1.25 Gb/s, 850 nm Multimode, 500 m GBIC Dual SC Package

OptixCom
Connect with Light
Gigabit Ethernet (GBIC) Transceivers

Description

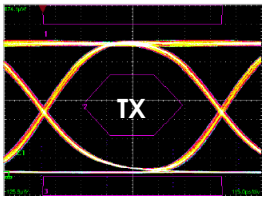
OptixCom's multimode fiber optics transceiver is designed with high performance 850 nm VCSEL light source and compliant with Gigabit Interface Converter (GBIC) specifications. This product can be used at 1.0625 Gb/s for Fiber Channel or 1.25 Gb/s for Gigabit Ethernet applications.

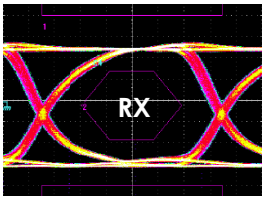
The transceiver uses duplex SC connector for the optical interface and SCA-2 host connector for the electrical interface. The product is hot pluggable in the z-axis along the transceiver module. The transceiver reaches more than 500 meters of transmission distance with high-grade multimode fibers and > 8.5 dB of power budget. The products are RoHS compliant.

Pb
Lead-Free

GBC-1250SX-AT500M

1.25 Gb/s, 2^7-1 NRZ Data Eye Pattern





Key Features

- 850 nm multimode, 1.0625/1.25 Gb/s data rates
- > 8.5 dB power budget
- Duplex SC connector optical interface
- Z-axis hot pluggable with SCA-2 host connector
- AC coupling LVPECL differential I/O logics
- > 500 m at 1.25 Gb/s with high-grade MMF
- Compliant with IEEE 802.3z, 1000BASE-SX
- Compliant with Fiber Channel Standard
- TTL Signal detect function to monitor optical signals
- -20–85 °C operating temperatures available
- Single 3.3/5 V power supply

Applications

- ✓ 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-1250SX-AT500M

Description:
850 nm 1.0625/1.25 Gb/s, multimode, GBIC fiber optics transceiver, 500 m reach, 0-70°C

* Add "-T" in the Part Number for extended temperature range -20–85 °C, i.e., GBC-1250SX-AT500M-T.

Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
- T Transceivers	-20	25	85	°C
Data Rate	---	1.25	1.3	Gb/s
Supply Voltage	3.1	3.3	5.25	V
Supply Current	---	120	250	mA

Phone: (949) 679-5712 Fax: (949) 420-2134
37 Santa Comba, Irvine, CA 92606, 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

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage [1]	*ΔVi*	0.4	---	2.0	V
Differential Input Impedance [2]	*Z*	---	150	---	ohm
Optical Output Power [3]	*Po*	-9.5	---	-4	dBm
Optical Wavelength	*λo*	830	850	860	nm
Extinction Ratio	*ET*	9	---	---	dB
Spectral Width (rms)	*Δλ*	---	---	0.85	nm
Relative Intensity Noise	*RIN*	---	---	-117	dB/Hz
Rise/Fall Time (20% - 80%)	*Tr/Tf*	---	---	260	ps
Total Jitter	*Tj*	---	---	227	ps
TX Disable Asserted	*POFF*	---	---	-35	dBm
TX Fault Output - High	*VFH*	2.4	---	*Vcc*	V
TX Fault Output - Low	*VFL*	0	---	0.5	V
TX Disable Voltage – High	*VDH*	2.4	---	*Vcc*	V
TX Disable Voltage - Low	*VDL*	0	---	0.5	V
TX Disable Assert Time	*Tass*	---	---	10	µs
TX Disable Deassert Time	*Tdisass*	---	---	1.0	ms
Time to Initialize	*Tini*	---	---	300	ms
TX Fault from Fault to Assertion	*Tfault*	---	---	100	µs
TX Disable Time to Start Reset	*Treset*	10	---	---	µs

Notes:

1. Module is designed for AC coupling. DC voltage will be filtered by internal capacitors.
2. Single ended will be 75 ohm for each signal line.
3. Output of coupling optical power into 50/125 µm or 62.5/125 µm MMF.
4. Optical eye diagram is compliant with IEEE 802.3z standard.

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

Underwriters Laboratories

TÜVRheinland

Lead-Free

Phone: (949) 679-5712 Fax: (949) 420-2134
37 Santa Comba, Irvine, CA 92606, USA
Email: Support@OptixCom.com

Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	λ_C	770	---	860	nm
Receiver Overload	P_{max}	0	---	---	dBm
Receiver Sensitivity [1]	P_I	---	---	-18	dBm
Differential Output Voltage	ΔV_O	0.5	---	1.2	V
Differential Input Impedance [2]	Z	---	150	---	Ohm
Optical Return Loss	OL	12	---	---	dB
Rise/Fall Time (20% - 80%)	T_r/T_f	---	---	350	ps
RX Signal Loss – Asserted	P_{SD+}	---	---	-18	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	µs
RX Signal Loss Deassert Time	T_{RL-}	---	---	100	µs
Serial ID Clock Rate	f_C	---	---	100	kHz

Notes:

1. Test at 1.25 Gb/s, $2^7 - 1$ PRBS data pattern, and > $1x10^{-12}$ of Bit-Error-Rate (BER).
2. Single ended will be 75 ohm for each signal line.

Typical Transmission Distance for Multimode Fibers @ 850 nm

Data Rate	Fiber Type	Distance (m)	Data Rate	Fiber Type	Distance (m)
1.0625 Gb/s	50 µm, 2000 MHz*km	860	2.125 Gb/s	50 µm, 2000 MHz*km	500
	50 µm, 500 MHz*km	500		50 µm, 500 MHz*km	300
	50 µm, 400 MHz*km	450		50 µm, 400 MHz*km	260
	62.5 µm, 200 MHz*km	300		62.5 µm, 200 MHz*km	150
	62.5 µm, 160 MHz*km	250		62.5 µm, 160 MHz*km	120
1.25 Gb/s	50 µm, 500 MHz*km	550	10 Gb/s	50 µm, 2000 MHz*km	300
	50 µm, 400 MHz*km	500		50 µm, 500 MHz*km	150
	62.5 µm, 200 MHz*km	275		62.5 µm, 200 MHz*km	75
	62.5 µm, 160 MHz*km	220		62.5 µm, 160 MHz*km	---

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

Underwriters Laboratories

TÜVRheinland

Pb Lead-Free

Phone: (949) 679-5712 Fax: (949) 420-2134
37 Santa Comba, Irvine, CA 92606, USA
Email: Support@OptixCom.com

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