Multimode 155Mbps 2x10 SFF Optical Transceiver

Features

- LC duplex receptacle
- Standard 2 x 10 footprint
- 850nm VCSEL transmitter with automatic power control
- Laser bias and power monitor
- AC or DC coupled LVPECL/PECL compatible data input and output
- Transmitter disable input
- PECL or TTL signal detect output
- Single 3.3V or 5V power supply

Specifications

Parameter		Symbol	Min.	Typ.	Max.	Unit
Transmitter						
Data Rate (NRZ)		B	10	155	200	Mb/s
Optical Output Power (avg.) (1) (2) (3)		P_o	-9	-	-3	dBm
Extinction Ratio		ER	8.3	-	-	dB
Optical Wavelength		λ_C	830	850	860	nm
Spectral Width (RMS)		$\Delta\lambda$	-	-	0.85	nm
Output Rise Time (10-90%)		t_r	-	0.4	1	ns
Output Fall Time (10-90%)		t_f	-	1.0	1.5	ns
Data Input (7)	DC Coupled	V_{IL} V_{IH}	V_{CC} -1.810 V_{CC} -1.165	- -	V_{CC} -1.475 V_{CC} -0.880	V V
	AC Coupled (Differential)	V_I	0.25	-	1.6	V
Tx Disable Input		V_{DIL} V_{DIH}	0 2	- -	0.8 V_{CC}	V
Laser Bias Monitor (BM) (8)		BM	-	0.1	-	mA/mV
Laser Power Monitor (TPM) (8)		TPM	-	5	-	µA/mV
Supply Voltage		V_{CC}	3.10 4.75	3.3 5.0	3.50 5.25	V V
Supply Current		I_{CC}	-	-	110	mA
Receiver						
Data Rate (NRZ)		B	10	155	200	Mb/s
Optical Input Sensitivity (avg.) (1) (5)		P_{IN}	-	-35	-32	dBm
Saturation		P_{SAT}	-3	0	-	dBm
Optical Wavelength		λ	770	850	860	nm
Output Rise Time (10-90%)		t_r	-	1.3	2.5	ns
Output Fall Time (10-90%)		t_f	-	1.6	2.5	ns
Data Output (7)	DC Coupled	V_{OL} V_{OH}	V_{CC} -1.840 V_{CC} -1.045	- -	V_{CC} -1.62 V_{CC} -0.88	V V
	AC Coupled (Differential)	V_I	0.6	-	1.8	V
Signal Detect Asserted (avg.)		P_A	-	-	-32	dBm
Signal Detect Deasserted (avg.)		P_D	-45	-	-	dBm
Parameter		**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
Signal Detect Hysteresis		P_{HYS}	-	2	-	dB

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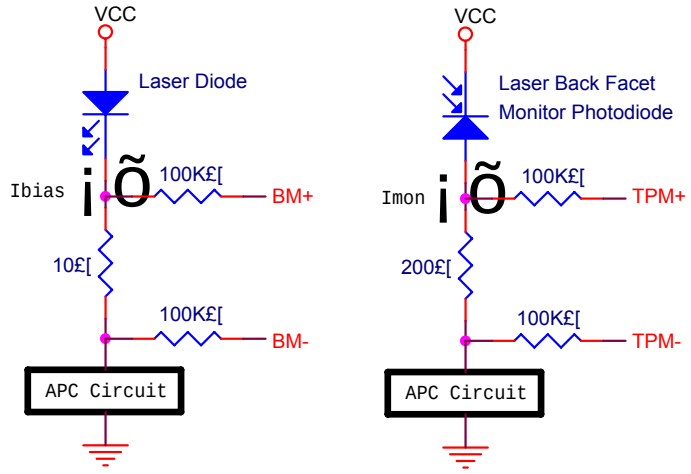
Supply Voltage	V_{CC}	3.10 4.75	3.3 5.0	3.50 5.25	V V
Supply Current	I_{CC}	-	-	100	mA

Notes :

(1) With 0.275 NA, 62.5/125μm 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) The transmitter output should not be viewed directly.
(7) Compatible with PECL and LVPECL logic levels.
(8) The figure below shows the laser bias monitor and power monitor equivalent circuit.



Laser Bias Monitor Circuit　　Laser Power Monitor Circuit

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	5V	-0.2	7	V
	3.3V	-0.2	4	V

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Ordering Information

T R 8 5 M M 1 - 1 V L C □ K R 1 □ □

Operating Temperature Range：

1：0 ~ 70°C

2：-40 ~ 85°C

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

Supply Voltage：

5：5V

3：3.3V

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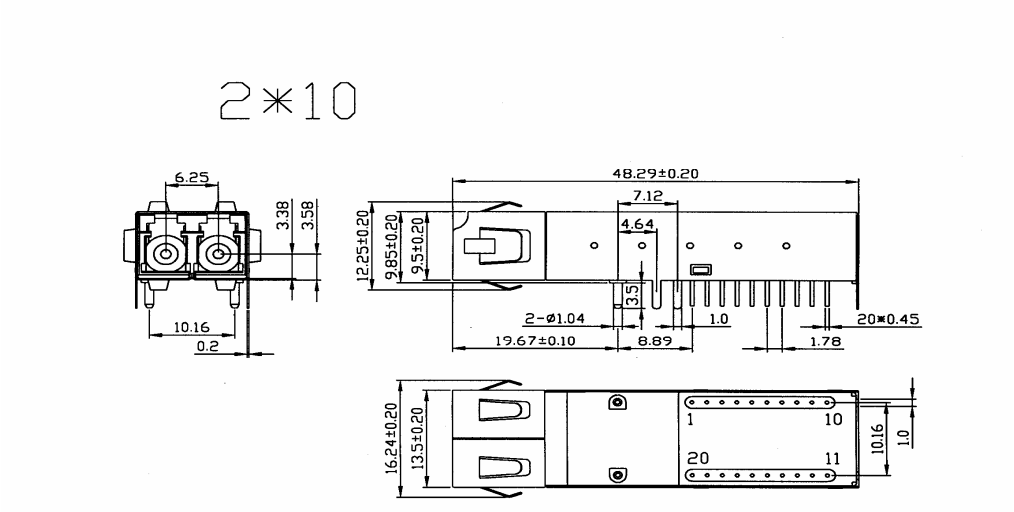
Outline Drawing



UNIT : mm

Pinout Description

Pin No.	Symbol	Description
1	V_{PD}	Receiver PD Bias Supply
2	V_{EER}	Receiver Ground
3	V_{EER}	Receiver Ground
4	NC	No Connection
5	NC	No Connection
6	V_{EER}	Receiver Ground
7	V_{CCR}	Receiver Power Supply
8	SD	Receiver Signal Detect
9	RD-	Receiver Data Out (Inverted)
10	RD+	Receiver Data Out
11	V_{CCT}	Transmitter Power Supply
12	V_{EET}	Transmitter Ground
13	TDis	Input Logic Low Level to Switch Laser “ON” Input Logic High Level to Switch Laser “OFF”
14	TD+	Transmitter Data in
15	TD-	Transmitter Data In (Inverted)
16	V_{EET}	Transmitter Ground
17	BM-	Laser Diode Bias Current Monitor-Negative End
18	BM+	Laser Diode Bias Current Monitor-Positive End
19	TPM-	Transmitter Power Monitor-Negative End
20	TPM+	Transmitter Power Monitor-Positive End

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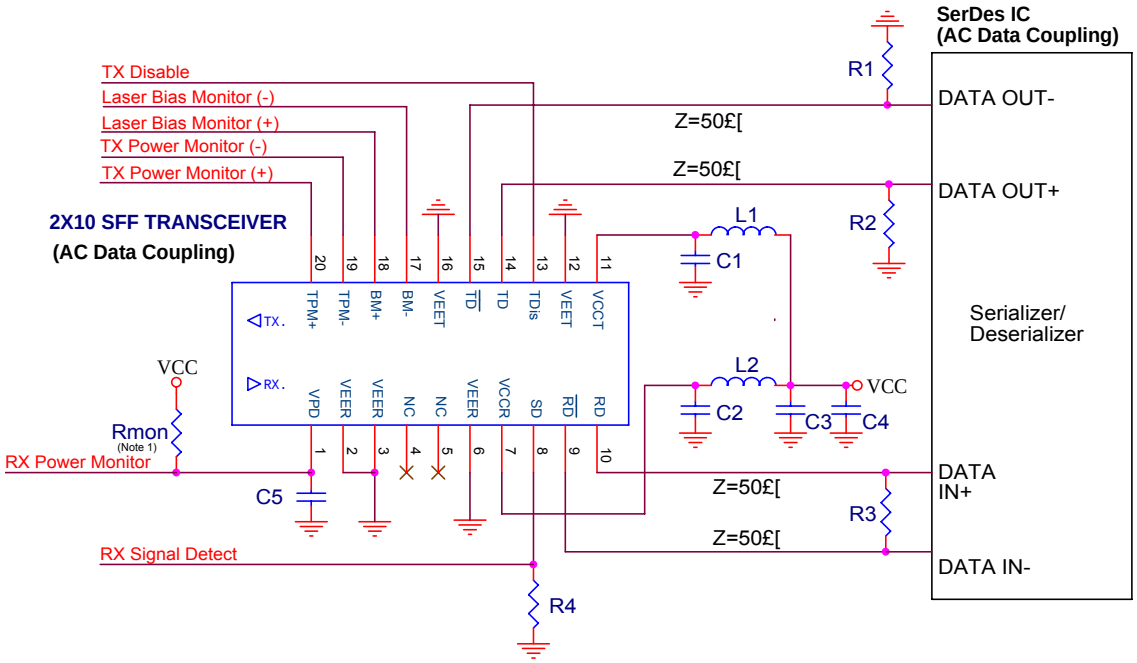
Application Notes

Recommended AC Coupling Interface Circuit：



L1=L2=1£gH or ferrite bead
C1=C2=C3=0.1£gF
C4=10£gF
C5=1£gF
R1, R2, R3 depends on SerDes IC specification.
(Consult the SerDes IC application information)
R4=510£[

NOTE¡G
1. Pin1 must be connected to VCC or put Rmon for monitoring PD bias current. (Rmon is recommende less than 1K£[.)
2. Transmission line characteristic impedance Z=50£[.
3. R1, R2, R3 as close to SerDes IC as possible.

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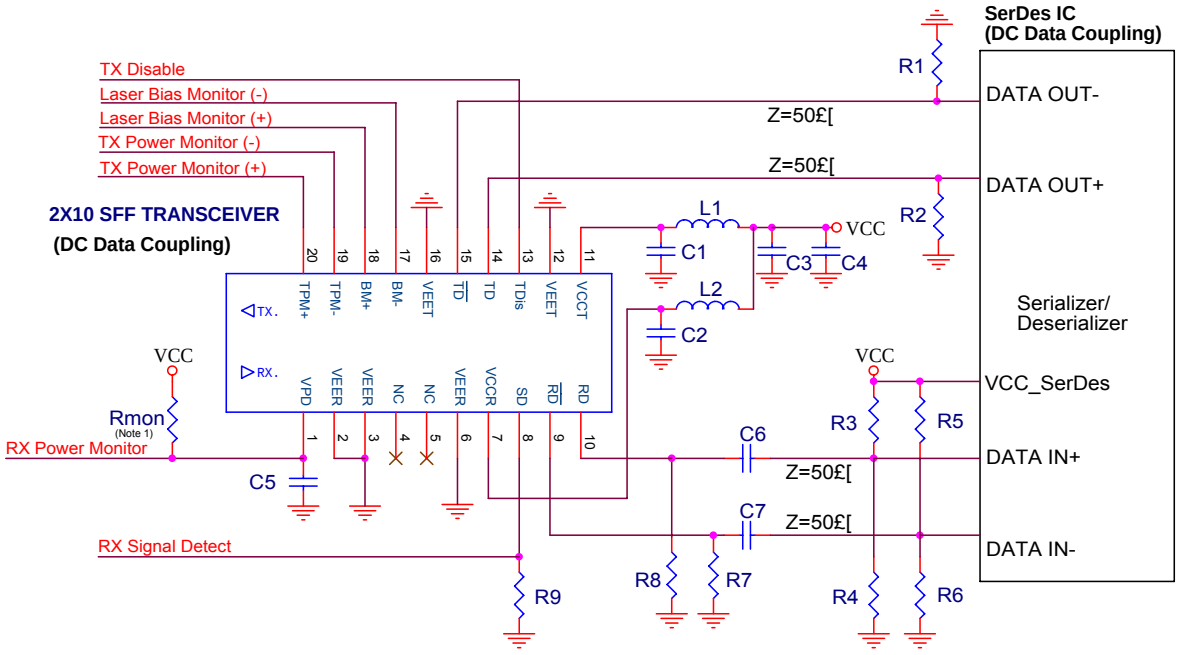
Recommended DC Coupling Interface Circuit :



L1=L2=1£gH or ferrite bead
C1=C2=C3=C6=C7=0.1£gF
C4=10£gF
C5=1£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. Pin1 must be connected to VCC or put Rmon for monitoring PD bias current. (Rmon is recommended less than 1K£[.)
2. Transmission line characteristic impedance Z=50£
3. R1, R2, R3, R4, R5, R6 as close to SerDes IC as possible.
3. R7, R8 as close to 2X10 Transceiver as possible.

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