1.25 Gb/s, 60 - 120 km CWDM 1470 nm – 1610 nm SFP Dual LC Package

OptixCom
Connect with Light
Small Form Pluggable (SFP) Transceivers

Description

OptixCom's CWDM transceivers are designed with high performance DFB laser and cover the wavelength spectrum from 1470 nm to 1610 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 60 - 120 km of transmission distance with single mode fibers. The products are RoHS compliant.

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SFP-1250CEX-AT*XX*K-*YY*
(*XX* = 60, 80, 100, 120)

Key Features

- 1470 - 1610 nm single mode, 1.0625/1.25 Gb/s
- 60 – 120 km with 20 - 30 dB power budget
- Duplex LC connector optical interface
- Z-axis hot pluggable
- SFF-8472 MSA Compliant with DDM function
- AC coupling LVPECL differential I/O logics
- TTL Signal detect to monitor optical signals
- Single 3.3 V power supply
- RoHS compliant

Ordering Information

Part Number: SFP-1250CEX-AT***XX***K-***YY***

Description:

CWDM 1470 - 1610 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-1250CEX-ATXXK-47 is the 1470 nm module.

YY	**Wavelength**	***YY***	**Wavelength**
47	1470 nm	55	1550 nm
49	1490 nm	57	1570 nm
51	1510 nm	59	1590 nm
53	1530 nm	61	1610 nm

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

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

Phone: (949) 679-5712 Fax: (949) 420-2134
17901 Von Karman Avenue, Suite 600,
Irvine, CA 92614, USA
Email: Support@OptixCom.com

http://www.OptixCom.com
http://www.OpticalTransceiver.com

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	*Tst*	-40	85	°C
Supply Voltage	*Vcc*	-0.5	6.0	V
Input Voltage	*VIN*	-0.5	*Vcc*	V
Operating Current	*Iop*	---	400	mA
Output Current	*Io*	---	50	mA
Soldering Temperature (10 sec. on leads)	*Tsd*	---	260	°C

General Transmitter Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage [1]	*ΔVi*	0.4	---	1.8	V
Differential Input Impedance [2]	*Z*	---	100	---	ohm
Side Mode Suppression Ratio	*SMSR*	30	---	---	dB
Rise/Fall Time (20% - 80%)	*Tr/Tf*	---	---	260	ps
Relative Intensity Noise	*RIN*	---	---	-120	dB/Hz
TX Disable Asserted	*POFF*	---	---	-45	dBm
Total Jitter	*Tj*	---	---	227	ps
TX Fault Output - Low	*VFL*	0	---	0.8	V
TX Fault Output - High	*VFH*	2.0	---	*Vcc*	V
TX Disable Voltage - Low	*VDL*	0	---	0.8	V
TX Disable Voltage – High	*VDH*	2.0	---	*Vcc*	V
TX Disable Deassert Time	*Tdisass*	---	---	1.0	ms
TX Disable Assert Time	*Tass*	---	---	10	µs
TX Fault from Fault to Assertion	*Tfault*	---	---	100	µs
TX Disable Time to Start Reset	*Treset*	10	---	---	µs
Time to Initialize	*Tas*	---	---	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

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Email: Support@OptixCom.com

General Receiver Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Output Voltage [1]	ΔV_O	0.4	---	1.8	V
Differential Input Impedance [2]	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	µs
RX Signal Loss Deassert Time	T_{RL-}	---	---	100	µs

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.

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Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Optical Output Power [1]	P_O	0	---	+5	dBm
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm
Extinction Ratio	ET	9	---	---	dB
Center Wavelength – 1470 nm	λ_C	1464.5	1470	1477.5	nm
Center Wavelength – 1490 nm	λ_C	1484.5	1490	1497.5	nm
Center Wavelength – 1510 nm	λ_C	1504.5	1510	1517.5	nm
Center Wavelength – 1530 nm	λ_C	1524.5	1530	1537.5	nm
Center Wavelength – 1550 nm	λ_C	1544.5	1550	1557.5	nm
Center Wavelength – 1570 nm	λ_C	1564.5	1570	1577.5	nm
Center Wavelength – 1590 nm	λ_C	1584.5	1590	1597.5	nm
Center Wavelength – 1610 nm	λ_C	1604.5	1610	1617.5	nm

Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	λ_C	1260	---	1620	nm
Receiver Overload	P_{max}	-9	---	---	dBm
Receiver Sensitivity [2]	P_I	---	---	-30	dBm
RX Signal Loss – Asserted	P_{RL+}	---	---	-30	dBm
RX Signal Loss – Deasserted	P_{RL-}	-35	---	---	dBm

Notes:

1. Output of coupling optical power into 9/125 µm SMF.
2. Test at 1.25 Gb/s, $2^7 - 1$ PRBS data pattern, and > $1x10^{-12}$ 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 320 mA.

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