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GLC-BX-U55-COM&GLC-BX-D55-COM
 10GBASE-BX-U55&D55
Tx:1310nm/Rx:1550nm
Tx:1550nm/Rx:1310nm
SMF, 20km DOM for Cisco

1.25Gbps Bi-Directional SMF 20KM SFP Module

➢ **GLC-BX-U55-COM** - Tx1310nm/Rx1550nm

➢ **GLC-BX-D55-COM** - Tx1550nm/Rx1310nm

(Hot Pluggable, Single Fiber LC, +3.3V, 20KM DDM/DOM)

Features:

- Up to 1.25Gb/s data links
- FP laser transmitter for WP-B5324-FL20D
- DFB laser transmitter for WP-B3524-DL20D
- PIN photo-detector
- Up to 10~20KM on 9/125μm SMF
- Hot-pluggable SFP footprint
- BIDI LC/UPC type pluggable optical interface
- Low power dissipation
- Metal enclosure, Excellent EMI
- RoHS compliant and lead-free
- Single +3.3V power supply
- Compliant with SFF-8472
- Operating temperature-40°C to 85°C

Applications:

- Switch to Switch Interface
- Gigabit Ethernet
- Switched Backplane Applications
- Router/Server Interface
- Other Optical Links


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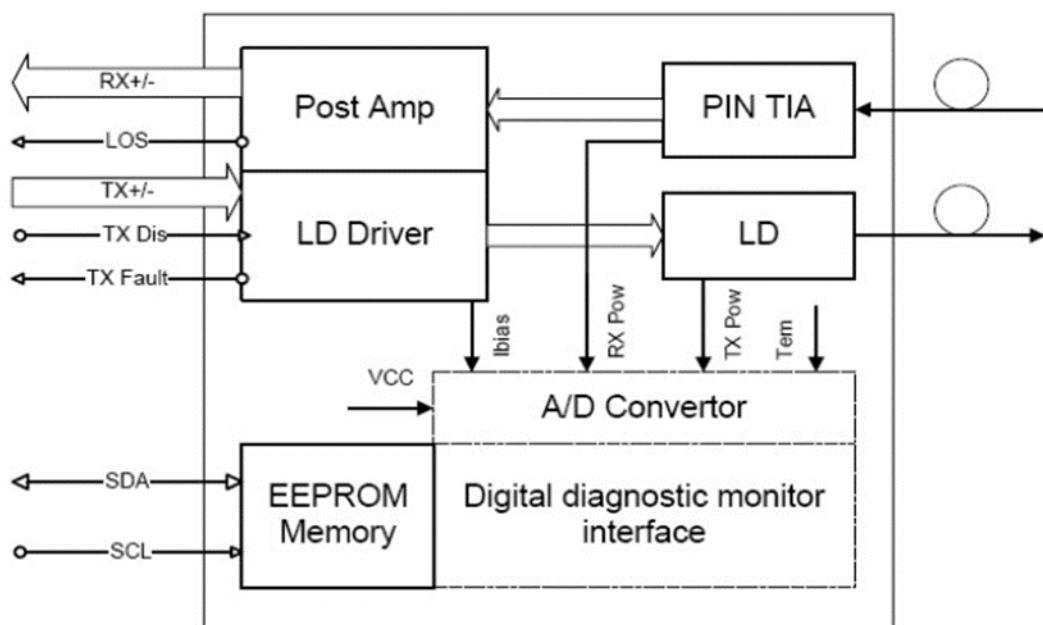
Standards:

- SFPMSA Compliant

- SFF-8472 reversion 9.5 compliant

- IEEE802.3-2005 compliant

- Telcordia GR-468-CORE compliant

- FCC 47 CFR Part 15,Class B compliant

- FDA 21 CFR 1040.10 and 1040.11,class1 compliant

- RoHS compliant

Product Descriptions:

ARPERS **GLC-BX-U55-COM &GLC-BX-D55-COM** optical transceivers are designed for optical interfaces for Optical Links withsingle mode fiber (SMF). The transceiver designs are optimized for high performance and cost effective to supply customers the best solutions for telecom applications.

Functional Diagram:

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Absolute Maximun Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature		-40	85	°C	
Relative Humidity		5	95	%	

Note: Stress in excess of the maximum absolute ratings can cause permanent damage to the module

General Operating Characteristics

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Data Rate			1.25		Gb/s	
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc_5			280	mA	
Operating Temp. Tc		-10		80	°C	GLC-BX-U55-COM&GLC-BX-D55-COM

Electrical Input/Output Characteristics

- Transmitter

Parameter		Symbol	Min.	Typ	Max.	Unit	Note
Diff. input voltage swing			120		820	mVpp	1
Tx Disable input	H	VIH	2.0		Vcc+0.3	V	
	L	VIL	0		0.8		
Tx Fault output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		
Input Diff. Impedance		Zin		100		Ω	

- **Receiver**

Parameter		Symbol	Min.	Typ	Max.	Unit	Note
Diff. output voltage swing			340	650	800	mVpp	
Rx LOS Output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		

Note 1) TD+/- are internally AC coupled with 100Ω differential termination inside the module. Note 2) Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7k to 10kΩ resistors on the host board. Pull up voltage between 2.0V and Vcc+0.3V.

Note 3) RD+/- outputs are internally AC coupled, and should be terminated with 100Ω (differential) at the user SERDES.

Optical Characteristics

- **Transmitter**

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Operating Wavelength	λC	1270	1310	1360	nm	
		1530	1550	1570		
Ave. output power (Enabled)	Po	-9		-3	dBm	1
Extinction Ratio	ER	9			dB	1
RMS spectral width	Δλ			3.5	nm	
Rise/Fall time (20%~80%)	Tr/Tf			0.26	ps	2
Output Eye Mask	Compliant with IEEE802.3 z (class 1 laser safety)					

Note (1): Measure at 2^7-1 NRZ PRBS pattern Note (2): Transmitter eye mask definition

- **Receiver**

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Operating Wavelength		1530	1550	1570	nm	
		1270	1310	1360		
Sensitivity	Psen			-25	dBm	1
Min. overload	Pimax	-3			dBm	
LOS Assert	Pa	-35			dBm	
LOS De-assert	Pd			-22	dBm	2
LOS Hysteresis	Pd-Pa	0.5		6	dB	

Note (1): Measured with Light source 1550nm(1310nm), ER=9dB; BER =<10^{-12} @PRBS=2^7-1 NRZ. Note (2): When LOS de-asserted, the RX data+/- output is signal output.

Digital Diagnostic Functions

Arpers **GLC-BX-U55-COM&GLC-BX-D55-COM** transceivers support the 2-wire serial communicationprotocol as defined in the SFP MSA. It is very closely related to the E2PROM defined in the GBIC standard, with the same electrical specifications.

The standard SFP serial ID provides access to identification information that describes thetransceiver's capabilities,standard interfaces, manufacturer, and other information
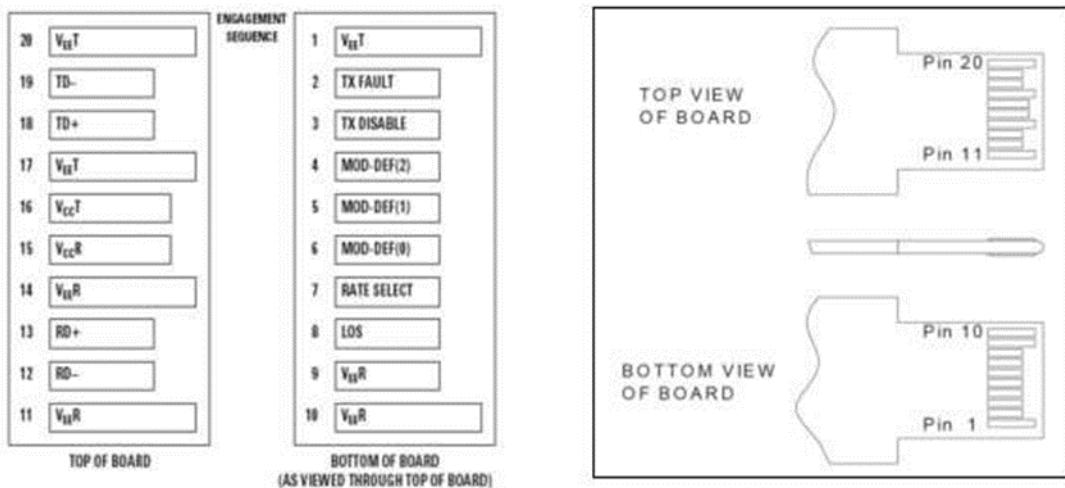
Additionally, ARPERS SFP transceivers provide a unique enhanced digital diagnostic monitoring interface, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage. It also defines a sophisticated system of alarm and warning flags, which alerts end-users when particular operating parameters are outside of a factory set normal range.

The SFP MSA defines a 256-byte memory map in E2PROM that is accessible over a 2-wire serial interface at the 8bit address 1010000X (A0h). The digital diagnostic monitoring interface makes use ofthe 8 bit address 1010001X (A2h), so the originally defined serial ID memory map remains unchanged.The interface is identical to, and is thus fully backward compatible with both the GBIC Specification and the SFP Multi Source Agreement.

The operating and diagnostics information is monitored and reported by a Digital Diagnostics Transceiver Controller (DDTC) inside the transceiver, which is accessed through a 2-wire serial interface. When the serial protocol is activated, the serial clock signal (SCL, Mod Def 1) is generated by the host. The positive edge clocks data into the SFP transceiver into those segments of the E2PROM that are notwrite-protected. The negative edge clocks data from the SFP transceiver. The serial data signal (SDA, Mod Def 2) is bi-directional for serial data transfer. The host uses SDA in conjunction with SCL to mark the start and end of serial protocol activation. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially.

Digital diagnostics for the **GLC-BX-U55-COM&GLC-BX-D55-COM** are Internally calibrated by default.

Pin Definitions and Functions

| PIN #	Name	Function	Notes
1	VeeT	Module transmitter ground	Note1
2	Tx Fault	Module transmitter fault	Note 2
3	Tx Disable	Transmitter Disable; Turns off transmitter laser output	Note 3
4	SDL	2 wire serial interface data input/output (SDA)	
5	SCL	2 wire serial interface clock input (SCL)	
6	MOD-ABS	Module Absent, connect to VeeR or VeeT in the module	Note 2
7	RS0	Rate select0,optionally control SFP+ receiver. When high, input data rate >4.5Gb/s;when low, input data rate <=4.5Gb/s	
8	LOS	Receiver Loss of Signal Indication	Note4
9	RS1	Rate select0,optionally control SFP+ transmitter. When high, input data rate >4.5Gb/s,when low, input data rate <=4.5Gb/s	
10	VeeR	Module receiver ground	Note 1
11	VeeR	Module receiver ground	Note 1
12	RD-	Receiver inverted data out put	
13	RD+	Receiver non-inverted data out put	
14	VeeR	Module receiver ground	Note 1
15	VccR	Module receiver 3.3V supply	
16	VccT	Module transmitter 3.3V supply	
17	VeeT	Module transmitter ground	Note 1
18	TD+	Transmitter inverted data out put	
19	TD-	Transmitter non-inverted data out put	
20	VeeT	Module transmitter ground	Note1
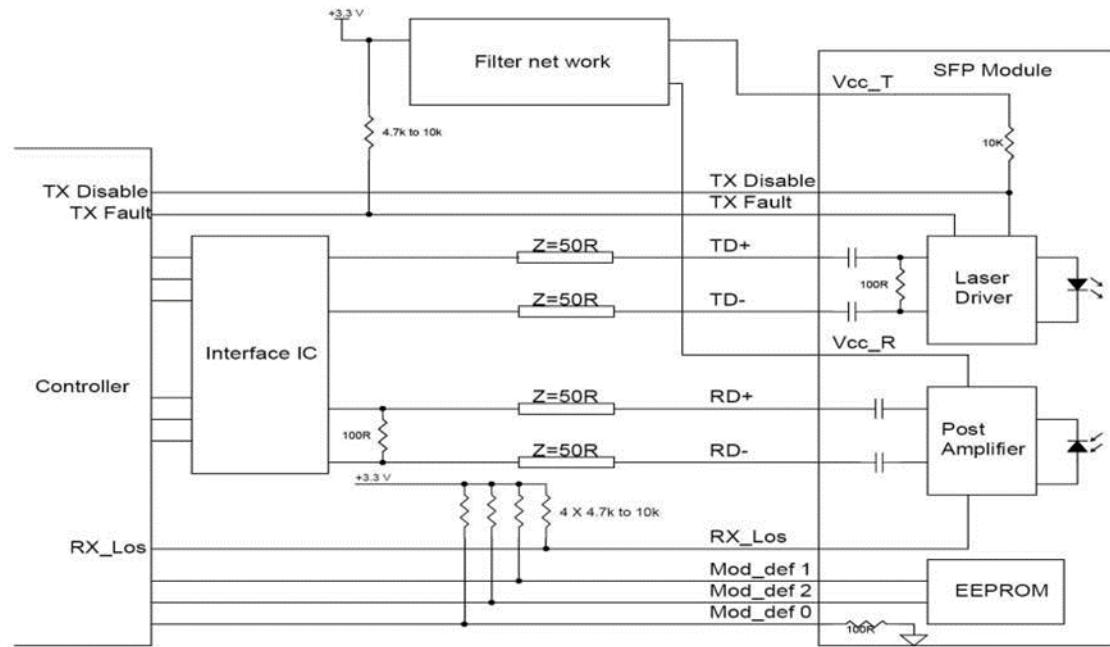
Note 1) The module ground pins shall be isolated from the module case.
Note 2) This pin is an open collector/drain output pin and shall be pulled up with 4.7K-10Kohms to Host_Vcc on the host board.
Note 3) This pin shall be pulled up with 4.7K-10Kohms to VccT in the module.
Note 4) This pin is an open collector/drain output pin and shall be pulled up with 4.7K-10Kohms to Host_Vcc on the host board. In FC designated as RX_LOS, inSONET designated as LOS, and in Ethernet designated at Signal Detect.
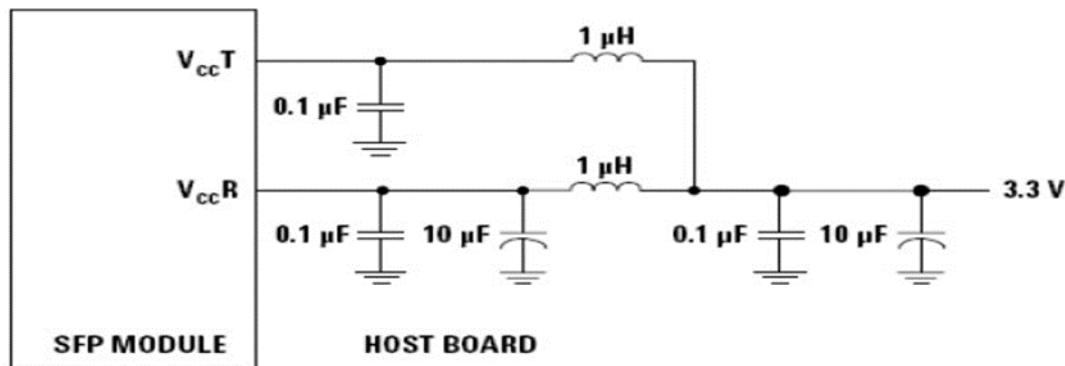
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Typical Interface Circuit
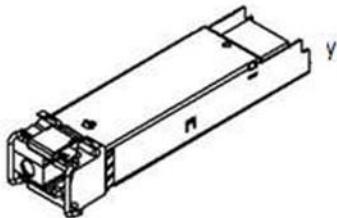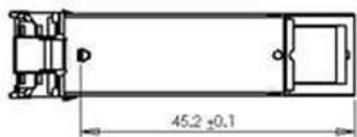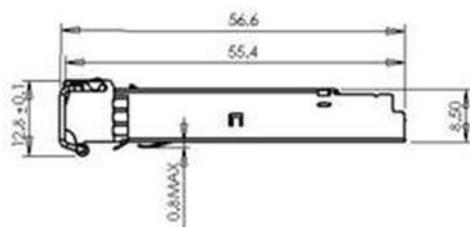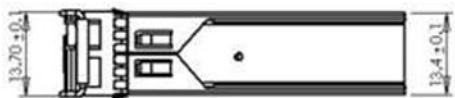
Recommended power supply filter

Note: Inductors with DC resistance of less than 1Ω should be used in order to maintain the required voltage at the SFP input pin with 3.3V supply voltage. When the recommended supply filtering network is used, hot plugging of the SFP transceiver module will result in an inrush current of no more than 30 mA greater than the steady state value

Mechanical Dimensions

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