

XFP LR Optical Transceiver, 10km Reach

Features

- ◆ Supports 9.95Gb/s to 11.1Gb/s bit rates
- ◆ Hot-pluggable XFP footprint
- ◆ Maximum link length of 10km with SMF
- ◆ 1310nm uncooled DFB laser
- ◆ XFP MSA package with duplex LC connector
- ◆ No reference clock required
- ◆ +1.8V,+3.3V Supply Voltage
- ◆ XFI and lineside loopback Mode Supported
- ◆ Diagnostic Performance Monitoring of module temperature, Supply Voltages, laser bias current, transmit optical power, and receive optical power
- ◆ RoHS6 compliant



Applications

- ◆ 10GBASE-LR at 10.3125Gbps
- ◆ Other optical links, up to 11.1Gbps

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V _{cc}	-0.5	4.0	V
Storage Temperature	T _{st}	-40	85	°C
Case Operating Temperature	T _{op}	-5	70	°C

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Power Supply Voltage @ 3.3V	V _{cc3}	3.13	3.3	3.47	V	
Module total power	P			2.5	W	
Transmitter						
Input differential impedance	R _{in}		100		Ω	1
Differential data input swing	V _{in,pp}	120		850	mV	
Transmit Disable Voltage	VD	2.0		V _{cc}	V	
Transmit Enable Voltage	VEN	GND		GND+0.8	V	
Transmit Disable Assert Time				10	us	
Receiver						
Differential data output swing	V _{out,pp}	500		850	mV	
Data output rise time	t _r			40	ps	2
Data output fall time	t _f			40	ps	2
LOS Fault	V _{LOS fault}	V _{cc} - 0.5		V _{ccHOST}	V	3
LOS Normal	V _{LOS norm}	GND		GND+0.5	V	3
Power Supply Rejection	PSR	See Note 3 below				4

Notes:

1. After 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.
4. Per Section 2.7.1. in the XFP MSA Specification.

Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Optical output Power (C-temp)	P	-6.5		+0.5	dBm	
Optical output Power (I-temp)		-5		+0.5		
Optical Wavelength	λ	1260		1355	nm	
Optical Extinction Ratio (C-temp)	ER	6			dB	1
Optical Extinction Ratio (I-temp)		3.5				
Side Mode Suppression Ratio	SMSR	30			dB	
Average Launch power of OFF transmitter	POFF	-30			dBm	
Tx Jitter	Tx _j	Compliant with each standard requirements				
Receiver						
Receiver Sensitivity	RSENS			-13	dBm	2
Receiver Sensitivity in OMA	RSENS			-12	dBm	2
Maximum Input Power	PMAX	+0.5			dBm	
Optical Center Wavelength	λ_C	1260		1600	nm	
LOS De-Assert	LOS _D			-15	dBm	
LOS Assert	LOS _A	-25			dBm	

Notes:

1, PRBS 2³¹-1 test pattern @10.3125Gbps.

2, PRBS 2³¹-1 test pattern @10.3125Gbps, BER≤10⁻¹².

Ordering information

MSA Standard:

Part Number	Product Description
XFP-LR-31-CE	1310nm DFB, 10Gbps, 10km, 0°C ~ +70°C
XFP-LR-31-IE	1310nm DFB, 10Gbps, 10km, -40°C ~ +85°C

Cross-Platform/OEM Compatible:

Part Number	Product Description
XFP-LR-31-CExx	1310nm DFB, 10Gbps, 10km, 0°C ~ +70°C
XFP-LR-31-IExx	1310nm DFB, 10Gbps, 10km, -40°C ~ +85°C

xx=TP, Cisco, Juniper & Ciena compatible

xx=AL, Alcatel compatible