

**10 Gb/s, 10 km
CWDM 1270 - 1330 nm
SFP+ Dual LC Package**



Description

OptixCom's CWDM SFP+ fiber optics transceiver s are designed with high performance DFB laser and cover the wavelength spectrum from 1270 nm to 1330 nm, with industry standard 20 nm spacing. It is compliant with 10G Ethernet and Fiber Channel for datacom applications and SONET/SDH for telecom applications It is compliant with SFP+ Multi-Source Agreement (MSA).

The transceiver uses duplex LC connector for the optical interface. The transceiver has > 8 dB power budget for 10 km of transmission distance with standard single mode fibers. The product is RoHS compliant. Total power consumption is < 2.5 W.



SFP-10000CLX-AT10K-XX



Key Features

- 1270 - 1330 nm single mode, 10 Gb/s data rate
- > 8 dB power budget for 10 km
- Duplex LC connector optical interface
- Z-axis hot pluggable
- AC coupling LVPECL differential I/O logics
- SFF-8431MSA Compliant
- TTL Signal detect to monitor optical signals
- Single 3.3 V power supply
- RoHS compliant

Applications

- ✓ 10G Fiber Channel, 10 Gigabit Ethernet
- ✓ SONET OC-192/SDH STM-64
- ✓ Data Communication for SAN and LAN
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

Ordering Information

Part Number: SFP-10000CLX-AT10K-XX

Description:

CWDM, 1270 - 1330 nm, 10 Gb/s, single mode, SFP+ fiber optics transceiver, 10 km, 1XXnm wavelength, 0-70°C

XX specifies the wavelength described below. For example, SFP-10000CLX-AT10K-27 is the 1270 nm module.

<u>XX</u>	Wavelength	<u>XX</u>	Wavelength
27	1270 nm	31	1310 nm
29	1290 nm	33	1330 nm

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
Data Rate	9.95	---	11.3	Gb/s
Supply Voltage	3.13	3.3	3.47	V
Supply Current	---	---	750	mA

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	T_{st}	-40	85	°C
Supply Voltage	V_{CC}	-0.5	4.0	V
Input Voltage	V_{IN}	-0.5	V_{CC}	V
Operating Current	I_{op}	---	750	mA
Output Current	I_o	---	50	mA

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage ¹	ΔV_i	0.2	---	0.8	V
Differential Input Impedance ²	Z	---	100	---	ohm
Optical Output Power ³	P_o	-6.5	---	+0.5	dBm
Center Wavelength – 1270 nm	λ_c	1264.5	1270	1277.5	nm
Center Wavelength – 1290 nm	λ_c	1284.5	1290	1297.5	nm
Center Wavelength – 1310 nm	λ_c	1304.5	1310	1317.5	nm
Center Wavelength – 1330 nm	λ_c	1324.5	1330	1337.5	nm
Side Mode Suppression Ratio	$SMSR$	30	---	---	dB
Extinction Ratio	ET	6	---	---	dB
Rise/Fall Time (20% - 80%)	T_r/T_f	---	---	40	ps
Relative Intensity Noise	RIN	---	---	-130	dB/Hz
TX Disable Asserted	P_{OFF}	---	---	-30	dBm
TX Disable Voltage – High	V_{DH}	2.4	---	V_{CC}	V
TX Disable Voltage – Low	V_{DL}	0	---	0.5	V
TX Disable Assert Time	T_{ass}	---	---	10	μs
TX Disable Deassert Time	T_{disass}	---	---	2	ms
Time to Initialize	T_{ini}	---	---	300	ms
TX Fault from Fault to Assertion	T_{fault}	---	---	100	μs
TX Disable Time to Start Reset	T_{reset}	10	---	---	μs

Notes:

1. Module is designed for AC coupling. DC voltage will be filtered by internal capacitor.
2. Single ended will be 50 ohm for each signal line.
3. Output of average coupling optical power into 9/125 μm SMF.

Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Output Voltage	ΔV_o	0.4	---	0.8	V
Differential Input Impedance ¹	Z	---	100	---	Ohm
Optical Return Loss	OL	27	---	---	dB
Operating Wavelength	λ_c	1270	---	1600	nm
Receiver Overload	P_{max}	+0.5	---	---	dBm
Receiver Sensitivity ²	P_I	---	-16	-14.5	dBm
Receiver Sensitivity in OMA	P_{IOMA}	---	---	-12.5	dBm
Rise/Fall Time (20% - 80%)	T_r/T_f	---	---	40	ps
Signal Detect- Deasserted	P_{SD-}	-25	---	---	dBm
Signal Detect- Asserted	P_{SD+}	---	---	-15	dBm
Dispersion Penalty		---	---	4	dB
RX Signal Loss Output - High	V_{RL+}	2.4	---	V_{CC}	V
RX Signal Loss Output - Low	V_{RL-}	0	---	0.8	V
RX Signal Loss Assert Time	T_{RL+}	---	---	100	μ s
RX Signal Loss Deassert Time	T_{RL-}	---	---	100	μ s

Notes:

1. Single ended will be 50 ohm for each signal line.
2. Test at 10 Gb/s, 2³¹ - 1 PRBS data pattern, and > 1x10⁻¹² of Bit-Error-Rate (BER).

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

