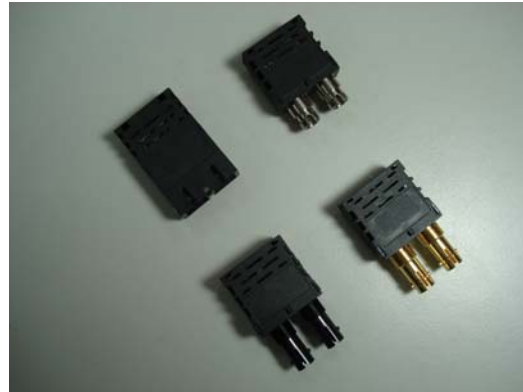


Single-Mode 622Mbps Optical Transceiver

Features

- Intermediate and long reach
- Industrial standard 1x9 pin footprint
- Duplex SC/ST/FC single mode connector interface
- Receiver signal detect function
- Wide dynamic rang receiver with AGC
- PECL/LVPECL logic interface, DC or AC coupling
- Single supply 5V/3.3V
- Low power consumption
- RoHS available



Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	
Transmitter						
Data Rate (NRZ)	B	-	622	-	Mb/s	
Optical Output Power (avg.) ⁽¹⁾⁽²⁾⁽³⁾						
-1	P _o	-12	-	-6	dBm	
-2	P _o	-6	-	0	dBm	
Extinction Ratio	ER	8.3	-	-	dB	
Optical Wavelength						
1310nm FP LD	λ_c	1260	1310	1360	nm	
1310nm DFB LD	λ_c	1290	1310	1330	nm	
1550nm FP LD	λ_c	1490	1550	1610	nm	
1550nm DFB LD	λ_c	1530	1550	1570	nm	
Spectral Width (RMS, -20dB)						
1310nm FP LD	$\Delta\lambda$	-	1.0	2.0	nm	
1550nm FP LD	$\Delta\lambda$	-	1.0	2.5	nm	
Side Mode Suppression Ratio						
1310nm DFB LD	SMSR	30	40	-	dB	
1550nm DFB LD	SMSR	30	40	-	dB	
Output Rise Time (10-90%)	t _r	-	0.5	0.8	ns	
Output Fall Time (10-90%)	t _f	-	0.5	0.8	ns	
Data Input ⁽⁶⁾	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
Supply Voltage	V _{CC}	3.10 4.75	3.3 5.0	3.50 5.25	V	
Supply Current	I _{CC}	-	-	110	mA	

Single-Mode 622Mbps Optical Transceiver

Parameter	Symbol	Min.	Typ.	Max.	Unit	
Receiver						
Data Rate (NRZ)	B	-	622	-	Mb/s	
Optical Input (avg.) Sensitivity ⁽¹⁾ ⁽⁵⁾	P _{IN}	-	-29	-28	dBm	
Saturation	P _{SAT}	-3	0	-	dBm	
Optical Wavelength	λ	1100	-	1600	nm	
Output Rise Time (10-90%)	t _r	-	0.5	0.8	ns	
Output Fall Time (10-90%)	t _f	-	0.5	0.8	ns	
Data Output ⁽⁶⁾	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	-	-	-28	dBm	
Signal Detect Deasserted (avg.)	P _D	-35	-	-	dBm	
Hysteresis	P _{HYS}	-	2	-	dB	
Supply Voltage	V _{CC}	3.10 4.75	3.3 5.0	3.50 5.25	V	
Supply Current	I _{CC}	-	-	100	mA	

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) Eye mask diagram is compliant to ITU-T G.957 Eye Diagram.
- (5) 2²³ -1 PRBS, BER= 10⁻¹⁰.
- (6) Compatible with LVPECL and PECL logic levels.
- (7) The transmitter output should not be viewed directly.

Absolute Maximum Ratings

Parameter	Min.	Max.	Unit	
Operating Temperature	-1	0	°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

Single-Mode 622Mbps Optical Transceiver

Ordering Information

T R S M 2 - 9 R 1 G -- for RoHS

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

Connector Type :

SC : SC Connector

FC : FC Connector

ST : ST Connector

Laser Type :

L : FP LD

F : DFB LD

Tx Output Power Grade :

(refer to Specifications)

1 : -1

2 : -2

Wavelength :

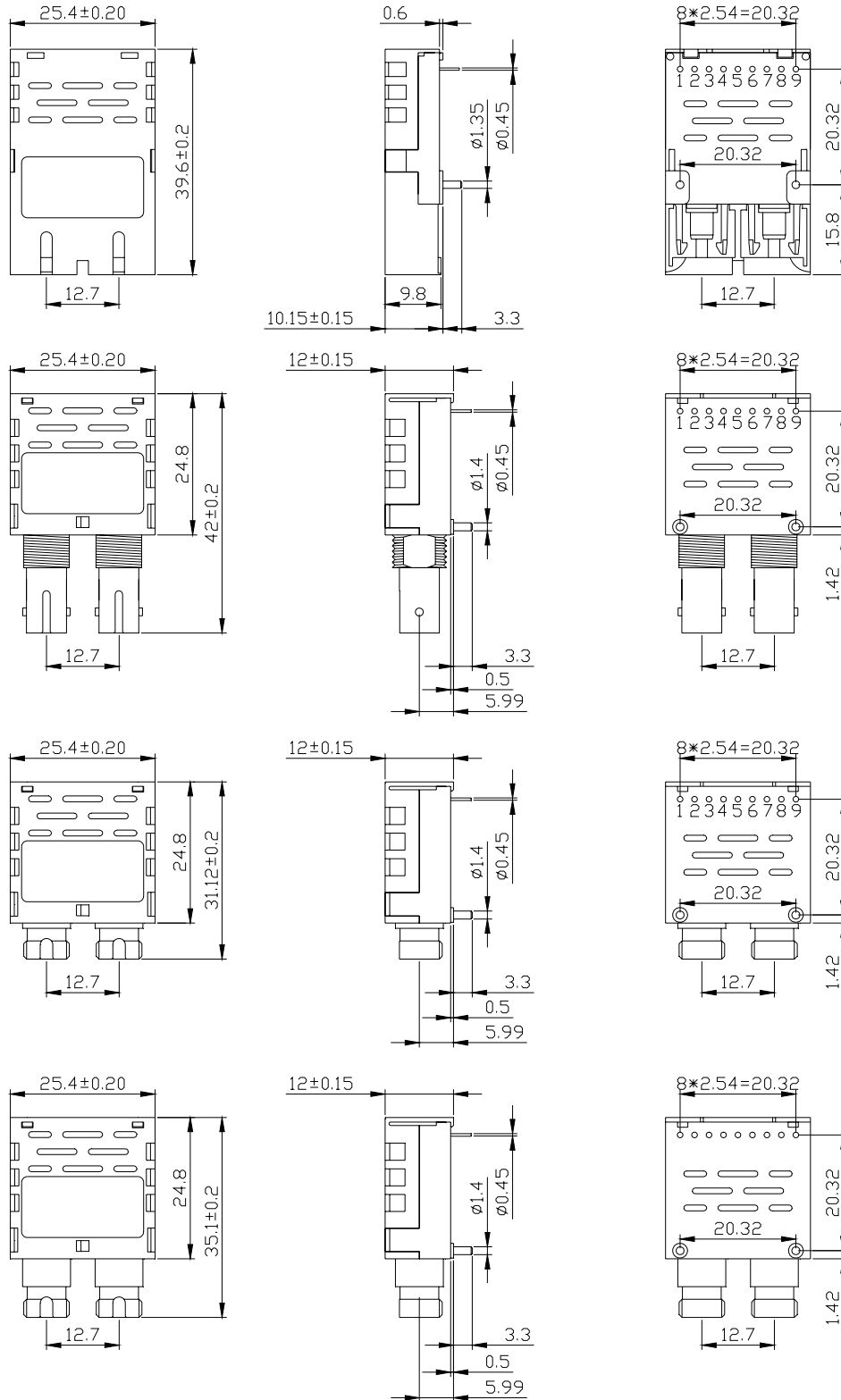
13 : 1310nm

15 : 1550nm

Single-Mode 622Mbps Optical Transceiver

Outline Drawing

UNIT : mm



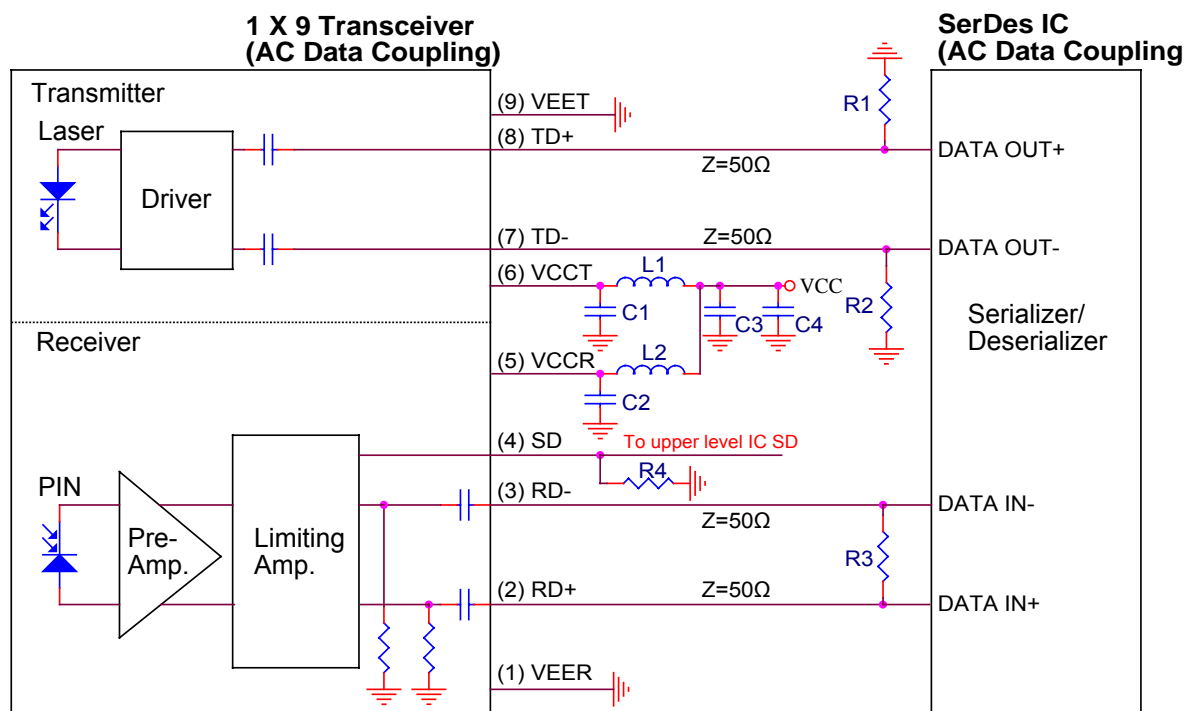
Single-Mode 622Mbps Optical Transceiver

Pinout Description

Pin No.	Symbol	Description
1	V _{EER}	Receiver Ground
2	RD+	Receiver Data Out
3	RD-	Receiver Data Out (Inverted)
4	SD	Receiver Signal Detect
5	V _{CCR}	Receiver Power Supply (5V/3.3V)
6	V _{CCT}	Transmitter Power Supply (5V/3.3V)
7	TD-	Transmitter Data In (Inverted)
8	TD+	Transmitter Data in
9	V _{EET}	Transmitter Ground

Application Notes

Recommended AC Coupling Interface Circuit :

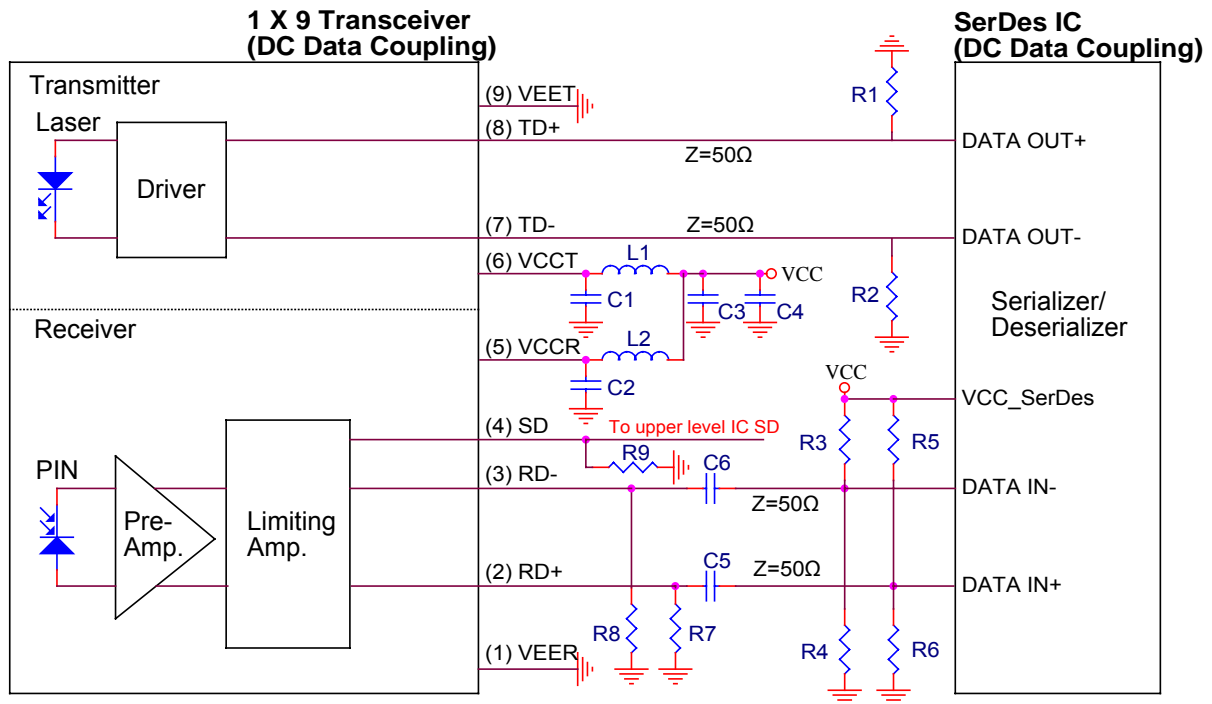


L1=L2=1μH or ferrite bead
 C1=C2=C3=0.1μF
 C4=10μF
 R1, R2, R3 depends on SerDes IC specification.
 (Consult the SerDes IC application information)
 R4=510Ω

NOTE :
 1. Transmission line characteristic impedance Z=50Ω.
 2. R1, R2, R3 as close to SerDes IC as possible.

Single-Mode 622Mbps Optical Transceiver

Recommended DC Coupling Interface Circuit :



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

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

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