

# SV-XFP-ZXD8ADT

Starview XFP DWDM module Multi-rate 9.95Gbps to 11.3Gbps OC-192/ STM-64/ 10G LAN/ 10G FC and OC192, Tunable C-Band up to 96 channels 50GHz spacing with DDM, distance up to 80km



## Features

- Supports 8.5Gb/s to 11.35Gb/s
- -300 to +1600 ps/nm Dispersion Tolerance
- Supports 50GHz ITU-based channel spacing (C-Band) with a wavelength locker
- Monolithic MZM Tunable TOSA
- Temperature range: -5°C to 70°C
- RoHS-6 Compliant (lead-free)
- Power dissipation <3.5W
- Built-in digital diagnostic functions
- High performance APD Receiver
- Adjustable receiver threshold with option for automatic optimization through FEC feedback

## 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

## Ordering Information

Part number	Description	TX Power (dBm)	RX Sens. (dBm)	Fiber Budget (dB)	Distance (km)	DDM
<b>SV-XFP-ZXD8ADT</b>	Starview XFP DWDM module Multi-rate 9.95Gbps to 11.3Gbps OC-192/ STM-64/ 10G LAN/ 10G FC and OC192, Tunable C-Band up to 96 channels 50GHz spacing with Digital Diagnostic Monitoring (DDM), distance up to 80km	-1 to 3	-27 to -6	26	80	YES

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage #1	V <sub>CC3</sub>	-0.5		4.0	V
Maximum Supply Voltage #2	V <sub>CC2</sub>	-0.5		6.0	V
Storage Temperature	T <sub>S</sub>	-40		85	°C
Case Operating Temperature	T <sub>OP</sub>	-5		70	°C
Receiver Damage Threshold (Steady-state as well as transient)	P <sub>RDMG</sub>	+3			dBm

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
<b>Transmitter</b>						
Output Opt. Pwr: 9/125 SMF	P <sub>OUT</sub>	-1		+3.0	dBm	
<b>Output Opt. Pwr during tuning</b>	<b>P<sub>TUNE</sub></b>			-35	dBm	
Optical Extinction Ratio	ER	9			dB	
Wavelength range (ITU Grid)	λ	1528.77		1563.86	nm	191.70THz to 196.10THz (89 channels)
Crossing Ratio		40		60	%	
Center Wavelength Spacing			50		GHz	1
Transmitter Center Wavelength - End Of Life	λ <sub>C</sub>	λ <sub>C</sub> -2.5	λ <sub>C</sub>	λ <sub>C</sub> +2.5	GHz	2
Side Mode Suppression Ratio	SMSR	35			dB	
Wavelength tuning (Cold Start)				30	s	
Wavelength tuning (Warm)			0.5	2	s	
Tx Jitter (SONET) 20kHz80MHz	T <sub>xj1</sub>			0.3	UI	3
Tx Jitter (SONET) 4MHz – 80MHz	T <sub>xj2</sub>			0.1	UI	4
Relative Intensity Noise	RIN			-135	dB/Hz	
SBS threshold (1% of launch power reflected) – Dither On		+16			dBm	Default is Dither OFF
<b>Receiver</b>						
Overload	P <sub>MAX</sub>	-6			dBm	
Optical Center Wavelength	λ <sub>C</sub>	1270		1615	nm	
Receiver Reflectance	R <sub>rx</sub>			-27	dB	
LOS De-Assert	LOS <sub>D</sub>			-30	dBm	
LOS Assert	LOS <sub>A</sub>	-37			dBm	
LOS Hysteresis		0.5			dB	
<b>Receiver Sensitivity<sup>5</sup></b>						
Data rate (Gb/s)	BER	Dispersion (ps/nm)	Sensitivity through Fiber at OSNR >30dB (dBm)		Threshold Adjust Required	
10.7	1E-4	-300 to 1600	-25.5		Yes	
Data rate (Gb/s)	BER	Dispersion (ps/nm)	Sensitivity back-to-back at OSNR>30dB (dBm)	Dispersion Penalty at OSNR>30dB (dB)	Threshold Adjust Required	
9.95	1e-12	-300 to 1450	-24	2	No	
10.3	1e-12	-300 to 1450	-24	2	No	
10.7	1e-4	-300 to 1450	-28	2.5	Yes	
11.1	1e-4	-300 to 1450	-28	3	Yes	

11.3	1e-4	-300 to 1450	-27	3	Yes
OSNR Performance <sup>6</sup>					
Data rate (Gb/s)	BER	Dispersion (ps/nm)	Min OSNR Back-to-back at Power: -18 to -7dBm (dB)	Max OSNR Penalty at Power: -18 to -7dBm (dB)	Threshold Adjust Required
9.95	1e-12	-300 to 1450	22	3	Yes
10.3	1e-12	-300 to 1450	22	3	Yes
10.7	1e-4	-300 to 1450	14.5	3	Yes
11.1	1e-4	-300 to 1450	14.5	3	Yes
11.3	1e-4	-300 to 1450	15	3	Yes

Notes:

1. Corresponds to approximately 0.4 nm.
2.  $\lambda_c$  = Specified ITU Grid wavelength. Wavelength stability is achieved within 30 seconds of power up.
3. Measured with a host jitter of 50 mUI peak-to-peak.
4. Measured with a host jitter of 7 mUI RMS.
5. Measured at 1528-1600nm with worst ER; PRBS31.
6. All OSNR measurements are performed with 0.1nm resolution.

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage #1	Vcc3	3.13		3.46	V	
Supply Voltage #2	Vcc5	4.75		5.25	V	
Supply Current – Vcc5 supply	Icc5			650	mA	
Supply Current – Vcc3 supply	Icc3			750	mA	
Module total power dissipation	P			3.5	W	1
Transmitter						
Input differential impedance	R <sub>in</sub>		100		Ω	2
Differential data input swing	V <sub>in,pp</sub>	120		820	mV	
Transmit Disable Voltage	V <sub>D</sub>	2.0		Vcc	V	3
Transmit Enable Voltage	V <sub>EN</sub>	GND		GND+ 0.8	V	
Receiver						
Differential data output swing	V <sub>out,pp</sub>		500	850	mV	4
Data output rise time	t <sub>r</sub>			40	ps	5
Data output fall time	t <sub>f</sub>			40	ps	5
LOS Fault	V <sub>LOS fault</sub>	Vcc -0.5		V <sub>CCHOST</sub>	V	6
LOS Normal	V <sub>LOS norm</sub>	GND		GND+0.5	V	6
Power Supply Rejection	PSR	See Note 7 below				7
Reference Clock(AC-coupled)						
Single-ended peak to peak voltage swing	V <sub>SEPP</sub>	200		900	mV	
Single-ended resistance	R <sub>L</sub>	40	50	60		
Frequency clock tolerance	Δf	-100		+100	ppm	
Duty cycle		40		60	%	

Notes:

1. Maximum total power value is specified across the full temperature and voltage range.
2. After internal AC coupling.
3. Or open circuit.
4. Into 100 ohms differential termination.
5. 20 – 80 %

- 6. 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.
- 7. Per Section 2.7.1. in the XFP MSA Specification1.

## DWDM Guide

Channel	Wavelength(nm)	Frequency(THZ)	Channel	Wavelength(nm)	Frequency(THZ)
17	1563.86	191.70	39	1546.12	193.90
17.5	1563.45	191.75	39.5	1545.72	193.95
18	1563.05	191.80	40	1545.32	194.00
18.5	1562.64	191.85	40.5	1544.92	194.05
19	1562.23	191.90	41	1544.53	194.10
19.5	1561.83	191.95	41.5	1544.13	194.15
20	1561.42	192.00	42	1543.73	194.20
20.5	1561.01	192.05	42.5	1543.33	194.25
21	1560.61	192.10	43	1542.94	194.30
21.5	1560.20	192.15	43.5	1542.54	194.35
22	1559.79	192.20	44	1542.14	194.40
22.5	1559.39	192.25	44.5	1541.75	194.45
23	1558.98	192.30	45	1541.35	194.50
23.5	1558.58	192.35	45.5	1540.95	194.55
24	1558.17	192.40	46	1540.56	194.60
24.5	1557.77	192.45	46.5	1540.16	194.65
25	1557.36	192.50	47	1539.77	194.70
25.5	1556.96	192.55	47.5	1539.37	194.75
26	1556.55	192.60	48	1538.98	194.80
26.5	1556.15	192.65	48.5	1538.58	194.85
27	1555.75	192.70	49	1538.19	194.90
27.5	1555.34	192.75	49.5	1537.79	194.95
28	1554.94	192.80	50	1537.40	195.00
28.5	1554.54	192.85	50.5	1537.00	195.05
29	1554.13	192.90	51	1536.61	195.10
29.5	1553.73	192.95	51.5	1536.22	195.15
30	1553.33	193.00	52	1535.82	195.20
30.5	1552.93	193.05	52.5	1535.43	195.25
31	1552.52	193.10	53	1535.04	195.30
31.5	1552.12	193.15	53.5	1534.64	195.35
32	1551.72	193.20	54	1534.25	195.40
32.5	1551.32	193.25	54.5	1533.86	195.45
33	1550.92	193.30	55	1533.47	195.50
33.5	1550.52	193.35	55.5	1533.07	195.55
34	1550.12	193.40	56	1532.68	195.60
34.5	1549.72	193.45	56.5	1532.29	195.65
35	1549.32	193.50	57	1531.90	195.70
35.5	1548.91	193.55	57.5	1531.51	195.75
36	1548.51	193.60	58	1531.12	195.80
36.5	1548.11	193.65	58.5	1530.72	195.85
37	1547.72	193.70	59	1530.33	195.90
37.5	1547.32	193.75	59.5	1529.94	195.95
38	1546.92	193.80	60	1529.55	196.00
38.5	1546.52	193.85	60.5	1529.16	196.05
Non-ITU	Peak wavelength between 1528.77nm-1563.86		61	1528.77	196.10