

**1.25 Gb/s, 40 - 60 km
CWDM 1270 nm – 1450 nm
GBIC Dual SC Package**

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. The product is compliant with Gigabit Interface Converter (GBIC) specifications. This product can be used at 1.0625 Gb/s for Fiber Channel or 1.25 Gb/s for Gigabit Ethernet applications.

Two transceiver designs reach up to 40 km and 60 km of distances with 20 dB and 24 dB of power budget, respectively, for standard single mode fibers. The products are RoHS compliant.



Lead-Free

GBC-1250CLX-AT40K-XX
GBC-1250CLX-AT60K-XX



Key Features

- 1270 - 1450 nm single mode, 1.0625/1.25 Gb/s
- Duplex SC connector optical interface
- Z-axis hot pluggable with SCA-2 host connector
- AC coupling LVPECL differential I/O logics
- 40 km with 20 dB power budget
- 60 km with 24 dB power budget
- Compliant with IEEE 802.3z, 1000BASE-LX
- Compliant with Fiber Channel Standard
- TTL Signal detect to monitor optical signals
- Single 3.3/5 V power supply
- RoHS compliant

Applications

- ✓ 1X Fiber Channel
- ✓ 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: GBC-1250CLX-AT40K-XX

Description:

CWDM 1270 - 1450 nm 1.0625/1.25 Gb/s GBIC Transceiver, 40 km reach, 1XX0 nm wavelength, 0-70°C.

Part Number: GBC-1250CLX-AT60K-XX

Description:

CWDM 1270 - 1450 nm, 1.0625/1.25 Gb/s GBIC Transceiver, 60 km reach, 1XX0 nm wavelength, 0-70°C

XX specifies the wavelength described below. For example, GBC-1250CLX-AT40K-27 is the 1270 nm module.

XX	Wavelength	XX	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	5.25	V
Supply Current	---	250	400	mA

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

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage ¹	ΔV_i	0.65	---	2.0	V
Differential Input Impedance ²	Z	---	150	---	ohm
Optical Output Power ³ (GBC-1250CLX-AT40K-XX)	P_o	-4	---	+1	dBm
Optical Output Power ³ (GBC-1250CLX-AT60K-XX)	P_o	-1	---	+4	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
Center Wavelength – 1350 nm	λ_c	1344.5	1350	1357.5	nm
Center Wavelength – 1370 nm	λ_c	1364.5	1370	1377.5	nm
Center Wavelength – 1390 nm	λ_c	1384.5	1390	1397.5	nm
Center Wavelength – 1410 nm	λ_c	1404.5	1410	1417.5	nm
Center Wavelength – 1430 nm	λ_c	1424.5	1430	1437.5	nm
Center Wavelength – 1450 nm	λ_c	1444.5	1450	1457.5	nm
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm
Extinction Ratio	ET	7	---	---	dB
Side Mode Suppression Ratio	$SMSR$	30	---	---	dB
Relative Intensity Noise	RIN	---	---	-120	dB/Hz
Rise/Fall Time (20% - 80%)	T_r/T_f	---	---	260	ps
Total Jitter	T_j	---	---	227	ps
TX Disable Asserted	P_{OFF}	---	---	-35	dBm
TX Fault Output - High	V_{FH}	2.4	---	V_{cc}	V
TX Fault Output - Low	V_{FL}	0	---	0.5	V

Transmitter Electro-Optical Characteristics (cont.)

Parameter	Symbol	Min.	Typical	Max.	Units
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	μ s
TX Disable Deassert Time	T_{disass}	---	---	1.0	ms
Time to Initialize	T_{as}	---	---	300	ms
TX Fault from Fault to Assertion	T_{fault}	---	---	100	μ s
TX Disable Time to Start Reset	T_{reset}	10	---	---	μ s

Notes:

1. Module is designed for AC coupling. DC voltage will be filtered by internal capacitor.
2. Single ended will be 75 ohm for each signal line.
3. Output of average coupling optical power into 9/125 μ m SMF.
4. Optical eye diagram is compliant with IEEE 802.3z standard.

Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	λ_c	1260	---	1610	nm
Receiver Overload	P_{max}	-3	---	---	dBm
Receiver Sensitivity ¹	P_I	---	-26	-24	dBm
Differential Output Voltage	ΔV_o	0.4	---	2.0	V
Differential Input Impedance ²	Z	---	150	---	Ohm
Optical Return Loss	OL	12	---	---	dB
Rise/Fall Time	T_r/T_f	---	---	350	ps
RX Signal Loss – Asserted	P_{SD+}	---	---	-24	dBm
RX Signal Loss – Deasserted	P_{SD-}	-31	---	---	dBm
RX Signal Loss Output - High	V_{RL+}	2.4	---	V_{CC}	V
RX Signal Loss Output - Low	V_{RL-}	0	---	0.5	V
RX Signal Loss Assert Time	T_{RL+}	---	---	100	μ s
RX Signal Loss Deassert Time	T_{RL-}	---	---	100	μ s

Notes:

1. Test at 1.25 Gb/s, 2⁷ – 1 PRBS data pattern, and > 1x10⁻¹² of Bit-Error-Rate (BER).
2. Single ended will be 75 ohm for each signal line.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

