

**1.25 Gb/s, 40 - 100 km  
CWDM 1270 nm – 1450 nm  
SFP Dual LC Package**



**Small Form Pluggable (SFP) Transceivers**

**Description**

OptixCom's CWDM transceivers are designed with high performance DFB laser and cover the wavelength spectrum from 1270 nm to 1450 nm, with industry standard 20 nm spacing. Dual LC connectors are used as standard interface and the package is compliant with Small Form Pluggable (SFP) specifications.

The module is compliant with SFP Multi-Source Agreement (MSA). This product can be used at 1.0625 Gb/s for Fiber Channel or 1.25 Gb/s for Gigabit Ethernet applications. They offer 40 - 100 km of transmission distance with single mode fibers. The products are RoHS compliant.



Lead-Free

**SFP-1250CLX-ATXXK-YY**  
**(XX = 40, 60, 80, 100)**



**Key Features**

- 1270 - 1450 nm single mode, 1.0625/1.25 Gb/s
- 40 – 100 km with 20 - 30 dB power budget
- Duplex LC connector optical interface
- Z-axis hot pluggable
- SFF-8472 MSA Compliant
- AC coupling LVPECL differential I/O logics
- TTL Signal detect to monitor optical signals
- Single 3.3 V power supply
- RoHS compliant

**Applications**

- ✓ 1X Fiber Channel and Gigabit Ethernet
- ✓ High speed I/O for file server
- ✓ Video over fiber links
- ✓ Media converter
- ✓ Data Communication for SAN and LAN
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

**Ordering Information**

**Part Number:** SFP-1250CLX-ATXXK-YY

**Description:**

CWDM 1270 - 1450 nm 1.0625/1.25 Gb/s SFP Fiber Optics Transceiver, **XX** km reach, 1**YY**0 nm wavelength, 0 - 70°C.

\* **YY** specifies the wavelength described below. For example, SFP-1250CLX-ATXXK-27 is the 1270 nm module.

<u>YY</u>	Wavelength	<u>YY</u>	Wavelength
27	1270 nm	37	1370 nm
29	1290 nm	39	1390 nm
31	1310 nm	41	1410 nm
33	1330 nm	43	1430 nm
35	1350 nm	45	1450 nm

**Operating Conditions**

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
Data Rate	---	1.25	1.3	Gb/s
Supply Voltage	3.1	3.3	3.5	V

### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	$T_{st}$	-40	85	°C
Supply Voltage	$V_{CC}$	-0.5	6.0	V
Input Voltage	$V_{IN}$	-0.5	$V_{CC}$	V
Operating Current	$I_{op}$	---	400	mA
Output Current	$I_o$	---	50	mA
Soldering Temperature (10 sec. on leads)	$T_{sd}$	---	260	°C

### General Transmitter Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage <sup>1</sup>	$\Delta V_i$	0.4	---	1.8	V
Differential Input Impedance <sup>2</sup>	$Z$	---	100	---	ohm
Side Mode Suppression Ratio	$SMSR$	30	---	---	dB
Rise/Fall Time (20% - 80%)	$T_r/T_f$	---	---	260	ps
Relative Intensity Noise	$RIN$	---	---	-120	dB/Hz
TX Disable Asserted	$P_{OFF}$	---	---	-45	dBm
Total Jitter	$T_j$	---	---	227	ps
TX Fault Output - Low	$V_{FL}$	0	---	0.8	V
TX Fault Output - High	$V_{FH}$	2.0	---	$V_{CC}$	V
TX Disable Voltage - Low	$V_{DL}$	0	---	0.8	V
TX Disable Voltage - High	$V_{DH}$	2.0	---	$V_{CC}$	V
TX Disable Deassert Time	$T_{disass}$	---	---	1.0	ms
TX Disable Assert Time	$T_{ass}$	---	---	10	μs
TX Fault from Fault to Assertion	$T_{fault}$	---	---	100	μs
TX Disable Time to Start Reset	$T_{reset}$	10	---	---	μs
Time to Initialize	$T_{as}$	---	---	300	ms

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. Optical eye diagram is compliant with IEEE 802.3z standard.

Class 1 Laser Product  
Complies with  
21 CFR 1040.10 and 1040.11



### General Receiver Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Output Voltage <sup>1</sup>	$\Delta V_o$	0.4	---	1.8	V
Differential Input Impedance <sup>2</sup>	Z	---	100	---	Ohm
Optical Return Loss	OL	12	---	---	dB
Rise/Fall Time (20% - 80%)	$T_r/T_f$	---	---	350	ps
Signal Detect Hysteresis	$P_{RL+} - P_{RL-}$	1	---	---	dB
Serial ID Clock Rate	$f_c$	---	---	100	kHz
RX Signal Loss Output - High	$V_{RL+}$	2.0	---	$V_{CC}$	V
RX Signal Loss Output - Low	$V_{RL-}$	0	---	0.8	V
RX Signal Loss Assert Time	$T_{RL+}$	---	---	100	$\mu$ s
RX Signal Loss Deassert Time	$T_{RL-}$	---	---	100	$\mu$ s

Notes:

1. Module is designed for AC LVPECL coupling. See the design guide for proper termination.
2. Single ended will be 50 ohm for each signal line.

Class 1 Laser Product  
Complies with  
21 CFR 1040.10 and 1040.11



**Transmitter Electro-Optical Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Units
Optical Output Power <sup>1</sup>	$P_o$	0	---	+5	dBm
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm
Extinction Ratio	$ET$	9	---	---	dB
Center Wavelength – 1270 nm	$\lambda_c$	1264.5	1270	1277.5	nm
Center Wavelength – 1290 nm	$\lambda_c$	1284.5	1290	1297.5	nm
Center Wavelength – 1310 nm	$\lambda_c$	1304.5	1310	1317.5	nm
Center Wavelength – 1330 nm	$\lambda_c$	1324.5	1330	1337.5	nm
Center Wavelength – 1350 nm	$\lambda_c$	1344.5	1350	1357.5	nm
Center Wavelength – 1370 nm	$\lambda_c$	1364.5	1370	1377.5	nm
Center Wavelength – 1390 nm	$\lambda_c$	1384.5	1390	1397.5	nm
Center Wavelength – 1410 nm	$\lambda_c$	1404.5	1410	1417.5	nm
Center Wavelength – 1430 nm	$\lambda_c$	1424.5	1430	1437.5	nm
Center Wavelength – 1450 nm	$\lambda_c$	1444.5	1450	1457.5	nm

**Receiver Electro-Optical Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	$\lambda_c$	1260	---	1620	nm
Receiver Overload	$P_{max}$	-3	---	---	dBm
Receiver Sensitivity <sup>2</sup>	$P_I$	---	---	-27	dBm
RX Signal Loss – Asserted	$P_{RL+}$	---	---	-27	dBm
RX Signal Loss – Deasserted	$P_{RL-}$	-35	---	---	dBm

Notes:

1. Output of coupling optical power into 9/125  $\mu$ m SMF.
2. Test at 1.25 Gb/s,  $2^7 - 1$  PRBS data pattern, and  $> 1 \times 10^{-12}$  of Bit-Error-Rate (BER).
3. Optical eye diagram is compliant with IEEE 802.3z standard.
4. Maximum supply current for the transceiver from Vcc is 300 mA.

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Complies with  
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