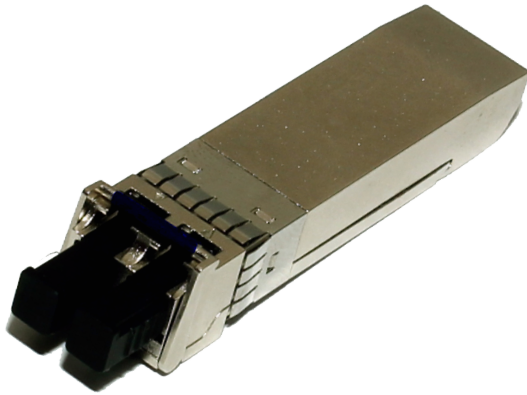




# 10GBASE-LR/OC-192 SR-1 SFP+ Transceiver 10Gb/s 10km, 1310nm P/N 5LR0P0x-1310



## Description

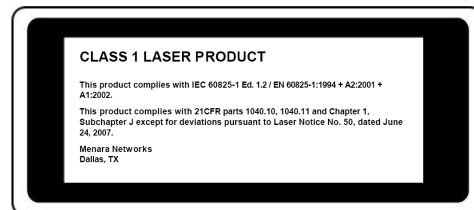
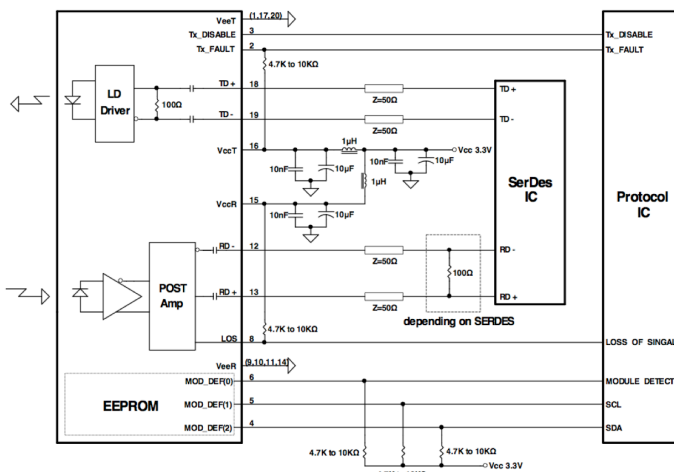
Menara Networks' 5LR0P0x-1310 transceivers are designed for use in 10Gb/s to 11.1Gb/s links up to 10km over single mode fiber. The SFP+ module supports IEEE 802.3ae 10GBASE-LR / -LW applications along with SONET OC-192 SR-1 / SDH STM-64 ITU-T I-64.1 and 10G FC 1200-SM-LL-L applications for Ethernet Switches or IP Router optical interfaces. Digital Optical Monitoring interfaces are provided via the SFP+ standards compliant I<sup>2</sup>C interface.

## Applications

- 10GBASE-LW/LR 10G Ethernet
- 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 SFP+ footprint
- Support 10Gb/s to 11.3Gb/s bit rates
- 1310nm DFB Laser transmitter
- InGaAs PIN photodiode receiver
- Single 3.3V power supply
- Power dissipation < 1.5W
- -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 SFP+ Electrical MSA SFF-8431
- Compliant with SFP+ Mechanical MSA SFF-8432
- 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
Support data rate	-	8.5	10.3125	11.1	Gb/s	
Center Wavelength	$\lambda$	1260	1310	1355	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Output Power	P <sub>o</sub>	-8.2	-	+0.5	dBm	1
Optical Modulation Amplitude @10.3125Gb/s and Fiber Channel	P <sub>OMA</sub>	-5.2			dBm	
OMA – TDP @10.3125Gb/s and Fiber Channel	P <sub>OMA-TDP</sub>	-6.2				
Optical Power of Off Transmitter	P <sub>off</sub>			-30	dBm	
Extinction Ratio	E <sub>r</sub>	3.5			dB	2
Transmitter Dispersion Penalty	TDP			0	dB	
Relative Intensity Noise	R <sub>IN</sub>			-128	dB/Hz	
Optical Return Loss Tolerance	-			12	dB	
Differential Data Input Swing	V <sub>INPP</sub>	400	-	1600	mV	
Tx Fault	V <sub>FAULT</sub>	-0.3		0.4	V	
Output Eye Diagram	Compliant with IEEE 802.3ae					

1. Measured with a PRBS 2<sup>31</sup>-1 test pattern at 10.3125Gbps
2. Measured with a PRBS 2<sup>31</sup>-1 test pattern at 10.3125Gbps, BER ≤ 10<sup>-12</sup>

### Receiver O-E Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Support data rate	-	8.5	10.3125	11.1	Gb/s	
Operate Wavelength	-	1260	-	1355	nm	
Receiver OMA sensitivity@10.3125Gb/s	S <sub>en1</sub>			-14.4	dBm	3
Stressed OMA receiver sensitivity@10.3125Gb/s	S <sub>en2</sub>			-10.3	dBm	3
Maximum Input Power	P <sub>max</sub>			+0.5	dBm	3
Receiver reflectance	R <sub>RX</sub>			-12	dB	
Receiver Optical Return Loss	-			-27	dB	
LOS Asserted	LOS <sub>A</sub>	-30			dBm	
LOS De-Asserted	LOS <sub>D</sub>			-12	dBm	
LOS Hysteresis	-			5.0	dB	
Differential Data Output Swing	V <sub>OUTPP</sub>	300	-	850	mV	

3. Measured with a PRBS 2<sup>31</sup>-1 test pattern at 10.3125Gbps, BER ≤ 10<sup>-12</sup>

### Ordering Information

Part Number	ROHS Compliant	Operating Case Temperature
5LR0P0x-0850 5LR0P2x-0850	ROHS-6	-5 ~ +70°C -40 ~ +85°C

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



[menarainfo@menaranet.com](mailto:menarainfo@menaranet.com)

[www.menaranet.com](http://www.menaranet.com)