

DATASHEET

FEATURES:

- SM bi-directional Gigabit Interface Converters (GBIC)
- Compliant with Gigabit Interface Converter Specification Rev.5.5(1)
- Compliant with Specifications of IEEE-802.3
- SC Connector, Hot-Pluggable
- Data Rate: 1.25Gb/s, NRZ
- Compliant with ANSI Specifications for Fiber Channel Applications at 1.06Gb/s
- Eye Safety, Designed to Meet Laser Class1, Compliant with IEC60825-1
- TTL RX-LOS
- Single +3.3/5V Power Supply
- RoHS Compliant Products

APPLICATIONS:

- Gigabit Ethernet (1000Base-LX) Links at 1.25Gb/s
- Fiber Channel Links at 1.06Gb/s
- High Speed I/O for File Servers
- Switch to Switch Interface
- SONET/SDH Equipment Interconnect

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}		200	250	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: (PWTR-24-335116143F)

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	1250		Mb/s
Output Center Wavelength	λ_{ce}	1270	1310	1360	nm
Output Spectral Width	$\Delta\lambda(\text{RMS})$	-	-	3.5	nm
Average Optical Output Power	P_o	-9	-	-3.0	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

Receiver Section: (PWTR-24-335116143F)

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	1250	-	Mb/s
Receiver Sensitivity	P_{min}	-	-	-22	dBm
Maximum Input Power	P_{max}	-3	-	-	dBm
Signal Detect Thresholds	P_{H-L}	-33	-	-	dBm
	P_{L-H}	-	-	-23	dBm
Wavelength	λ_c	1480	-	1580	nm

Transmitter Section: (PWTR-24-353216143F)

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	1250		Mb/s
Output Center Wavelength	λ_{ce}	1480	1550	1580	nm
Output Spectral Width	$\Delta\lambda(-20\text{dB})$	-	-	1	nm
Average Optical Output Power	P_o	-9	-	-3	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

Receiver Section: (PWTR-24-353216143F)

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	1250	-	Mb/s
Receiver Sensitivity	P_{min}	-	-	-22	dBm
Maximum Input Power	P_{max}	-3	0	-	dBm
Signal Detect Thresholds	P_{H-L}	-33	-	-	dBm
	P_{L-H}	-	-	-23	dBm
Wavelength	λ_C	1270	-	1360	nm

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
Output Current	I_O	0	30	mA
Soldering Temperature & Time	-		240/10	°/S

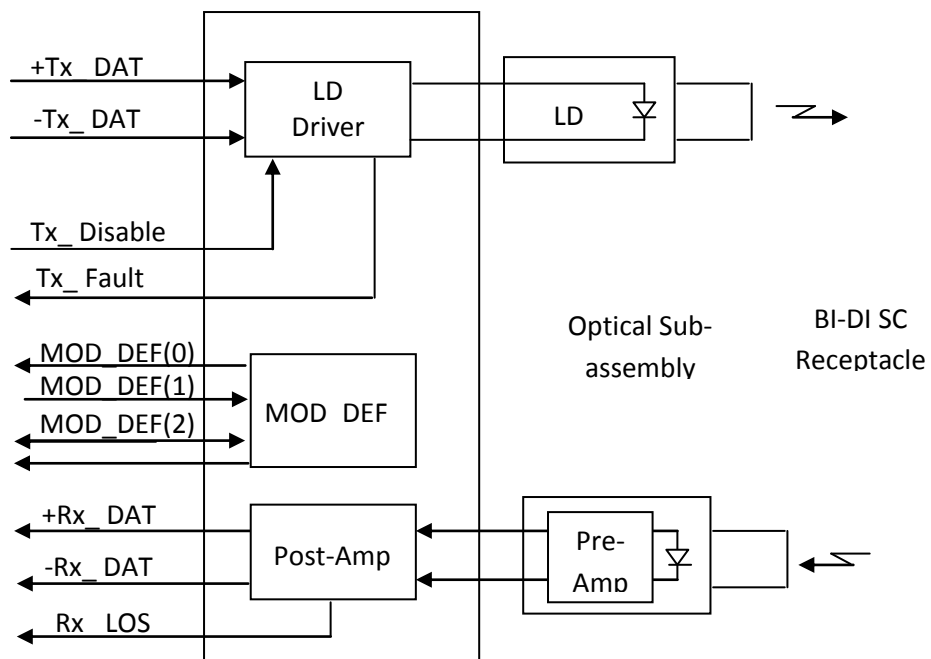
Recommended Operating Environment:

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V_{CC}	+3.1/4.75	+3.5/5.25	V
Ambient Operating Temperature	T_A	0	+70	°C

Timing Characteristics:

Parameter	Symbol	Min.	Typical	Max.	Unit
TX_DISABLE Assert Time	t _{off}	-	3	10	usec
TX_DISABLE Negate Time	t _{on}	-	0.5	1	msec
Time to Initialize Include Reset of TX_FAULT	t _{int}	-	30	300	msec
TX_FAULT from Fault to Assertion	t _{fault}	-	20	100	usec
TX_DISBEL Time to Start Reset	t _{reset}	10	-	-	usec
Receiver Loss of Signal Assert Time (Off to On)	T _{A,RX_LOS}	-	-	100	usec
Receiver Loss of Signal Assert Time (On to Off)	T _{d,RX_LOS}	-	-	100	usec

Block Diagram of Transceiver:



**Gigabit Interface Converter Transceiver**

Hot Pluggable, 1310/1550nm,

Single SC, +3.3V & 5V

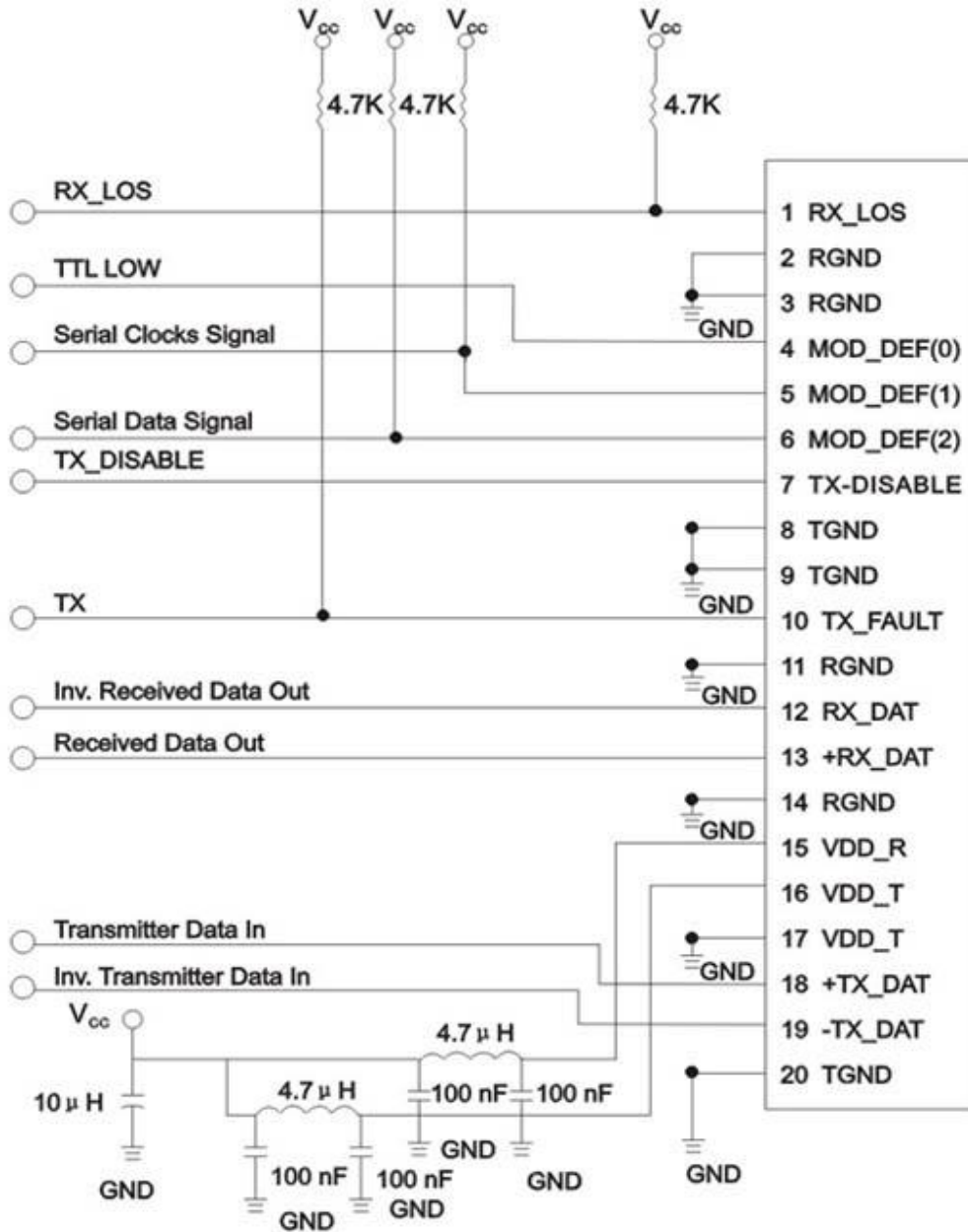
PWTR-24-335116143F/PWTR-24-353216143F**Pinout Table:**

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 (No Used)
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

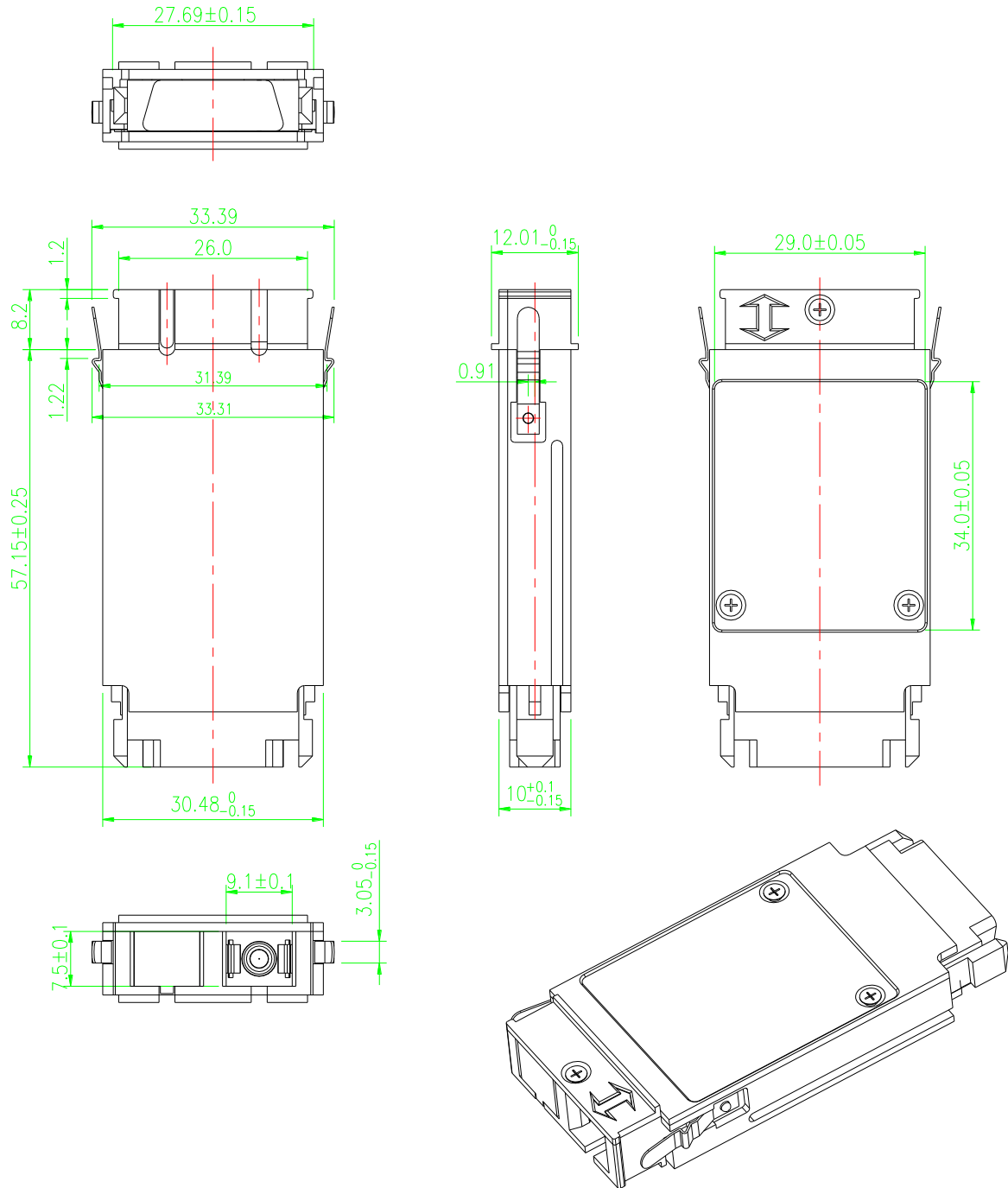
GBIC Serial ID Memory Contents:

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-SX & 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: "PWTR-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

Recommended Circuit:



Mechanical Dimensions:



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