XFPD-ZR-T and XFPD-ZR-T1

Single-Mode Tunable XFP Transceiver
RoHS6 Compliant

Features

- Available in all C-Band Wavelengths
- on the 50GHz DWDM ITU Grid
- Supports 8.5Gb/s to 11.35Gb/s
- Hot-pluggable XFP footprint
- Power budget > 22dB
- Monolithic MZM Tunable TOSA
- High performance APD Receiver
- Duplex LC connector
- Built-in Digital Diagnostic Functions
- Temperature Range: -5°C to 70°C

Applications

- DWDM 10Gb/s SONET/SDH
- DWDM 10Gb/s Ethernet & 10Gb/s Fibre Channel
- DWDM 10Gb/s SONET/SDH w/FEC
- DWDM 10Gb/s Ethernet and 10Gb/s Fibre Channel w/FEC

Product description

The Opticonnect XFPD-ZR-T(1) 80 Km DWDM tunable XFP 10 Gbps multiprotocol optical transceiver is an integrated fiber optic transceiver that provides a high-speed serial link at signalling rates from 9.95 Gbps to 11.1 Gbps. The optic contains a Tunable TOSA that allows to switch from wavelength on the 50GHz C-Band DWDM ITU grid.

For more information please contact:

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Opticonnect SYSTEMS B.V., an Optical Networking vendor with its headquarters in the Netherlands, provides Optical Transport solutions and Optical Transceivers at the best price performance ratio possible. Our goal is to simplify the planning, deployment and maintenance of complex Optical Networks. This is achieved by our user friendly planning apps and information, sophisticated products and transparent support. Relying on our superior product quality, all items are supplied with life time warranty.

Ordering Information

Part No.	Data Rate	Laser	Fiber Type	Power Budget	Performance
XFPD-ZR-T	8.5~11.35G	MZM	SMF	22dB	Standard
XFPD-ZR-T1	8.5~11.35G	MZM	SMF	22dB	High

DWDM Wavelength List:

Channel	Frequency (THz)	Center Wavelength (nm)
170	191.70	1563.86
175	191.75	1563.45
180	191.80	1563.05
185	191.85	1562.64
190	191.90	1562.23
195	191.95	1561.83
200	192.00	1561.42
205	192.05	1561.01
210	192.10	1560.61
215	192.15	1560.20
220	192.20	1559.79
225	192.25	1559.39
230	192.30	1558.98
235	192.35	1558.58
240	192.40	1558.17
245	192.45	1557.77
250	192.50	1557.36
255	192.55	1556.96
260	192.60	1556.55
265	192.65	1556.15
270	192.70	1555.75
275	192.75	1555.34
280	192.80	1554.94
285	192.85	1554.54
290	192.90	1554.13
295	192.95	1553.73
300	193.00	1553.33
305	193.05	1552.93
310	193.10	1552.52
315	193.15	1552.12
320	193.20	1551.72
325	193.25	1551.32
330	193.30	1550.92
335	193.35	1550.52
340	193.40	1550.12
345	193.45	1549.72
350	193.50	1549.32
355	193.55	1548.91
360	193.60	1548.51
365	193.65	1548.11
370	193.70	1547.72
375	193.75	1547.32
380	193.80	1546.92
385	193.85	1546.52

390	193.90	1546.12
395	193.95	1545.72
400	194.00	1545.32
405	194.05	1544.92
410	194.10	1544.53
415	194.15	1544.13
420	194.20	1543.73
425	194.25	1543.33
430	194.30	1542.94
435	194.35	1542.54
440	194.40	1542.14
445	194.45	1541.75
450	194.50	1541.35
455	194.55	1540.95
460	194.60	1540.56
465	194.65	1540.16
470	194.70	1539.77
475	194.75	1539.37
480	194.80	1538.98
485	194.85	1538.58
490	194.90	1538.19
495	194.95	1537.79
500	195.00	1537.40
505	195.05	1537.00
510	195.10	1536.61
515	195.15	1536.22
520	195.20	1535.82
525	195.25	1535.43
530	195.30	1535.04
535	195.35	1534.64
540	195.40	1534.25
545	195.45	1533.86
550	195.50	1533.47
555	195.55	1533.07
560	195.60	1532.68
565	195.65	1532.29
570	195.70	1531.90
575	195.75	1531.51
580	195.80	1531.12
585	195.85	1530.72
590	195.90	1530.33
595	195.95	1529.94
600	196.00	1529.55
605	196.05	1529.16
610	196.10	1528.77
615	196.15	1528.38

Note: Please contact Opticonnect for the preferred default wavelength.

Regulatory Compliance

Product certificate	Certificate number	Applicable standard
TUV	R50135086	EN 60950-1:2006+A11+A1+A12
		EN 60825-1:2007
		EN 60825-2:2004+A1+A2
UL	E317337	UL 60950-1
		CSA C22.2 No. 60950-1-07
EMC CE	AE 50135430 0001	EN 55022:2006
		EN 55024:1998+A1+A2
CB	JPTUV-024038-M1	IEC 60825-2
		IEC 60950-1
FCC	WTF13F0503735E	47 CFR PART 15 OCT., 2010
	WTF13F0503732E	47 CFR PART 15 OCT., 2010
FDA	1230816-000	CDRH 1040.10
ROHS	RLSZF00163462	2011/65/EU

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Maximum Supply Voltage 1	Vcc3	-0.5		4.0	V
Maximum Supply Voltage 2	Vcc5	-0.5		6.0	V
Storage Temperature	T_S	-40		85	°C
Maximum Input Power	Pm			-6	dBm

Recommend operating condition

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

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
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	Icc3			700	mA
Module Total Power	P			3.5	W
Transmitter					
Input Differential Impedance	Rin		100		Ω
Differential Data Input Swing*3	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
Receiver					
Differential Data Output Swing*3	Vout, pp	340	650	850	mV
Rise Time (20~80%)	tr			38	ps
Fall Time (20~80%)	tf			39	ps
LOS Fault*4	VLOS fault	Vcc – 0.5		VccHOST	V
LOS Normal*4	VLOS norm	GND		GND+0.5	V

Note 3: After internal AC coupling.
Note 4: 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.

Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Transmitter					
Output Opt. Pwr: 9/125 SMF	Pout	-1		+3	dBm
Center Wavelength Spacing	λc		50		GHz
Center Frequency Spacing	fc		0.4		nm
Transmitter Center Wavelength Beginning Of Life	λ	X-20	X	X+20	pm
Optical Extinction Ratio	ER	8.2	9		dB
Transmitter and Dispersion Penalty	TDP			2	dB
Average Launch Power of OFF transmitter	POFF			-30	dBm
TX Jitter Generation (Peak-to-Peak)	Txj1			0.3	UI
TX Jitter Generation (RMS)	Txj2			0.1	UI
Receiver					
Maximum input power	Pmax	0			dBm
Optical Center Wavelength	λc	1260		1620	nm
LOS De-Assert	LOSD			-25	dBm
LOS Assert	LOSA	-37			dBm
LOS Hysteresis		0.5			dB

Receiver sensitivity

Datarate (Gb/s)	BER	Dispersion (db/nm)	Sensitivity B-B at OSNR>30dB (dBm)	Dispersion penalty at OSNR>30dB (dBm)	Threshold adjust request
XFPD-ZR-T					
9.95	1.00E-12	-300 to 1450	-23	2	No
10.3	1.00E-12	-300 to 1450	-23	2.5	No
10.7	1.00E-04	-300 to 1450	-27	3	YES
11.1	1.00E-04	-300 to 1450	-27	3	YES
11.3	1.00E-04	-300 to 1450	-27	3	YES
XFPD-ZR-T1					
9.95	1.00E-12	-300 to 1450	-24	2	No
10.3	1.00E-12	-300 to 1450	-24	2	No
10.7	1.00E-04	-300 to 1450	-28	2.5	YES
11.1	1.00E-04	-300 to 1450	-28	3	YES
11.3	1.00E-04	-300 to 1450	-27	3	YES

OSNR performance

Datarate (Gb/s)	BER	Dispersion (db/nm)	Min OSNR B-B at power: -18~-7dBm(dB)	Max OSNR penalty at power: -18~-7dBm(dB)	Threshold adjust request
XFPD-ZR-T					
9.95	1.00E-12	-300 to 1450	24	4	YES
10.3	1.00E-12	-300 to 1450	24	4	YES
10.7	1.00E-04	-300 to 1450	16	4	YES
11.1	1.00E-04	-300 to 1450	16	4	YES
11.3	1.00E-04	-300 to 1450	16	4	YES
XFPD-ZR-T1					
9.95	1.00E-12	-300 to 1450	22	3	YES
10.3	1.00E-12	-300 to 1450	22	3	YES
10.7	1.00E-04	-300 to 1450	14.5	3	YES
11.1	1.00E-04	-300 to 1450	14.5	3	YES
11.3	1.00E-04	-300 to 1450	15	3	YES