preliminary

1.25Gbps Burst Mode GEPON ONU PX20
Small Form Factor BIDI Transceiver

Features

- Compliant with IEEE 802.3ah
- 1310nm DFB LD burst mode transmitter
- 1490nm PIN diode continuous mode receiver
- Industrial standard SFF MSA 2 X 5 pin footprint
- SC/ST/FC connector interface
- Transmitter disable function
- Receiver signal detect function
- LVPECL logic interface, DC or AC coupling
- Single supply 3.3V
- Transmission distance up to 20Km

Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Data Rate (NRZ)	B	-	1250	1300	Mb/s
Optical Output Power (avg.) (1) (2) (3)	P_O	-3	-	+2	dBm
Extinction Ratio	ER	6	-	-	dB
Optical Wavelength	λ_C	1270	1310	1360	nm
Spectral Width (-20dB)	$\Delta\lambda$	-	-	1	nm
Side Mode Suppression Ratio	SMSR	30	-	-	dB
Output Rise Time (20-80%)	t_r	-	-	0.26	ns
Output Fall Time (20-80%)	t_f	-	-	0.26	ns
Burst Turn On Time (8)	t_{burst_on}	-	-	64	ns
Burst Turn Off Time (8)	t_{burst_off}	-	-	64	ns
Burst Enable Time (8)	t_{burst_en}	600	-	-	ns
Burst Disable Time (8)	t_{burst_dis}	100	-	-	ns
Data Input (6)	V_{IL} V_{IH}	V_{CC} -1.810 V_{CC} -1.165	- -	V_{CC} -1.475 V_{CC} -0.88	V
Tx Disable Input	V_{DIL} V_{DIH}	0 2	- -	0.8 V_{CC}	V
Optical Output Power (avg.) of Tx Disable	P_{Off}	-	-	-45	dBm
Supply Voltage	V_{CC}	3.10	3.3	3.50	V
Supply Current	I_{CC}	-	-	110	mA

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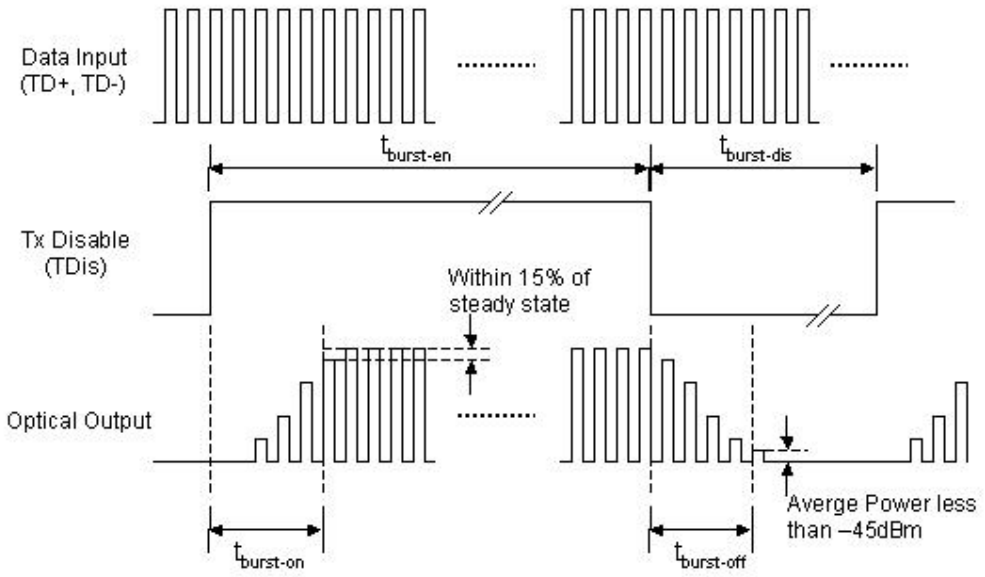
Parameter	Symbol	Min.	Typ.	Max.	Unit
Receiver					
Data Rate (NRZ)	B	-	1250	1300	Mb/s
Optical Input (avg.) Sensitivity (1) (5)	P_{IN}	-	-	-25	dBm
Saturation	P_{SAT}	-3	0	-	dBm
Optical Wavelength	λ	1480	-	1500	nm
Output Rise Time (20-80%)	t_r	-	-	0.4	ns
Output Fall Time (20-80%)	t_f	-	-	0.4	ns
Data Output (6)	V_{OL} V_{OH}	V_{CC} -1.840 V_{CC} -1.045	- -	V_{CC} -1.62 V_{CC} -0.88	V
Signal Detect Asserted (avg.)	P_A	-	-	-25	dBm
Signal Detect Deasserted (avg.)	P_D	-35	-	-	dBm
Hysteresis	P_{HYS}	-	2	-	dB
Supply Voltage	V_{CC}	3.10	3.3	3.50	V
Supply Current	I_{CC}	-	-	100	mA

Note:

(1) With 0.275 NA, 9/125μm fiber.
(2) Driven with a differential signal.
(3) Class 1 eye safe per FDA and IEC.
(4) Eye mask diagram is compliant to IEEE802.3ah Eye Diagram
(5) 2^7 -1 PRBS, BER= 10^{-12}.
(6) Compatible with LVPECL logic levels.
(7) The transmitter output should not be viewed directly.
(8) Timing parameter define：



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Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
Operating Temperature	0	70	°C
Storage Temperature	-40	85	°C
Lead Soldering Limits	-	240/10	°C/sec
Supply Voltage	-0.2	4	V

Ordering Information

SNS-TR31R49 - 3 - 3 - 2 □□□ 3 N □ 1

Data Coupling & SD Output Level：

Symbol	Tx Coupling	Rx Coupling	SD
C	AC	DC	PECL
D	AC	DC	TTL
E	AC	AC	PECL
F	AC	AC	TTL
G	DC	DC	PECL
H	DC	DC	TTL
I	DC	AC	PECL
J	DC	AC	TTL

Connector Type：
SC：SC Connector
FC：FC Connector
ST：ST Connector

Package Type：
P：Pigtail
R：Receptacle

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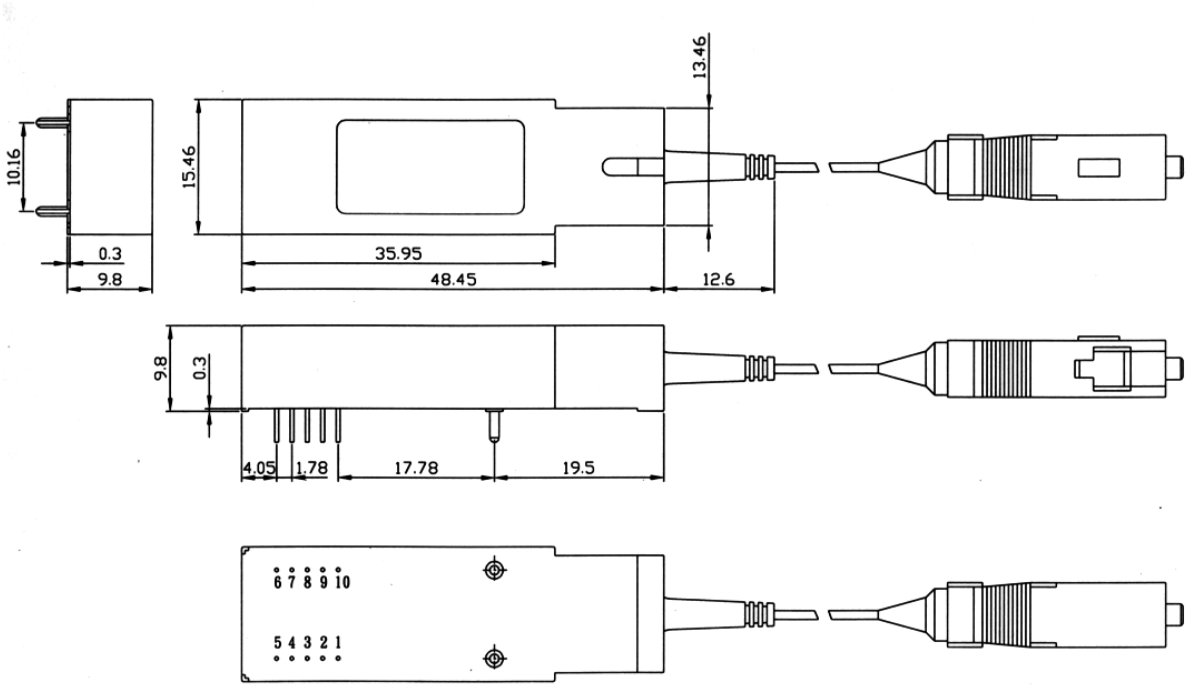
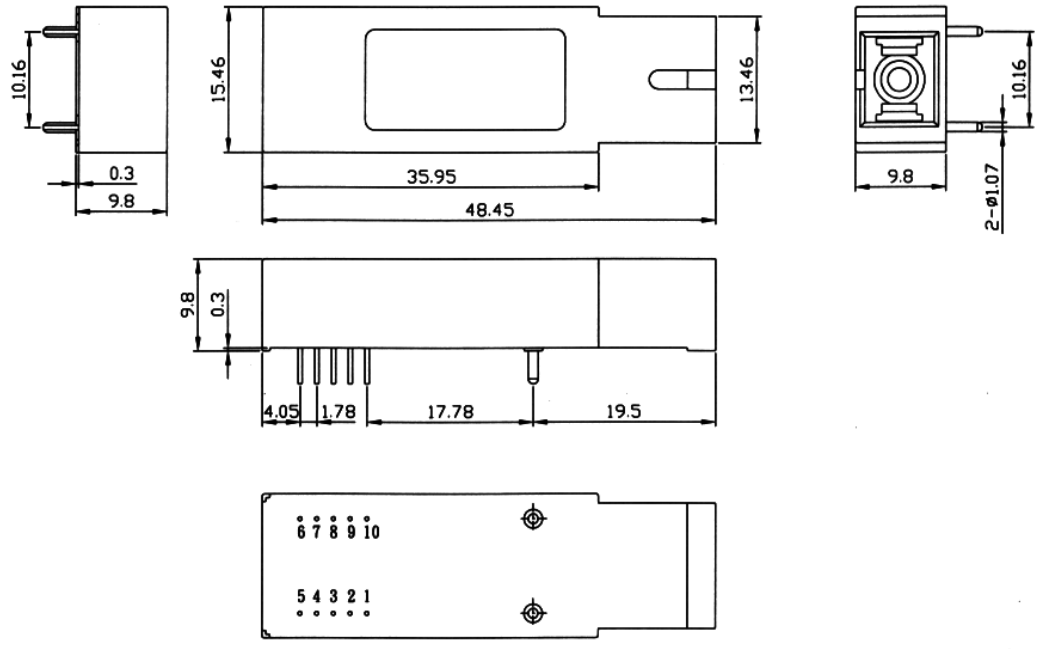
Outline Drawing

Pigtail 2x5 pins SFF



Receptacle 2x5 pins SFF



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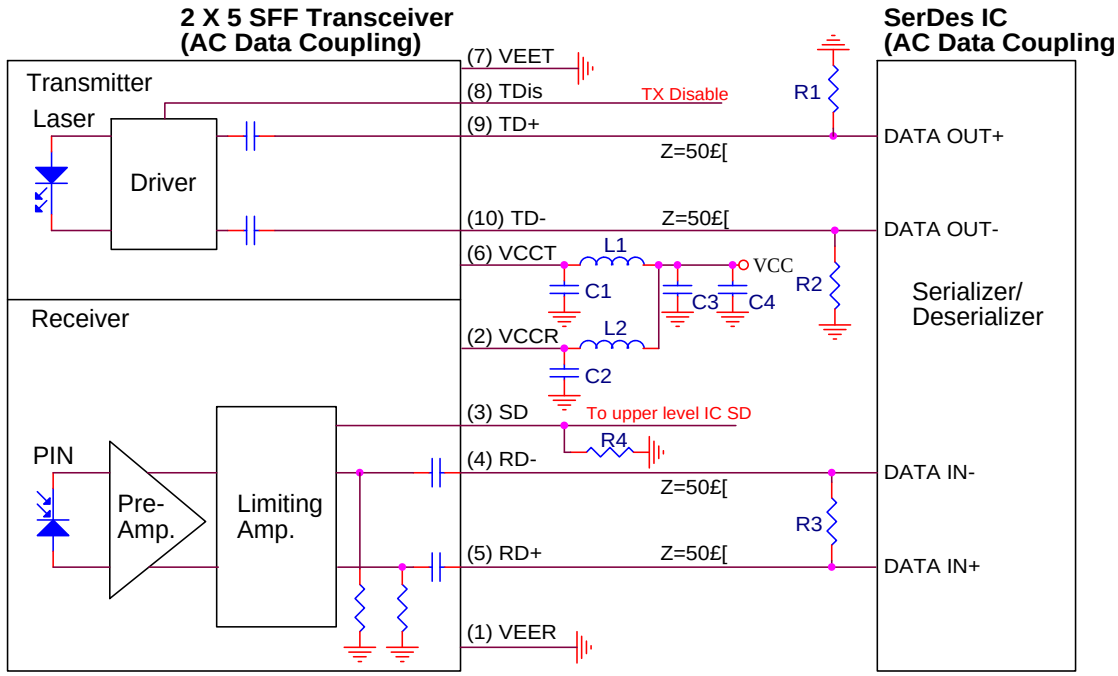
Pinout Description

Pin No.	Symbol	Description
1	V_{EER}	Receiver Ground
2	V_{CCR}	Receiver Power Supply (5V/3.3V)
3	SD	Receiver Signal Detect
4	RD-	Receiver Data Out (Inverted)
5	RD+	Receiver Data Out
6	V_{CCT}	Transmitter Power Supply (5V/3.3V)
7	V_{EET}	Transmitter Ground
8	TDis	Input Logic Low Level to Switch Laser “ON” Input Logic High Level to Switch Laser “OFF”
9	TD+	Transmitter Data in
10	TD-	Transmitter Data In (Inverted)

Application Notes

Recommended AC Coupling Interface Circuit：



L1=L2=1£gH or ferrite bead
C1=C2=C3=0.1£gF
C4=10£gF
R1, R2, R3 depends on SerDes IC specification.
(Consult the SerDes IC application information)
R4=510£[

NOTE¡G
1. Transmission line characteristic impedance Z=50£[.
2. R1, R2, R3 as close to SerDes IC as possible.

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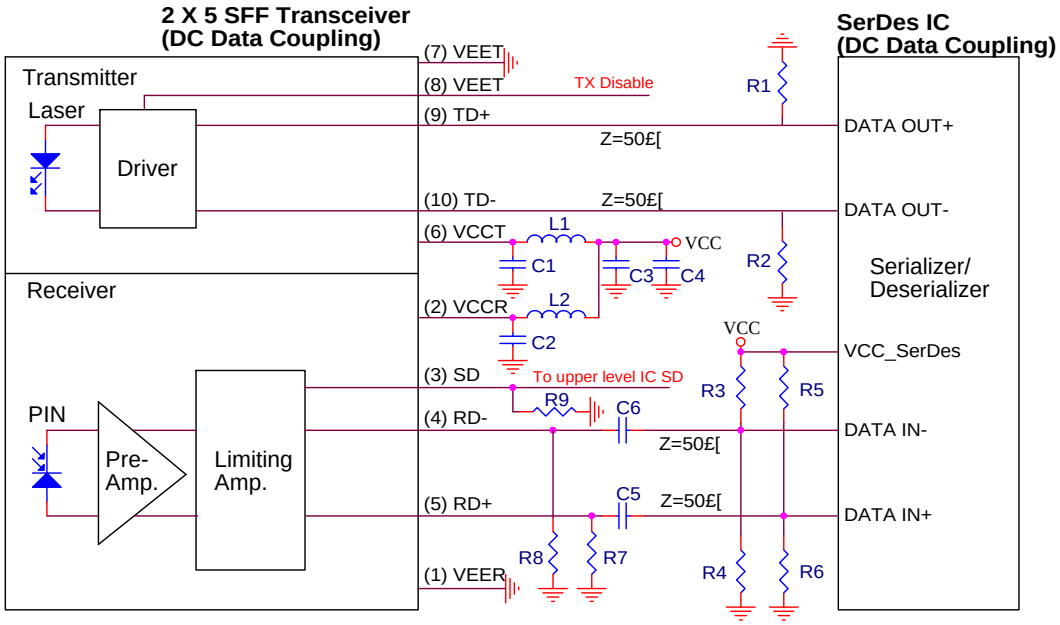
Recommended DC Coupling Interface Circuit：



L1=L2=1£gH or ferrite bead
C1=C2=C3=C5=C6=0.1£gF
C4=10£gF
R1, R2, R3, R4, R5, R6 depends on SerDes IC specification.
(Consult the SerDes IC application information)
R7=R8=270£[(VCC=3.3V)
=510£[(VCC=5V)
R9=510£[

NOTE¡G
1. Transmission line characteristic impedance Z=50£[.
2. R1, R2, R3, R4, R5, R6 as close to SerDes IC as possibl
3. R7, R8 as close to 1X9 Transceiver as possible.