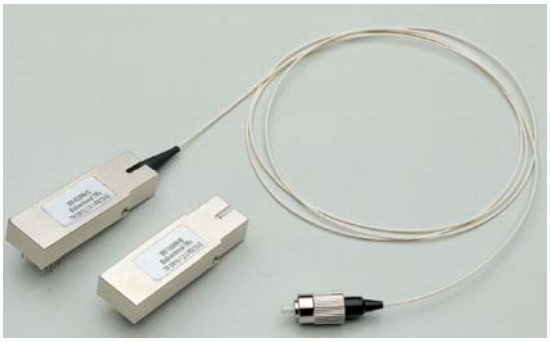
Singlemode 2.5Gbps Bi-Directional Single Fiber 2x5 SFF Optical Transceiver

Features

- Intermediate and long reach
- Industrial standard 2 x 5 pin footprint
- Single SC Receptacle
- Single Pigtailed SC/ST/FC connector interface
- Transmitter disable function
- Receiver signal detect function
- Wide dynamic rang receiver with AGC
- LVPECL logic interface, AC coupling
- Single supply 3.3V
- Low power consumption



Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Data Rate (NRZ)	B	-	2500	-	Mb/s
Optical Output Power (avg.) [(1) (3)]					
-1	Po	-10	-	-5	dBm
-2	Po	-5	-	0	dBm
Extinction Ratio	ER	9	-	-	dB
Optical Wavelength					
TR13R15 (1310nm FP LD)	λ_C	1260	1310	1360	nm
TR31R15 (1310nm DFB LD)	λ_C	1290	1310	1330	nm
TR55R13 (1550nm DFB LD)	λ_C	1530	1550	1570	nm
Spectral Width					
TR13R15 (RMS)	$\Delta\lambda$	-	1.0	2.5	nm
TR31R15 (-20dB) TR55R13 (-20dB)	$\Delta\lambda$	-	-	1	nm
Side Mode Suppression Ratio					
TR31R15 TR55R13	SMSR	30	-	-	dB
Output Rise Time (20-80%)	t_r	-	-	180	ps
Output Fall Time (20-80%)	t_f	-	-	180	ps
Data Input [(6)]	V_{IL} V_{IH}	V_{CC} -1.810 V_{CC} -1.165	- -	V_{CC} -1.475 V_{CC} -0.880	V
Tx Disable Input	V_{DIL} V_{DIH}	0 2	- -	0.8 V_{CC}	V
Supply Voltage	V_{CC}	2.97	3.3	3.63	V
Supply Current	I_{CC}	-	-	120	mA

Parameter	Symbol	Min.	Typ.	Max.	Unit
Receiver					
Data Rate (NRZ)	B	-	2500	-	Mb/s
Optical Input (avg.) Sensitivity (1) (5)					
-1	P_{IN}	-	-	-15	dBm
Saturation	P_{SAT}	-3	0	-	dBm
Optical Wavelength					
TR13R15 TR31R15	λ	1100	1310	1350	nm
TR15R13 TR55R13	λ	1500	1550	1600	nm
Output Rise Time (20-80%)	t_r	-	-	120	ps
Output Fall Time (20-80%)	t_f	-	-	120	ps
Data Differential Output Voltage	V_o	600	-	1200	mV_{p-p}
LOS Output	V_{LOSL} V_{LOSH}	0 2.4	- -	0.4 V_{CC}	V
Supply Voltage	V_{CC}	3.1	3.3	3.5	V
Supply Current	I_{CC}	-	-	120	mA
Optical Cross Talk	CT	20	-	-	dB

Notes：

(1) With 0.275 NA, 9/125μm fiber.
(2) Driven with a differential signal.
(3) Class 1 eye safe per FDA and IEC.
(4) Transmitter eye mask diagram is compliant to ITU-T G.957 Eye Diagram.
(5) 2^{23} -1 PRBS, BER= 10^{-10}.
(6) Compatible with LVPECL logic levels.
(7) The transmitter output should not be viewed directly.

Absolute Maximum Ratings

Parameter		Min.	Max.	Unit
Operating Temperature	-1	0	70	°C
	-2	-40	85	°C
Storage Temperature		-40	100	°C
Lead Soldering Limits		-	240/10	°C /sec
Supply Voltage	3.3V	-0.5	4	V

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Ordering Information

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Operating Temperature Range：
1：0 ~ 70°C
2：-40 ~ 85°C

Data Coupling & SD Output Level：

Symbol	Tx Coupling	Rx Coupling	SD
F	AC	AC	TTL

Supply Voltage：
3：3.3V

Connector Type：
SC：SC Connector
FC：FC Connector only for pigtail
ST：ST Connector only for pigtail

Package Type：
P：Pigtail
R：Receptacle

Sensitivity Grade：
(refer to Specifications)
1：-1

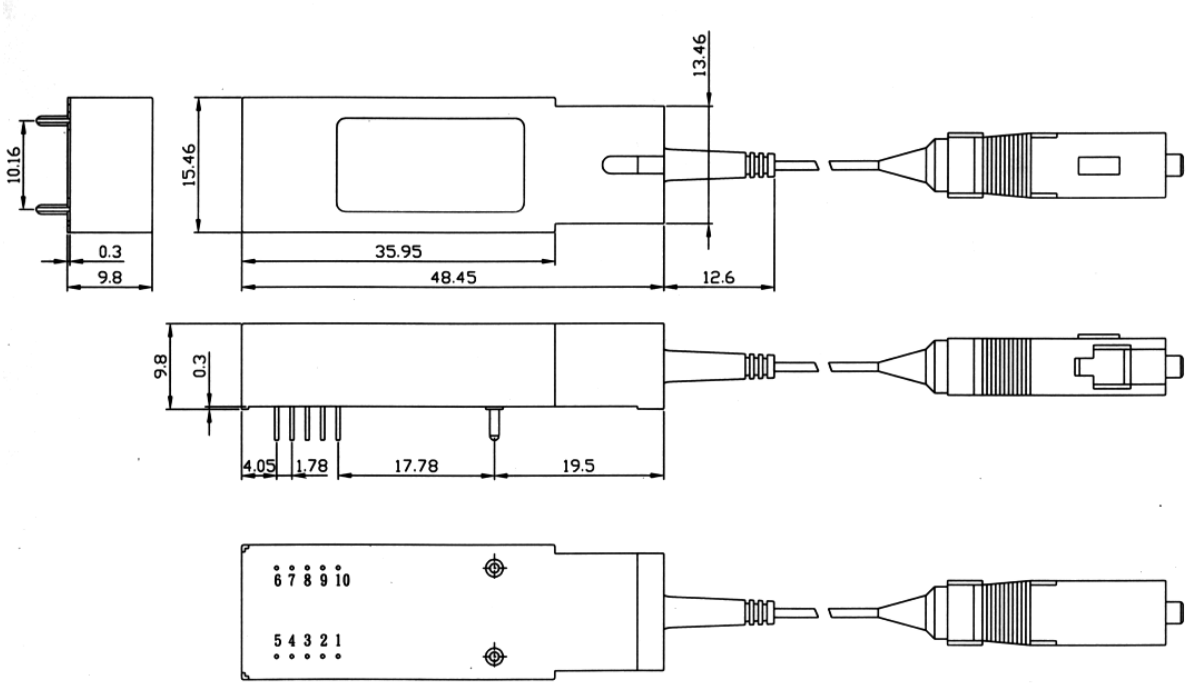
Tx Output Power Grade：
(refer to Specifications)
1：-1
2：-2

Receiver Wavelength / Laser Type：
13：1310nm (FP LD)
31：1310nm (DFB LD)
55：1550nm (DFB LD)

Transmitter Wavelength / Laser Type：
13：1310nm (FP LD)
31：1310nm (DFB LD)
55：1550nm (DFB LD)

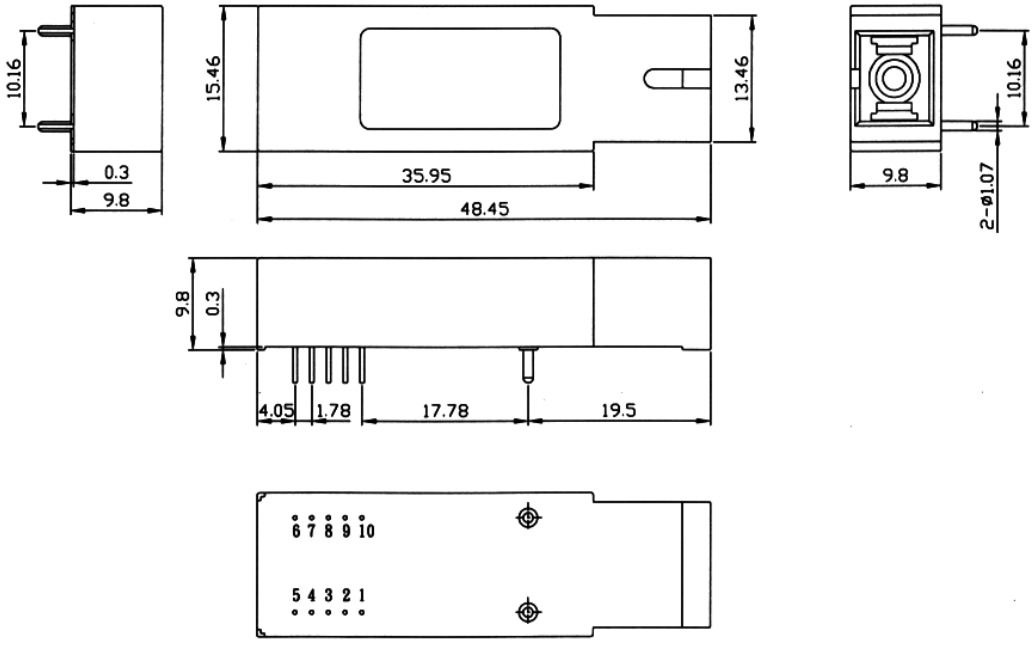
Outline Drawing

Pigtail 2x5 pins SFF



UNIT：mm

Receptacle 2x5 pins SFF



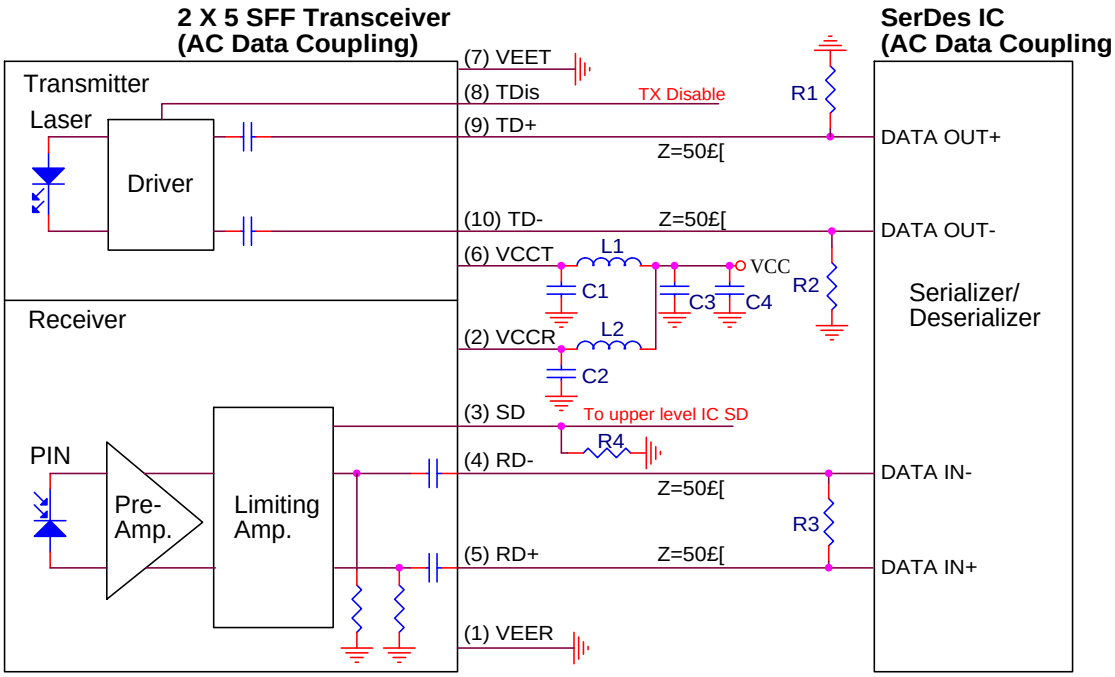
UNIT：mm

Pinout Description

Pin No.	Symbol	Description
1	V_{EER}	Receiver Ground
2	V_{CCR}	Receiver Power Supply (3.3V)
3	SD	Receiver Signal Detect
4	RD-	Receiver Data Out (Inverted)
5	RD+	Receiver Data Out
6	V_{CCT}	Transmitter Power Supply (/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.