

# 1.25 Gb/s, 1310 nm Single Mode, 10 – 50 km GBIC Dual SC Package

## Description

OptixCom's single mode fiber optics transceiver is designed with high performance 1310 nm FP laser and 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 with 10 - 50 km transmission distance with single mode fibers. .

The transceiver uses duplex SC connector for the optical interface and SCA-2 host connector for the electrical interface. The product is hot pluggable in the z-axis along the transceiver module. The products are RoHS compliant.



Lead-Free

**GBC-1250LX-ATXXK**  
(XX = 10, 40, 50)



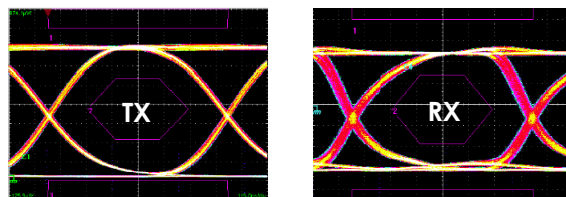
## Key Features

- 1310 nm single mode, 1.0625/1.25 Gb/s data rates
- 10 – 50 km reach, 11 – 24 dB power budget
- Duplex SC connector optical interface
- Z-axis hot pluggable with SCA-2 host connector
- AC coupling LVPECL differential I/O logics
- Single 3.3/5 V power supply
- TTL signal detect to monitor optical signals
- Compliant with IEEE 802.3z, 1000BASE-LX
- Compliant with Fiber Channel Standard
- -40–85 °C operating temperatures available
- RoHS compliant

## Applications

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

1.25 Gb/s, 2<sup>7</sup>-1 NRZ Data Eye Pattern



## Ordering Information

**Part Number:** GBC-1250LX-ATXXK

### Description:

1310 nm 1.0625/1.25 Gb/s, single mode, GBIC Fiber Optics Transceiver, XX km reach, 0-70°C

\* Add "-T" in the Part Number for extended temperature range -40–85 °C, i.e., GBC-1250LX-AT10K-T.

## Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
- T Transceivers	-40	25	85	°C
Data Rate	---	1.25	1.3	Gb/s
Supply Voltage	3.1	3.3	5.25	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

### General Transmitter Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage <sup>1</sup>	$\Delta V_i$	0.4	---	2.0	V
Differential Input Impedance <sup>2</sup>	$Z$	---	150	---	ohm
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	$P_{OFF}$	---	---	-45	dBm
TX Fault Output - High	$V_{FH}$	2.4	---	$V_{CC}$	V
TX Fault Output - Low	$V_{FL}$	0	---	0.5	V
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	$T_{disass}$	---	---	1.0	ms
Time to Initialize	$T_{as}$	---	---	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 75 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>	$\Delta V_o$	0.5	---	1.2	V
Differential Input Impedance <sup>2</sup>	$Z$	---	150	---	Ohm
Optical Return Loss	$OL$	12	---	---	dB
Rise/Fall Time	$T_r/T_f$	---	---	350	ps
RX Signal Loss – Asserted	$P_{SD+}$	---	---	-20	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	$\mu$ s
RX Signal Loss Deassert Time	$T_{RL-}$	---	---	100	$\mu$ s
Serial ID Clock Rate	$f_c$	---	---	100	kHz

Notes:

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2. Single ended will be 75 ohm for each signal line.

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### Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Optical Output Power <sup>1</sup>	$P_o$	-4	---	+3	dBm
Optical Wavelength	$\lambda_o$	1280	1310	1340	nm
Extinction Ratio	$ET$	7	---	---	dB
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm

### Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	$\lambda_c$	1260	---	1610	nm
Receiver Overload	$P_{max}$	-3	---	---	dBm
Receiver Sensitivity <sup>2</sup>	$P_I$	---	---	-24	dBm
Signal Detect– Asserted	$P_{SD+}$	---	---	-24	dBm
Signal Detect– Deasserted	$P_{SD-}$	-35	---	---	dBm

Notes:

1. Output of coupling optical power into 9/125  $\mu$ m SMF.
2. Test at 1.25 Gb/s, 2<sup>7</sup> – 1 PRBS data pattern, and > 1x10<sup>-12</sup> 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 for 3.3V and 400 mA for 5V.

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