

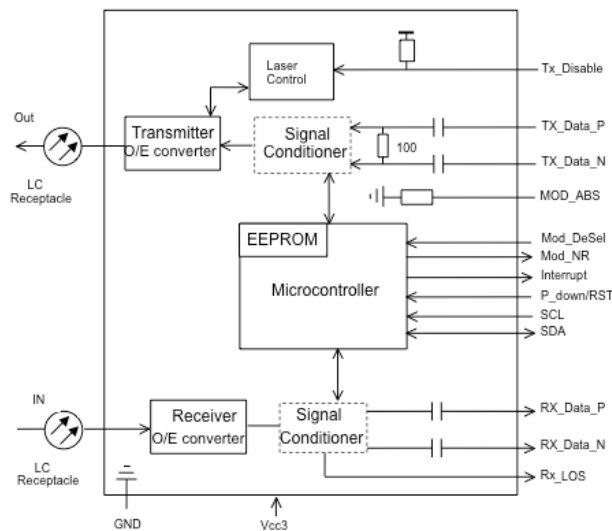


10GBASE-LR/OC-192 SR-1 XFP Transceiver 10Gb/s 10km, 1310nm P/N 4LR0P0x-1310



Description

Menara Networks' 4LR0P0x-1310 transceivers are designed for use in 10Gb/s to 11.1Gb/s links up to 10km over single mode fiber. The XFP module supports IEEE 802.3ae 10GBASE-LR / -LW applications along with SONET OC-192 SR-1 / SDH STM-64 ITU-T I-64.1 and 10G FC 1200-SM-LL-L applications for Ethernet Switches or IP Router optical interfaces. Digital Optical Monitoring interfaces are provided via the XFP standards compliant I²C interface.

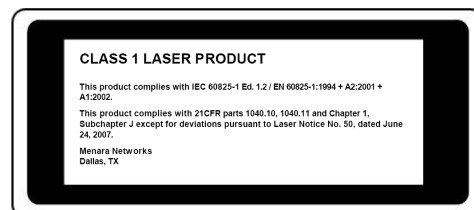


Applications

- 10GBASE-LW/LR 10GEthernet
- 8GB/10GB Fibre Channel
- VSR-2000-2R1,I-64.1 (STM-64) / SR-1 (OC-192)
- Ethernet Switch or IP Router Interconnect

Features

- Hot-pluggable XFP footprint
- Support 9.95Gb/s to 11.3Gb/s bit rates
- 1310nm DFB Laser transmitter
- InGaAs PIN photodiode receiver
- Single 3.3V power supply
- Power dissipation < 2.5W
- -5°C to +70°C and -40°C to +85°C
- Duplex LC fiber connectors
- IEEE 802.3ae 10GBASE-LR/LW
- 10G FC 1200-SM-LL-L
- VSR-2000-2R1,I-64.1 (STM-64) / SR-1 (OC-192)
- Full Digital Optical Monitoring
- Metal enclosure for lower EMI
- Complies with RoHS directive (2002/95/EC)
- Compliant with XFP Electrical and Mechanical MSA INF-8077
- Laser Class 1 IEC/CDRH compliant
- Links of 10 km with 9/125 μm single mode fiber (SMF) of maximum interconnect distances



Transmitter E-O Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Data Rate	-	9.95	10.3125	11.1	Gb/s	
Center Wavelength	λ	1260	1310	1355	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1.0	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Output Power	P _o	-5	-	+1	dBm	1
Extinction Ratio	ER	6			dB	
Optical path penalty	OPP			1	dB	
Transmitter Enable Voltage	V _{EN}	GND	-	0.8	V	
Transmitter Disable Voltage	V _{DIS}	2.0	-	V _{CC3}	V	
Differential data Inputs swing	V _{INPP}	120	-	820	mV	2
Output Power After Disabled	P _{OFF}			-30	dBm	
Output Eye Diagram	Compliant with ITUT and IEEE					

Notes:

1. The optical power is launched into SMF
2. Internally AC coupled.

Receiver O-E Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Data Rate	-	9.95	10.3125	11.1	Gb/s	
Operate Wavelength	-	1260	-	1620	nm	
Sensitivity	Sen ₁			-15	dBm	3
Sensitivity in OMA	Sen ₂			-12.5	dBm	3
Saturation	P _s	+0.5	-	-	dBm	3
LOS Asserted	LOS _A	-25			dBm	
LOS De-Asserted	LOS _D			-15	dBm	
LOS Hysteresis	-	0.5			dB	
Differential data outputs swing	V _{outpp}	120	-	820	mV	4
LOS Low Voltage	V _{Lout}	GND	-	0.8	V	
LOS High Voltage	V _{Hout}	2.0	-	V _{CC3}	V	
Receiver Optical Return Loss	-			-27	dB	

Notes

3. Measured at 9.953Gbps, PRBS 2³¹-1, NRZ, BER≤10⁻¹²
4. Internally AC coupled

Ordering Information

Part Number	ROHS Compliant	Operating Case Temperature
4LR0P0x-1310	ROHS-6	-5 ~ +70°C
4LR0P1x-1310		-10 ~ +85°C
4LR0P2x-1310		-40 ~ +85°C

x = J for Juniper
x = C for Cisco
x = A for Alcatel
x = O for Cisco ONS



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