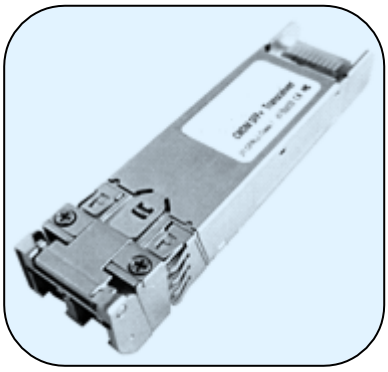
XTCxxA-70LY

10 Gbps 70 km CWDM SFP+ Transceiver



Product Highlights

- Compliant with SFF-8431 and IEE802.3ae
- 10GBASE-ZR, and 2G/4G/ 8G/10G Fiber Channel applications
- Wavelength selectable to ITU-T standards covering CWDM grid wavelengths
- Cooled EML transmitter and APD receiver
- Link length up to 70 km (1450 ps/nm@G652 fiber)
- Low Power Dissipation 1.4W Typical (Maximum: 2W)
- -5°C to 70°C Operating Case Temperature
- Single 3.3V power supply
- Diagnostic Performance Monitoring of module temperature, supply Voltages, laser bias current, transmit optical power, receive optical power
- RoHS compliant and lead free

Applications

- 10G Ethernet
- 10G Fiber Channel
- CWDM Networks

Description

XenOpt SFP+ZR CWDM Transceiver is a “Limiting module”, designed for 10G Ethernet, and 2G/4G/ 8G/10G Fiber- Channel applications.

The transceiver consists of two sections: The transmitter section incorporates a colded EML laser. And the receiver section consists of a APD photodiode integrated with a TIA. All modules satisfy class I laser safety requirements. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage.

Absolute maximum rating

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	V_{CC}	-0.5	3.8	V
Storage Temperature	Tst	-40	85	°C
Relative Humidity	R_h	0	85	%

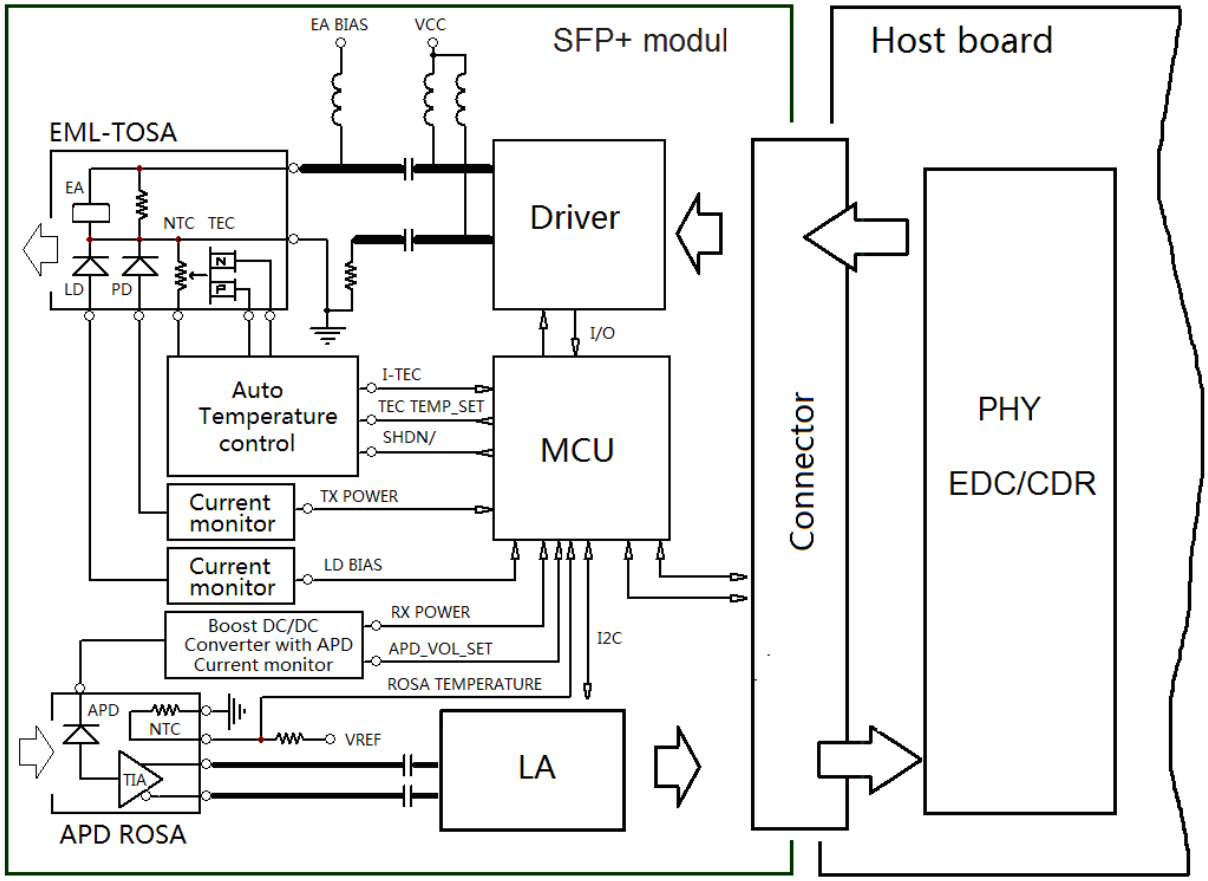


Figure 1. Module Block Diagram

Operating Conditions

Parameters	Symbol	Min	Typical	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Supply Current	Icc		420	610	mA
Operating Case temperature	Tca	-5		70	ºC
Module Power Dissipation	Pm	-	1.4	2	W

Notes:

[1] Supply current is shared between VCCTX and VCCRX.

[2] In-rush is defined as current level above steady state current requirements.

Transmitter Specifications - Optical

Parameter	Symbol	Min	Typical	Max	Unit
Center Wavelength	λ_c	1464.5		1617.5	nm
Center wavelength stability	$\Delta\lambda_D$	-6.5	λ_c	6.5	nm
Spectral Width (-20 dB)	$\Delta\lambda 20$	-	-	0.3	nm
Average Optical Power	Po	0	-	+3	dBm
Side Mode Suppression Ratio	SMSR	30	-	-	dB
Optical Transmit Power (disabled)	PTX_DISABLE	-	-	-30	dBm
Extinction Ratio	ER	8.2	-	-	dB
Dispersion penalty (1450 ps/nm) [2]	DP	-	-	2	dB
Relative Intensity Noise	RIN	-	-	-128	dB/Hz
Optical Return Loss Tolerance	Orl	-	-	21	dB

Receiver Specifications – Optical

Parameter	Symbol	Min	Typical	Max	Unit
Input Operating Wavelength	λ	1260	-	1610	nm
Receiver sensitivity(Average) [1] Receiver sensitivity@9.95G Receiver sensitivity@10.3125G Receiver sensitivity@11.1G	 Rsen1 Rsen2 Rsen3	-	-	 -24.5 -24 -22	dBm
Maximum Input Power	RX-overload	-7	-		dBm
Path penalty at 1450ps/nm @9.95Gb/s	DP1			2	dB
Path penalty at 1450ps/nm @10.3125Gb/s	DP2			3	dB
Path penalty at 1300ps/nm @11.1Gb/s	DP3			3	dB
Loss of Signal Asserted	Lsa	-34	-	-	dBm
LOS De-Asserted	Lda	-	-	-24	dBm
LOS Hysteresis	Lh	0.5	-	-	dB

Notes:

[1] Measured with conformance test signal for BER = 10^{-12}. The stressed sensitivity values in the table are for system level BER measurements which include the effects of CDR circuits. It is recommended that at least 0.4 dB additional margin be allocated if component level measurements are made without the effects of CDR circuits.

Transmitter Specifications – Electrical

Parameters	Symbol	Min.	Typical	Max.	Unit
Data Rate	Mra	-	10.3	11.3	Gbps
Input differential impedance	Rim	-	100	-	Ω
Differential data Input	VtxDIFF	120	-	850	mV
Transmit Disable Voltage	VD	2.0	-	Vcc3+0.3	V
Transmit Enable Voltage	Ven	0	-	+0.8	V
Transmit Disable Assert Time	Vn	-	-	100	us

Receiver Specifications – Electrical

Parameters	Symbol	Min.	Typical	Max.	Unit
Data Rate	Mra	-	10.3125	11.1	Gbps
Differential Output Swing	Vout P-P	350	-	850	mV
Rise/Fall Time	Tr / Tf	-	-	40-	ps
Loss of Signal –Asserted	VOH	2	-	Vcc3+0.3-	V
Loss of Signal –Negated	VOL	0	-	+0.4	V

Ordering information

Part Number	Product Description
XTC47A-70LY	SFP+ CWDM 10 Gbps, 1470 nm SFP+ZR 70 km, -5°C ~ +70°C
XTC49A-70LY	SFP+ CWDM 10 Gbps, 1490 nm SFP+ZR 70 km, -5°C ~ +70°C
XTC51A-70LY	SFP+ CWDM 10 Gbps, 1510 nm SFP+ZR 70 km, -5°C ~ +70°C
XTC53A-70LY	SFP+ CWDM 10 Gbps, 1530 nm SFP+ZR 70 km, -5°C ~ +70°C
XTC55A-70LY	SFP+ CWDM 10 Gbps, 1550 nm SFP+ZR 70 km, -5°C ~ +70°C
XTC57A-70LY	SFP+ CWDM 10 Gbps, 1570 nm SFP+ZR 70 km, -5°C ~ +70°C
XTC59A-70LY	SFP+ CWDM 10 Gbps, 1590 nm SFP+ZR 70 km, -5°C ~ +70°C
XTC61A-70LY	SFP+ CWDM 10 Gbps, 1610 nm SFP+ZR 70 km, -5°C ~ +70°C

Notice. Please specify any compatibility requirements at time of ordering. Standard MSA compatible pluggable components may not work or some function of these components may not be available in devices that require customized compatible devices. Pluggable components compatible with one type of communications equipment may not work in other type of communications equipment.

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