

**1.25 Gb/s, 1550 nm
Single Mode, 30 – 80 km
GBIC Dual SC Package**

Description

OptixCom's single mode fiber optics transceiver is designed with high performance 1550 nm 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 30 - 80 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

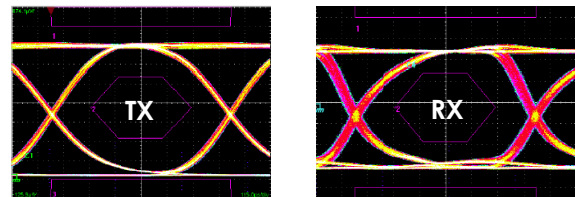
GBC-1250EX-ATXXK
(XX = 30, 60, 80)



Key Features

- 1550 nm single mode, 1.0625/1.25 Gb/s data rates
- 30 – 80 km reach, 12 – 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

1.25 Gb/s, 2⁷-1 NRZ Data Eye Pattern



Ordering Information

Part Number: GBC-1250EX-ATXXK

Description:

1550 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-1250EX-AT60K-T.

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

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 ¹	ΔV_i	0.65	---	2.0	V
Differential Input Impedance ²	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 ¹	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+}			-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	μ s
RX Signal Loss Deassert Time	T_{RL-}			100	μ s
Serial ID Clock Rate	f_c			100	kHz

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.

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Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Optical Output Power ¹	P_o	0	---	+5	dBm
Optical Wavelength	λ_o	1520	1550	1580	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	λ_c	1260	---	1610	nm
Receiver Overload	P_{max}	-3	---	---	dBm
Receiver Sensitivity ²	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 μ 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 for 3.3V and 400 mA for 5V.

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