

DATASHEET

DESCRIPTION:

PeakOptical®'s GBIC CWDM Transceiver products provide optical networking equipment manufacturers with a timely and cost effective tool in supporting the unceasing demand for higher bandwidth equipment build-outs in the enterprise access and metropolitan area networks. There are 18 center wavelengths available from 1270nm to 1610nm. The 20nm channel spacing allows for un-cooled laser operation. The receiver uses APD receiver. A PECL logic interface simplifies interface to external circuitry. A high yield manufacturing process, and lower cost mux-demux technology; thus providing a complete cost effective solution for various data and telecom applications.

FEATURES:

- 18 Wavelengths CWDM Transceivers
- Single +5V Power Supply
- Duplex SC Connector, Hot-Pluggable
- 32dB Power Budget with APD receiver
- Operating Temperature from 0°C to +70°C
- Compliant with Telcordia (Bellcore) GR-468-CORE
- Compliant with Gigabit Interface Converter Specification Rev.5.5
- Compliant with Specifications for IEEE-802.3
- Compliant with ITU-T G.694.2
- RoHS Compliant Parts

APPLICATIONS:

- Gigabit Ethernet Links
- High Speed I/O for File Servers
- Switch to Switch Interface
- CWDM Network

SPECIFICATIONS:

Electrical and Optical Characteristics: (Condition: $T_a=T_{OP}$)

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter Differential Input Voltage	+/-TX_DAT	650		2000	mV p-p
Supply Current	I_{CC}		250	300	mA
Tx_Disable Input Voltage – Low	V_{IL}	0		0.8	V
Tx_Disable Input Voltage – High	V_{IH}	2.0		V_{CC}	V
Tx_Fault Output Voltage – Low	V_{OL}	0		0.8	V
Tx_Fault Output Voltage – High	V_{OH}	2.0		V_{CC}	V
Receiver Differential Output Voltage	+/-RX_DAT	0.4		2000	mV p-p
Rx_LOS Output Voltage- Low	V_{OL}	0		0.8	V
Rx_LOS Output Voltage- High	V_{OH}	2.0		V_{CC}	V

Transmitter Section:

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	1250	-	Mb/s
Center Wavelength(0~70°C)	λ_c	$\lambda-5.5$	λ	$\lambda+7.5$	nm
Output Spectral Width(-20dB)	$\Delta\lambda$	-	-	1	nm
Average Output Power	P_o	0	-	+5	dBm
Extinction Ratio	E.R.	9	-	-	dB
Max. P_{out} TX_DISABLE Asserted	P_{Off}	-	-	-35	dBm
Optical Rise / Fall Time	T_r / T_f	-	-	0.26	ns
Output Optical Eye	Compliant with IEEE802.3				

Receiver Section:

Parameter	Symbol	Min.	Typical	Max.	Unit
Operation Wavelength	λ	1100	-	1650	nm
Receiver Optical Input Power		-36		-7	dBm
Receiver Reflectance		17			dB
Receiver overload	Pol			-7	dBm
RX Sensitivity	Sen			-32	dBm
RX_LOS Assert Level	LOS A	-39	-36	-35	dBm
RX_LOS Deassert Level	LOS D	-37	-36	-35	dBm
RX_LOS Hysteresis	LOS H		2	2.5	dB
Dispersion Penalty			2	2.5	dB
Total System Budget	LB	35			dB

Absolute Maximum Ratings:

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T _{ST}	-40	+85	°C
Operating Temperature	T _{IP}	0	+70	°C
Supply Voltage	V _{CC}	0	+6	V
Input Voltage	V _{IN}	0	V _{CC}	V
Soldering Temperature & Time	-		240/10	°C/S

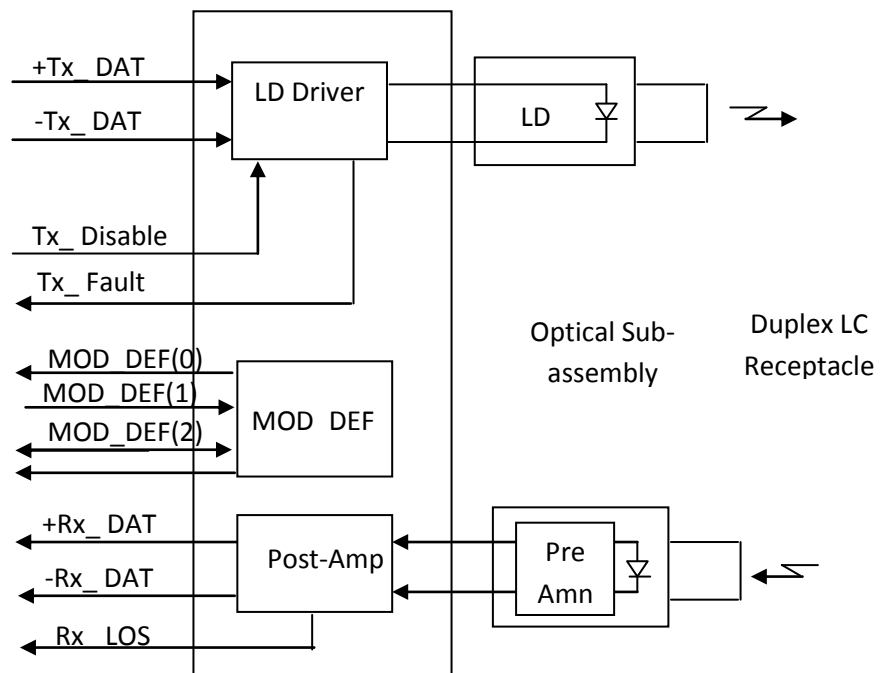
Recommended Operating Environment:

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	V _{CC}	+4.75	+5	+5.25	V
Operating Temperature	T _{OP}	0	-	+70	°C
Power Supply Rejection		100			mVP-P

Specifications (T=25 °C, BOL ,unless otherwise noted)

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply current	ID D T + I D DR			300	mA
TTL LOS output					
Output Low	VOL	0		0.5	V
Output high	VOH	3		VCC+0.5	

Block Diagram of Transceiver:



Pinout Table:

Pin	Signal Name	I/O Typ.	Functional Description
1	RX_LOS	Output	Receiver Loss of Signal, Logic high, Open collector compatible 4.7K to 10K Ohm pull up to V _{DD} T on host.
2	RGND		Receiver Ground
3	TGND		Receiver Ground
4	MOD_DEF(0)	Output	Module Definition 0 TTL Low
5	MOD_DEF(1)	Input	Module Definition 1 Two wire serial ID interface SCL, 4.7K to 10K Ohm pull up to V _{DD} T on host
6	MOD_DEF(2)	I/O	Module Definition 2 Two wire serial ID interface SDA, 4.7K to 10K Ohm pull up to V _{DD} T on host
7	TX_DISABLE	Input	Transmitter Disable – Module disable on high or open .
8	TGND		Transmitter Ground
9	TGND		Transmitter Ground
10	TX_FAULT	Output	Transmitter Fault Indication, Logic high, open collector Compatible , 4.7K to 10K Ohm pull up to V _{DD} T on host
11	RGND		Receiver Ground
12	/RX_DAT	Output	Inverse Received Data Out, Differential PECL, at AC couple
13	+RX_DAT	Output	Received Data Out, Differential PECL, at AC couple
14	RGND		Receiver Ground
15	VDDR	Input	Receiver Power
16	VDDT	Input	Transmitter Power
17	TGND		Transmitter Ground
18	+TX_DAT	Input	Transmitter Data In, Differential PECL, AC couple
19	/TX_DAT	Input	Inverse Transmitter Data In, Differential PECL, AC couple
20	TGND		Transmitter Ground

GBIC Serial ID Memory Contents:

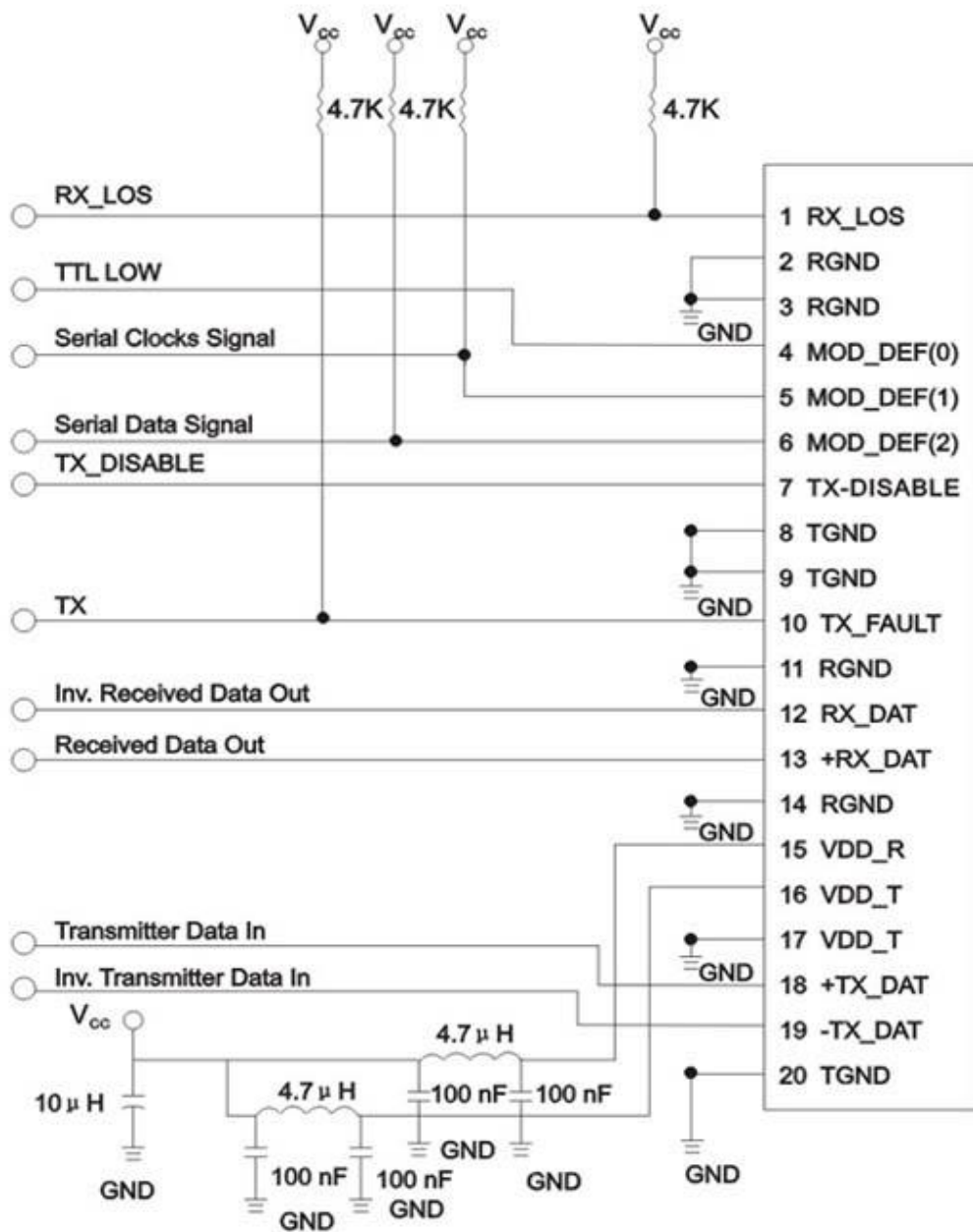
Data Address	Length (Byte)	Name of Length	Description and Contents
Base ID Fields			
0	1	Identifier	Type of Serial transceiver (01h=GBIC)
1	1	Reserved	Extended identifier of type serial transceiver (06h)
2	1	Connector	Code of optical connector type (01=SC)
3-10	8	Transceiver	Gigabit Ethernet 1000Base-ZX & Fiber Channel
11	1	Encoding	8B10B (01h)
12	1	BR,Nominal	Nominal baud rate, unit of 100Mbps
13-14	2	Reserved	(0000h)
15	1	Length(9um)	Link length supported for 9/125um fiber, units of 100m
16	1	Length(50um)	Link length supported for 50/125um fiber, units of 10m
17	1	Length(62.5um)	Link length supported for 62.5/125um fiber, units of 10m
18	1	Length(Copper)	Link length supported for copper, units of meters
19	1	Reserved	
20-35	16	Vendor Name	GBIC vendor name: PeakOptical®
36	1	Reserved	
37-39	3	Vendor OUI	GBIC transceiver vendor IEEE company ID
40-55	16	Vendor PN	Part Number: "PCGBC-xxxxxx" (ASCII)
56-59	4	Vendor rev	Revision level for part number
60-62	3	Reserved	
63	1	CCID	Least significant byte of sum of data in address 0-62
Extended ID Fields			
64-65	2	Option	Indicates which optical GBIC signals are implemented (001Ah = LOS, TX_FAULT, TX_DISABLE all supported)
66	1	BR, max	Upper bit rate margin, units of %
67	1	BR, min	Lower bit rate margin, units of %
68-83	16	Vendor SN	Serial number (ASCII)
84-91	8	Date code	PeakOptical®'s Manufacturing date code
92-94	3	Reserved	
95	1	CCEX	Check code for the extended ID Fields (addresses 64 to 94)
Vendor Specific ID Fields			
96-127	32	Readable	PeakOptical® specific date, read only

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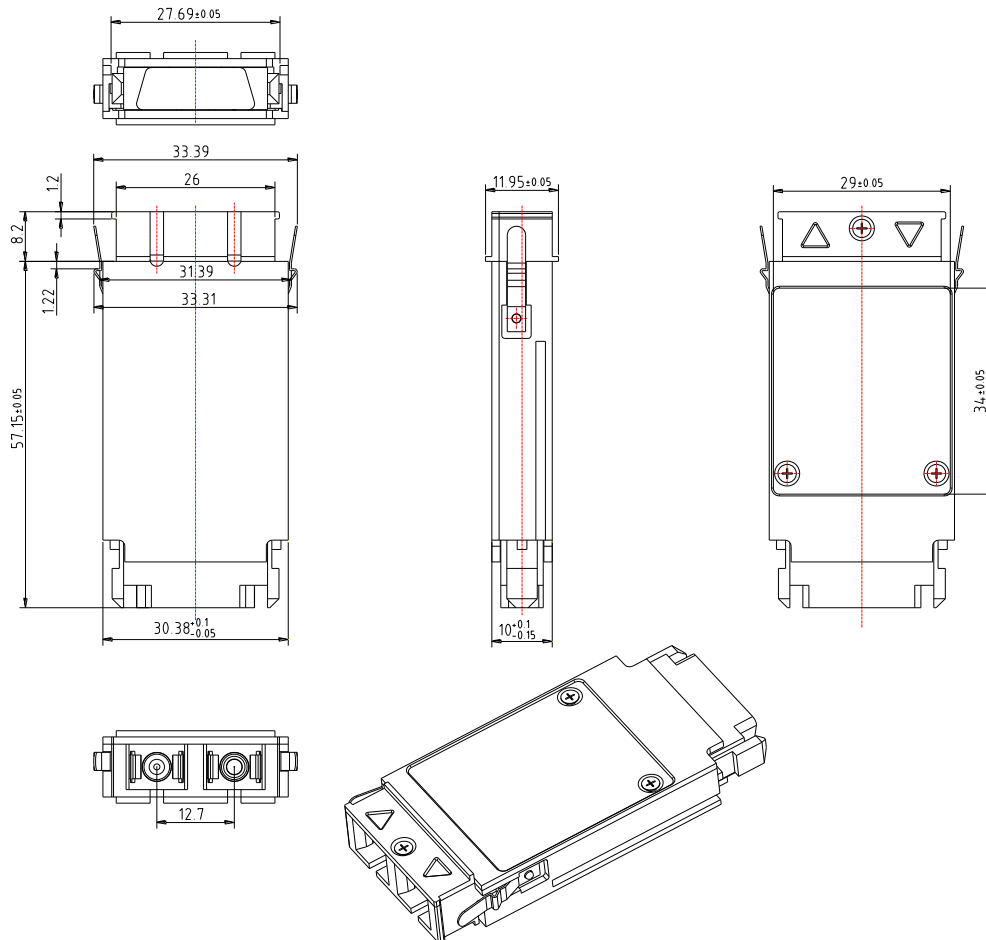
1.25Gb/s, Hot Pluggable, Duplex SC, +5V
1270~1610nm, DFB-LD CWDM GBIC Transceiver
PCGBC-24-0XX152F

Recommended Circuit:



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Mechanical Dimensions:



Note:

In the Part No. of PCGBC-24-0XX152, XX stands for wavelength, such as:

27: for 1270nm, 29: for 1290nm, 31: for 1310nm, 33: for 1330nm, 35: for 1350nm, 37: for 1370nm, 39: for 1390nm, 41: for 1410nm, 43: for 1430nm, 45: for 1450nm, 47: for 1470nm, 49: for 1490nm, 51: for 1510nm, 53: for 1530nm, 55: for 1550nm, 57: for 1570nm, 59: for 1590nm, 61: for 1610nm.