP-10G54-40-xx      195.4      1534.25        55      DXFP-10G55-40-xx      195.5      1533.47        56      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G58-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      195.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	49	DXFP-10G49-40-xx	194.9	1538.19
51DXFP-10G51-40-xx195.11536.6152DXFP-10G52-40-xx195.21535.8253DXFP-10G53-40-xx195.31535.0454DXFP-10G54-40-xx195.41534.2555DXFP-10G55-40-xx195.51533.4756DXFP-10G56-40-xx195.61532.6857DXFP-10G57-40-xx195.71531.9058DXFP-10G58-40-xx195.81531.1259DXFP-10G58-40-xx195.91530.3360*DXFP-10G60-40-xx196.01529.5561*DXFP-10G61-40-xx196.11528.77	50	DXFP-10G50-40-xx	195.0	1537.40
52DXFP-10G52-40-xx195.21535.8253DXFP-10G53-40-xx195.31535.0454DXFP-10G54-40-xx195.41534.2555DXFP-10G55-40-xx195.51533.4756DXFP-10G56-40-xx195.61532.6857DXFP-10G57-40-xx195.71531.9058DXFP-10G58-40-xx195.81531.1259DXFP-10G59-40-xx195.91530.3360*DXFP-10G60-40-xx196.01529.5561*DXFP-10G61-40-xx196.11528.77	51	DXFP-10G51-40-xx	195.1	1536.61
53      DXFP-10G53-40-xx      195.3      1535.04        54      DXFP-10G54-40-xx      195.4      1534.25        55      DXFP-10G55-40-xx      195.5      1533.47        56      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G58-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	52	DXFP-10G52-40-xx	195.2	1535.82
54      DXFP-10G54-40-xx      195.4      1534.25        55      DXFP-10G55-40-xx      195.5      1533.47        56      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G58-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	53	DXFP-10G53-40-xx	195.3	1535.04
55      DXFP-10G55-40-xx      195.5      1533.47        56      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G58-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	54	DXFP-10G54-40-xx	195.4	1534.25
56      DXFP-10G56-40-xx      195.6      1532.68        57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G58-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	55	DXFP-10G55-40-xx	195.5	1533.47
57      DXFP-10G57-40-xx      195.7      1531.90        58      DXFP-10G58-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	56	DXFP-10G56-40-xx	195.6	1532.68
58      DXFP-10G58-40-xx      195.8      1531.12        59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	57	DXFP-10G57-40-xx	195.7	1531.90
59      DXFP-10G59-40-xx      195.9      1530.33        60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	58	DXFP-10G58-40-xx	195.8	1531.12
60*      DXFP-10G60-40-xx      196.0      1529.55        61*      DXFP-10G61-40-xx      196.1      1528.77	59	DXFP-10G59-40-xx	195.9	1530.33
61* DXFP-10G61-40-xx 196.1 1528.77	60*	DXFP-10G60-40-xx	196.0	1529.55
	61*	DXFP-10G61-40-xx	196.1	1528.77

\*Note2: This channel is supported with limited availability; please contact Fiberstore for further details.

Datasheet

### **Table 6-Regulatory Compliance**

Product Certificate	Certificate Number	Applicable Standard
		EN 60950-1:2006+A11+A1+A12
TUV	R50135086	EN 60825-1:2007
		EN 60825-2:2004+A1+A2
	F317377	UL 60950-1
	E31/33/	CSA C22.2 No. 60950-1-07
EMC CE	AF F012F420 0001	EN 55022:2006
EIMCCE	AE 50135430 0001	EN 55024:1998+A1+A2
CP		IEC 60825-2
СВ	JP100-024038-W1	IEC 60950-1
500	WTF13F0503735E	47 CFR PART 15 OCT., 2010
FCC	WTF13F0503732E	47 CFR PART 15 OCT., 2010
FDA	1230816-000	CDRH 1040.10
ROHS	RLSZF00163462	2011/65/EU

## Table7– Pin Descriptions

Pin	Logic	Symbol	Name/Description	Notes
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-0	/Interrupt	/Interrupt; Indicates presence of an important	2
			condition which can be read over the serial 2-wire	
			interface	
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	LVTTLI/O	SDA	Serial 2-wire interface data line	2
12	LVTTL-0	Mod_Abs	Module Absent; Indicates module is not present.	2
			Grounded in the module.	
13	LVTTL-0	Mod_NR	Module Not Ready;	2
14	LVTTL-0	RX_LOS	Receiver Loss of Signal indicator	2
15		GND	Module Ground	1

Datasheet

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	
			Power Down; When high, places the module in	
			the low power stand-by mode and on the falling	
21	LVTTL-I	P_Down/R	edge of P_Down initiates a module reset	
		ST	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	Ref CLK+	Reference Clock non-inverted input, AC coupled	3
			on the host board – Not required	
25	PECL-I	Ref CLK	Reference Clock inverted input, AC coupled on	3
			the host board – Not required	
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

#### Notes:

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

2. Open connect should be pulled up with 4.7k – 10k ohm on host board to a voltage between 3.15V and 3.6V.

3. A Reference Clock input is not required.

### **Host board Connector Pinout**



Diagram of Host Board Connector Block Pin Numbers and Name

#### Datasheet

#### **Digital Diagnostic Functions**

Fiberstore's DXFP-ER--40km Small Form Factor 10Gbps (XFP) transceivers are compliant with the current XFP Multi-Source Agreement (MSA) Specification Rev 4.5.

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

- A.Transceiver temperature
- B. Laser bias current
- C. Transmitted optical power
- D. Received optical power
- E. Transceiver supply voltage

It also provide s 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 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.

#### **Recommended Host Board Power Supply Circuit**





Datasheet



## **Recommended High-speed Interface Circuit**

### **Mechanical Specifications**

Fiberstore's XFP transceivers are compliant with the dimensions defined by the XFP Multi-Sourcing Agreement (MSA).



Datasheet

#### **Ordering Information**

Part No.	Data Rate (Gbps)	Frequency (GHz)	ITU Channel/ Wavelength (nm)	Connector Type	Transmission Distance (km)	Operating case temperature (°C)	Digital Diagnostics
DXFP-10GXX-40-xx	10	100GHz	CH17~CH61 (1563.86~1528.77)	LC	40	0 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, etc.)

FiberStore U.S.	FiberStore Hong Kong	FiberStore China
X205 4181 129th Place SE, Bellevue	1220 Tung Chun Commercial Centre,	5D Intelligent Tower,
98006, WA,	438-444 Shanghai Street, Kowloon,	Fumin Road Futian,
United States	HongKong	Shenzhen 518045, GuangDong,
Tel: +1 (206) 453 0158	Tel: (852) 8120 3582	China
Fax: +1 (425) 505 2761	Fax: (852) 8120 3582	Tel: +86 (755) 8300 3611
		Fax: +86 (755) 8326 9395

Addresses, phone number and fax number also have been listed at <u>www.fiberstore.com</u>. Please e-mail us at sales@fiberstore.com or call us for assistance.

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