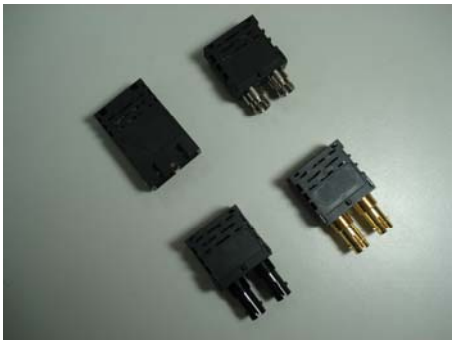
Singlemode 155Mbps 850nm Optical Transceiver

Features

- 850nm VCSEL Transmitter / GaAs PIN receiver
- Industrial standard 1x9 pin footprint
- Duplex SC/ST/FC single mode connector interface
- Receiver signal detect function
- PECL/LVPECL logic interface, DC or AC coupling
- Single supply 5V/3.3V
- RoHS available



Specifications

Parameter		Symbol	Min.	Typ.	Max.	Unit
Transmitter						
Data Rate (NRZ)		B	10	155	250	Mb/s
Optical Output Power (avg.) (1) (2) (4)		P_o	-14	-	-9	dBm
Extinction Ratio		ER	8.3	-	-	dB
Optical Wavelength		λ_C	830	850	860	nm
Spectral Width		$\Delta\lambda$	-	-	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 (5)	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
Receiver						
Data Rate (NRZ)		B	10	155	250	Mb/s
Optical Input (avg.) Sensitivity (1) (4)		P_{IN}	-	-35	-32	dBm
Optical Wavelength		λ	830	850	870	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 (5)	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
Hysteresis		P_{HYS}	-	3	-	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 9/125μm fiber.
(2) Driven with a differential signal.
(3) Eye mask diagram is compliant to ITU-T G.957 Eye Diagram.
(4) 2^{23} -1 PRBS, BER= 10^{-10}.
(5) Compatible with LVPECL and PECL logic levels.
(6) The transmitter output should not be viewed directly.

Multimode 155Mbps 850nm Optical Transceiver

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

Ordering Information

SNS-TR85SM1 - 1 V □□□ 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

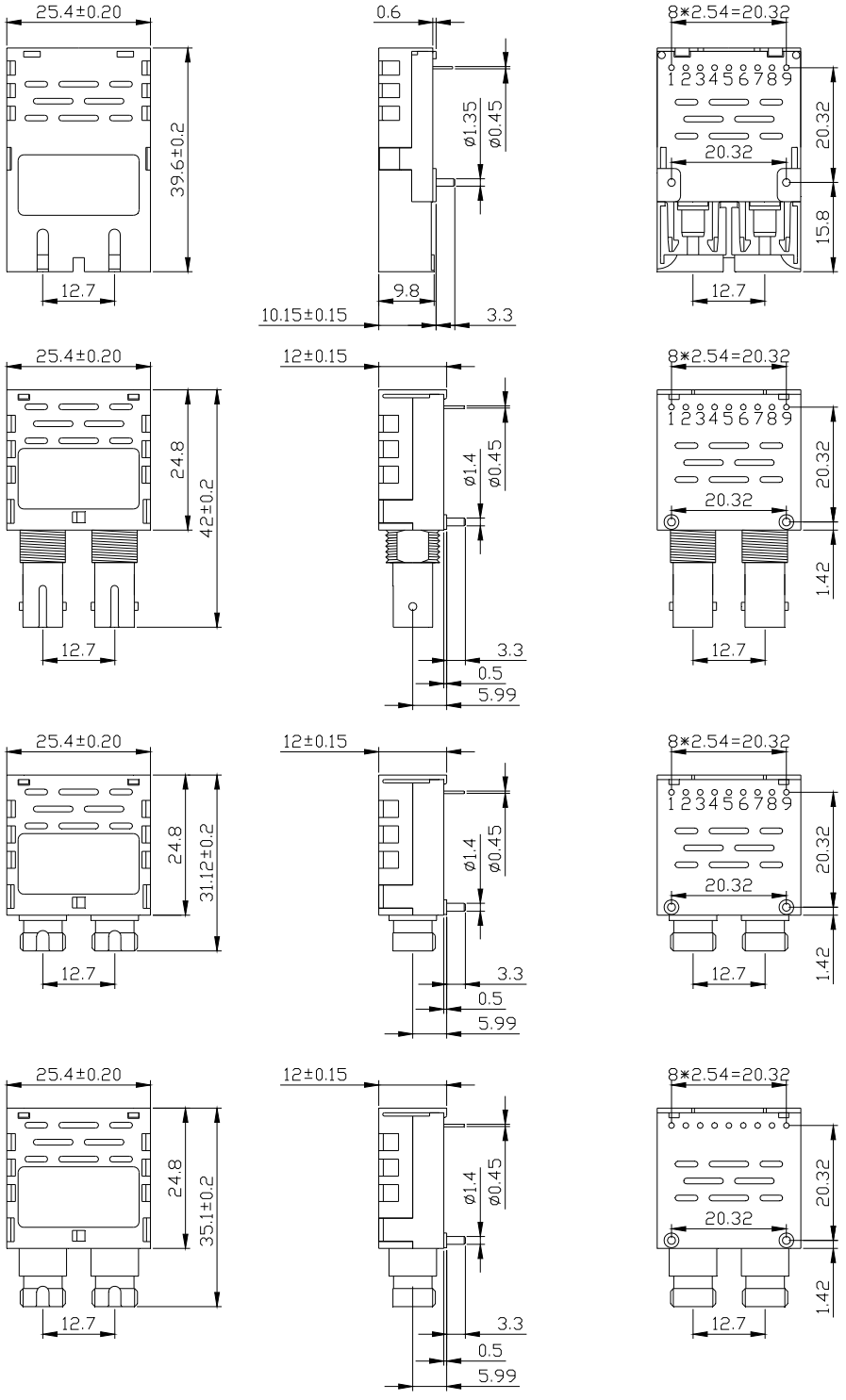
Supply Voltage：
5：5V
3：3.3V

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

Singlemode 155Mbps 850nm Optical Transceiver

Outline Drawing

UNIT：mm



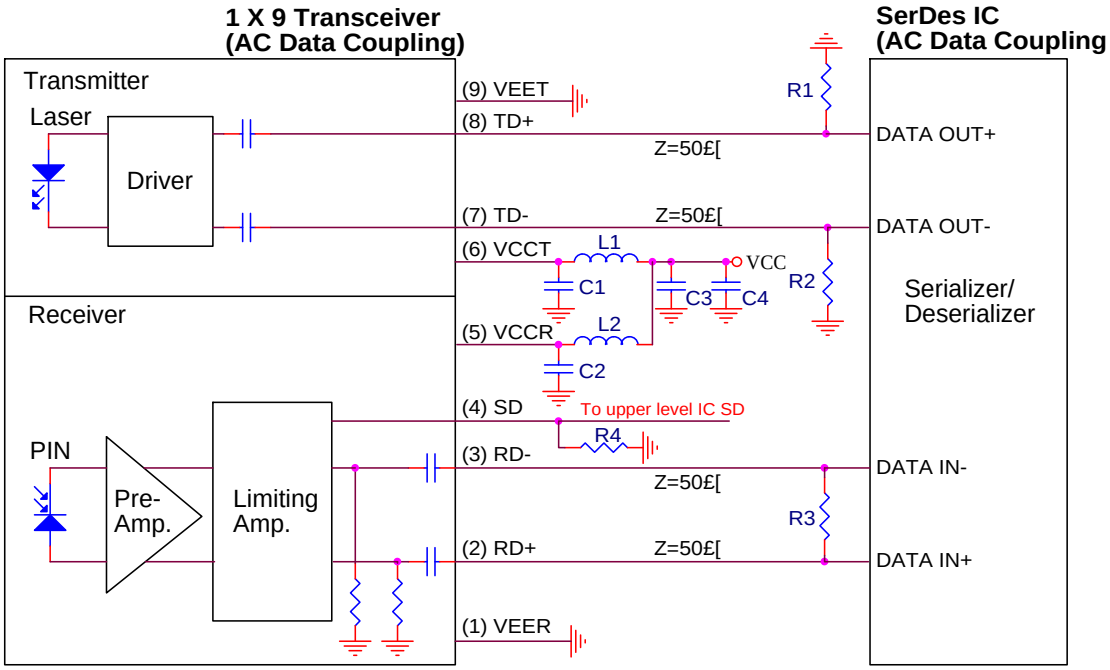
Multimode 155Mbps 850nm Optical Transceiver

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：

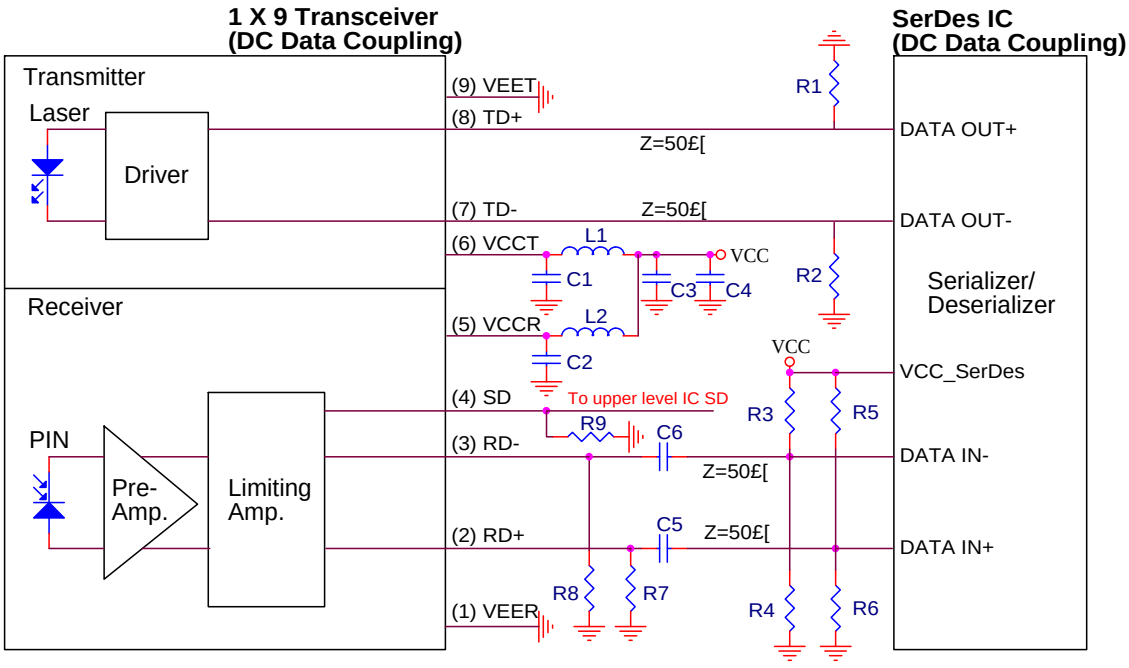


L1=L2=1£gH or ferrite bead
C1=C2=C3=0.1£gF
C4=10£gF
R1, R2, R3 depends on SerDes IC specification.
(Consult the SerDes IC application information)
R4=510£[

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

Singlemode 155Mbps 850nm Optical Transceiver

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.