GBIC Transceiver

Features:

- Widely Operating Temperature
- Hot-pluggable capability
- MQW FP Structure or DFB Laser or VCSEL
- Duplex SC connector
- Single +5V or +3.3V supply & PECL or LVPECL interface
- Class 1 Laser Safety Compliance
- Detailed product information in EEPROM
- Excellent EMI & ESD protection
- Compliant with GBIC MSA specification, Rev 5.5
- Compliant with Fiber Channel ANSI specifications for 1.0625 G band

Applications:

- ATM
- SONT/SDH/PDH
- FDDI
- Fiber Channel（1062.5M）

Function description：

The GBIC transceivers offer a simple and convenient way to interface 1000 BASE boards running at OC-3/OC-24 to single mode and Multi –mode fiber optic cables. All modules satisfy Class I Laser Safety requirements in accordance with the international IEC-825 standards.

The transmit and receive functions are contained in a GBIC 20 pin package with a Duplex SC connector interface. The transmitter incorporates a highly reliable 1310 nm or 1550 nm Laser (FP laser for Intermediate distance and DFB laser for intermediate or long distance) or VCSEL (for short distance) and a driver circuit that converts Pseudo Emitter Coupled Logic (PECL) data to light. The receiver incorporates an efficient InGaAs/InP PIN photodiode or VCSEL receiver converting the light signal into an electrical current that is amplified and regenerated into PECL-compatible data. The transimpedance amplifier IC has internal AGC for wide dynamic range. A Signal Detect status output flag is also provided.

The transceiver operates from a single +5V or +3.3V power supply over an operating temperature range of - 40°C to +85°C. The transceiveruses the GBIC 20-pin connector to allow hot plug capability. Detailed product information in EEPROM is offered.

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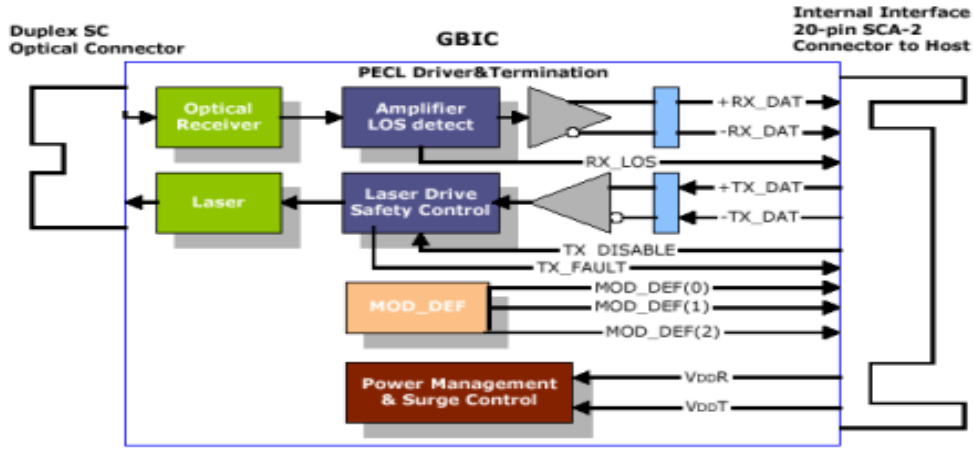
Function Block Diagram:



Specifications:

Absolute Maximum Ratings				
Parameter	Symbol	Min	Max	Unit
Supply Voltage	VCC	0	+6.0/+3.6	V
Operating Temperature	T_{OP}	-40	+85	℃

Recommended Operating Conditions				
Parameter	Symbol	Min	Max	Unit
Supply Voltage	VCC	+4.75/+3.1	+5.25/+3.6	V
Operating Temperature	T_{OP}	0	+75	℃

Optical characteristics

Parameter	Symbol		Min	Typical	Max	Unit
Transmitter						
Optical output	P_0	1	0	+1	+3	dBm
		2	-5	-3	0	
		3	-8	-6	-5	
		4	-15	-10	-8	
Extinction ratio	ER		10	-	-	dB
Optical wavelength	λ	1*	1270	1310	1340	nm
		2*	1530	1550	1570	
		3*	820	850	870	
Spectral width	Δλ	FP	-	-	4	nm
		DFB	-	-	1	
		VCSEL	-	-	1	
Rise time	Tr		-	-	500	ps
Fall time	Tf		-	-	500	ps

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Transmitter outout eye	compliant with Eye Mask Defined in 802.3z standard					
Receiver						
Sensitivity	Sen	1*	-20	-	-	dBm
		2*	-22	-	-	
		3*	-19	-	-	
Saturation	-		-3	-	-	dBm
Optical wavelength	λ	1*	1100	-	1600	nm
		2*	1100	-	1600	
		3*	770	-	860	
Signal detect asserted	P_A	1*	-	-	-20	dBm
		2*	-	-	-22	
		3*	-	-	-19	
Signal detect deasserted	P_D		-38	-	-	dBm
Electrical characteristics						
Parameter	Symbol		Min	Typical	Max	Unit
Transmitter						
Data rate (NRZ)	B		-	1250	-	Mb/s
				1062.5		
Supply voltage	V_{CCT}		+4.75/+3.1	+5/+3.3	+5.25/+3.6	V
Supply current	I_{CCT}		-	70	120	mA
Input HIGH Voltage	V_{IH}		V_{CCT}-1.165	-	V_{CCT} -0.700	V
Input LOW Voltage	V_{IL}		V_{CCT} -1.890	-	V_{CCT} -1.475	V
Receiver						
Data rate (NRZ)	B		-	1250	-	Mb/s
			-	1062.5	-	
Supply voltage	V_{CCR}		+4.75/+3.1	+5.0/+3.3	+5.25/+3.6	V
Suplly current	I_{CCR}		-	80	130	mA
PECL Output High	V_{OH}		V_{CCR} -1.025	-	V_{CCR} -0.880	V
PECL Output LOW	V_{OL}		V_{CCR} -1.810	-	V_{CCR} -1.620	V
Deterministic jitter	DJ		-	-	200	ps
Random jitter	RJ		-	-	100	ps

(1*-1310nm;2*-1550nm;3*-850nm over operating case temperature ,VCC=+4.75V~+5.25V)

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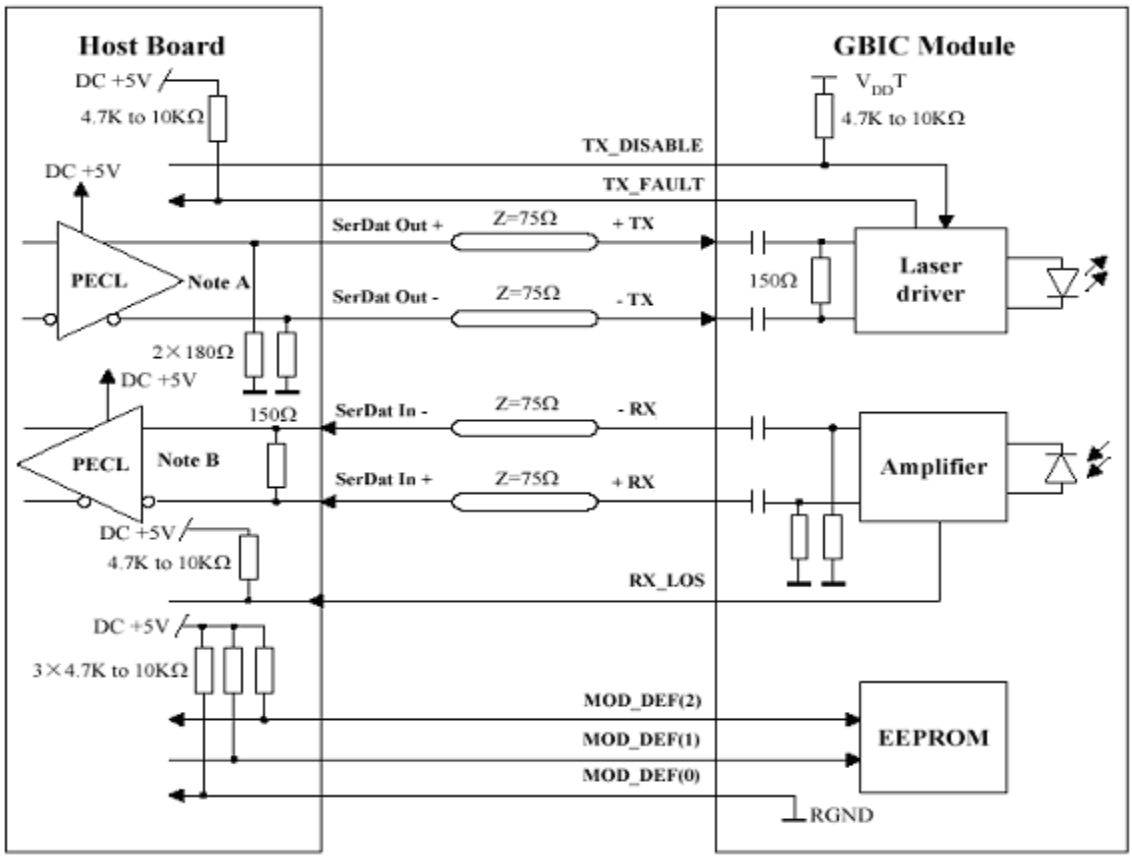
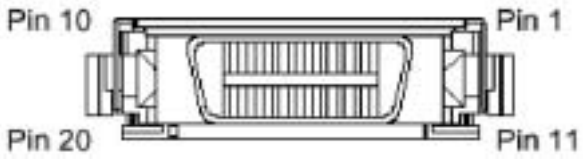
Recommended Circuit：



Note A: Circuit assumes open emitter output

PIN description：



Pin Name	PIN	Name/Function
GNDR	2, 3, 11, 14	Receiver Ground
VCCR	15	Receiver Supply Voltage
RX-	12	Receiver Data, Differential PECL
RX+	13	Receiver Data, Differential PECL
RX_LOS	1	Receiver Loss of Signal, logic high, open collector compatible, 4.7K to 10K Ohm pull up to VCCR on host
GNDT	8, 9, 17, 20	Transmitter Ground
VCCT	16	Transmitter Supply Voltage
TX+	18	Transmit Data, Differential PECL
TX-	19	Transmit Data, Differential PECL

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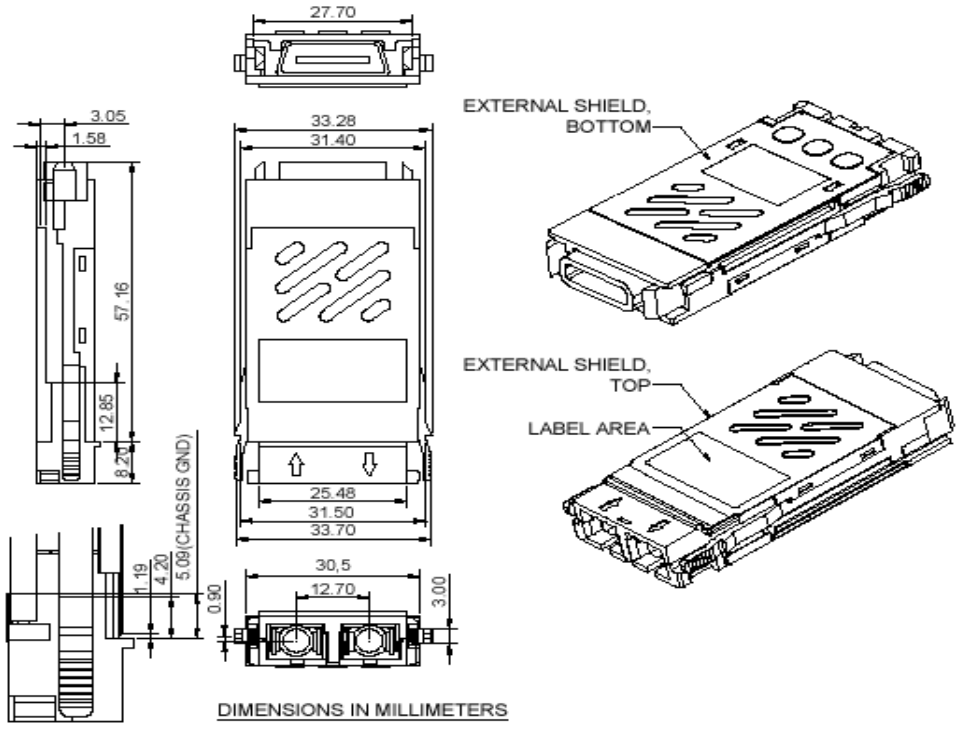
TX_Disable	7	Transmitter Disable, logic high, open collector compatible, 4.7K to 10K Ohm pull up to VCCT on GBIC
TX_Fault	10	Transmitter Fault, logic high, open collector compatible, 4.7K to 10K Ohm pull up to VCCT on host
MOD_DEF0	4	GBIC module definition and presence, bit 0, 4.7K to 10K Ohm pull up to VCCT on host
MOD_DEF1	5	GBIC module definition and presence, bit 1, 4.7K to 10K Ohm pull up to VCCT on host
MOD_DER2	6	GBIC module definition and presence, bit 2, 4.7K to 10K Ohm pull up to VCCT on host

Dimensions configuration：



Ordering Information：

Model	Rate	Optical source	Receptacle	Voltage	Distance
T	□□□	—□□	—□□	—□□	—□□(□)
T=Transceiver	155=155Mbs	V8=850nm VCSEL	SC=SC	3v=3.3v	550=550m
	125=1.25Gbs	E3=1310nm LED	FC=FC	5v=5v	02=2Km
		F3=1310nmFP LD	ST=ST	XX=3.3v/5v	20=20Km
		F5=1550nmFP LD	BS=SC Bi-Di		40=40Km
		D3=1310nmDFB LD	BL=LC SFP Bi-Di		60=60Km
		D5=1550nmDFB LD	GB=SC GBIC		80=80Km
			LC=SFP LC		100=100Km

For example：T125-F3-GB-3V-20

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