XFP Optical Transceiver, 300m Reach

Features

- Supports 9.95Gbps to 11.1Gbps bit rates
- Maximum link length of 300m (50um,MMF,2000MHz.Km)
- 850nm VCSEL laser and PIN receiver
- XFP MSA Rev 4.5 Compliant
- No reference clock required
- +1.8V,+3.3V Supply Voltage
- Low Power Dissipation 1.5W Maximum
- XFI and lineside loopback Mode Supported
- 0ºC to 70ºC Operating Case Temperature
- Diagnostic Performance Monitoring of module temperature, Supply Voltages, laser bias current, transmit optical power, and receive optical power
- RoHS6 compliant

Applications

- 10GBASE-SR/SW 10G Ethernet
- 1200-Mx-SN-I 10G Fiber Channel
- Other optical links

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	*Tst*	-40	+85	℃
Case Operating Temperature	*Top*	0	+70	℃
Operating Relative Humidity	*RH*		85	%
Supply Voltage 1	*Vcc3.3*	-0.5	3.6	V
Supply Voltage 2	*Vcc1.8*	-0.5	1.98	V

Operating Conditions

C-temp

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage 1	*Vcc3*	3.13	3.3	3.47	V
Supply current 1	*Icc3*	-	-	300	mA
Supply Voltage 2	*Vcc2*	1.71	1.8	1.89	V
Supply current 2	*Icc2*	-	-	150	mA
Operating Case temperature	*Tca*	-5	-	70	ºC
Module Power Dissipation	*Pm*	-	-	1.5	W

I-temp

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage 1	*Vcc3*	3.13	3.3	3.47	V
Supply current 1	*Icc3*	-	-	240	mA
Supply Voltage 2	*Vcc2*	1.71	1.8	1.89	V
Supply current 2	*Icc2*	-	-	400	mA
Operating Case temperature	*Tca*	-40	-	85	ºC
Module Power Dissipation	*Pm*	-	-	1.5	W

Electrical Transmitter

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Input Differential Impedance	R_{IND}	-	100	-	Ω	1
Differential input Voltage Swing	V_{ID}	120	-	1000	mV	2
Transmit Disable Voltage	VDis	2.0	-	VCC		
Transmit Enable Voltage	VEN	GND	-	GND+0.8		
Transmit Disable Assert Time		-	-	10	us	

Notes:
1. after internal AC coupling.
2. Beneath this level the signal can't meet the specification

Electrical Receiver

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Differential Output Impedance	Z_{OD}		100		Ω	
Differential Output Amplitude	V_{OSPP}	500		800	mV	1
Transition Time Low to High	t_r	40			ps	2
Transition Time High to Low	t_f	40			ps	2
LOS Fault	*L fault*	Vcc-0.5		VCCHOST	V	3
LOS Normal	*L normal*	GND		GND+0.5	V	3

Notes:
1. Into 100 ohms differential termination.
2. 20 – 80 %.
3. Loss Of Signal is open collector to be pulled up with a 4.7kΩ – 10kΩ resistor to 3.15 – 3.6V. Logic 0,indicates normal operation; logic 1 indicates no signal detected.

Optical Transmitter

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Nominal Wavelength	λ_{TRP}	840	850	860	nm	
RMS Spectral Width	△λ		0.4	0.45	nm	
Average Power	P_{optavg}	-7.3		-1	dBm	1
Launch power in OMA	OMA	-2.8	-1.5		dBm	
Extinction Ratio	*ER*	3.5			dB	2
Tx Jitter	*TXJ*	Per 802.3ae requirements				
Relative Intensity Noise	*RIN*			-128	dB/Hz	
Transmitter and Dispersion Penalty	TDP			3.9	*dB*	

Notes:
1. Launched into MMF.
2. Measured with PRBS 2^{31}-1 @10.3125Gbps.

Optical Receiver

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Center Wavelength	λ_C	840	850	860	Nm	
Receiver Sensitivity (C-temp)	P_{IN}			-11	dBm	1
Receiver Sensitivity (I-temp)				-9.9		
Receiver Sensitivity in OMA	P_{IN}			-11.1	dBm	1
Stressed receiver sensitivity in OMA	P_{IN}			-7.5	dBm	1
Receiver Overload	*Pin*	-1.0			dBm	1
Receiver Reflectance				-12	dBm	
LOS De-Assert	*LOSD*			-12	dBm	
LOS Assert	*LOSA*	-25	-15		dBm	
LOS Hysteresis	*LOSH*	0.5			dB	

Notes:

1, Measured with PRBS 2^{31}-1 @10.3125Gbps.

General Specifications

Parameter	Conditions	Min Modal Bandwidth (MHz*Km)	Symbol	Min	Typ	Max	Units	Ref.
Operating Range	62.5/125μm MMF	160	I_{OP}	2		26	m	
	50/125μm MMF	400				66		
	62.5/125μm MMF	200				33		
	50/125μm MMF	500				82		
	50/125μm MMF	2000				300		
Bit Rate			*BR*	9.95		11.1	Gbps	1
Bit Error Ratio			*BER*			10^{-12}		2

Notes:

1. 10GBASE-SR/SW, 1200-Mx-SN-I
2. Measured with PRBS 2^{31}-1

Ordering information:

MSA Standard:

Part Number	Product Description
XFP-SR-85-CE	850nm VCSEL, 10Gbps, 300m, 0ºC ~ +70ºC
XFP-SR-85-IE	850nm VCSEL, 10Gbps, 300m, -40ºC ~ +85ºC

Cross-Platform Compatible:

Part Number	Product Description
XFP-SR-85-CExx	850nm VCSEL, 10Gbps, 300m, 0ºC ~ +70ºC
XFP-SR-85-IExx	850nm VCSEL, 10Gbps, 300m, -40ºC ~ +85ºC

xx=TP, Cisco, Juniper & Ciena compatible
xx=AL, Alcatel compatible