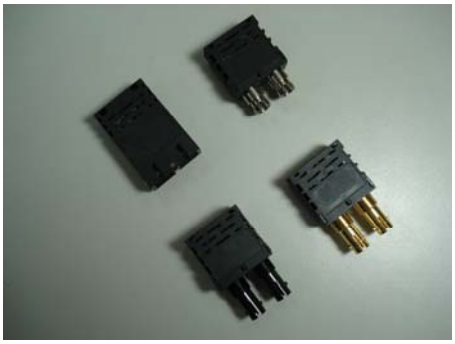
Multimode 155Mbps 850nm Optical Transceiver

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	-9	-	-3	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 0.275 NA, 62.5/125μm 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.

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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-TR85MM1 - 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

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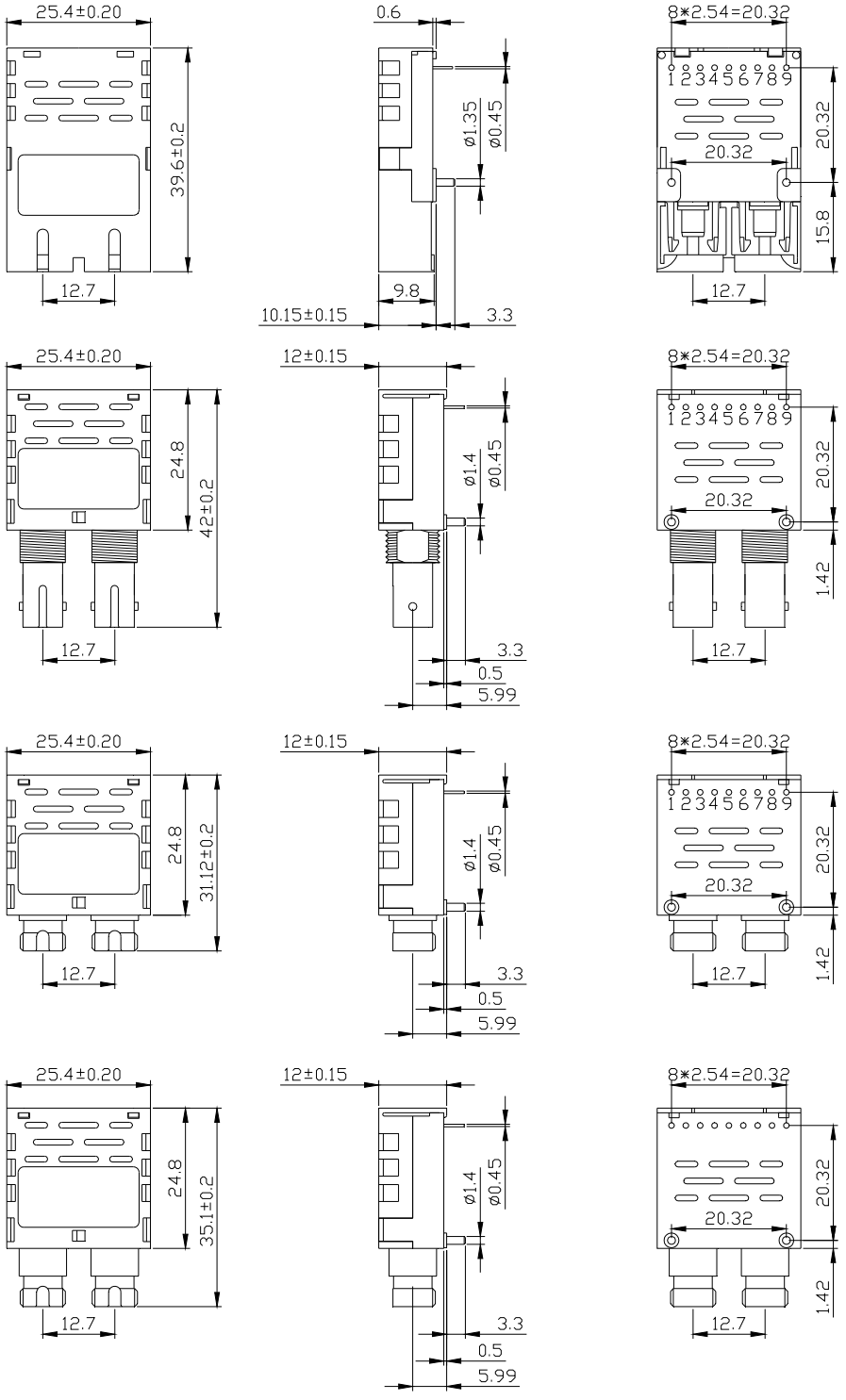
Outline Drawing

UNIT：mm



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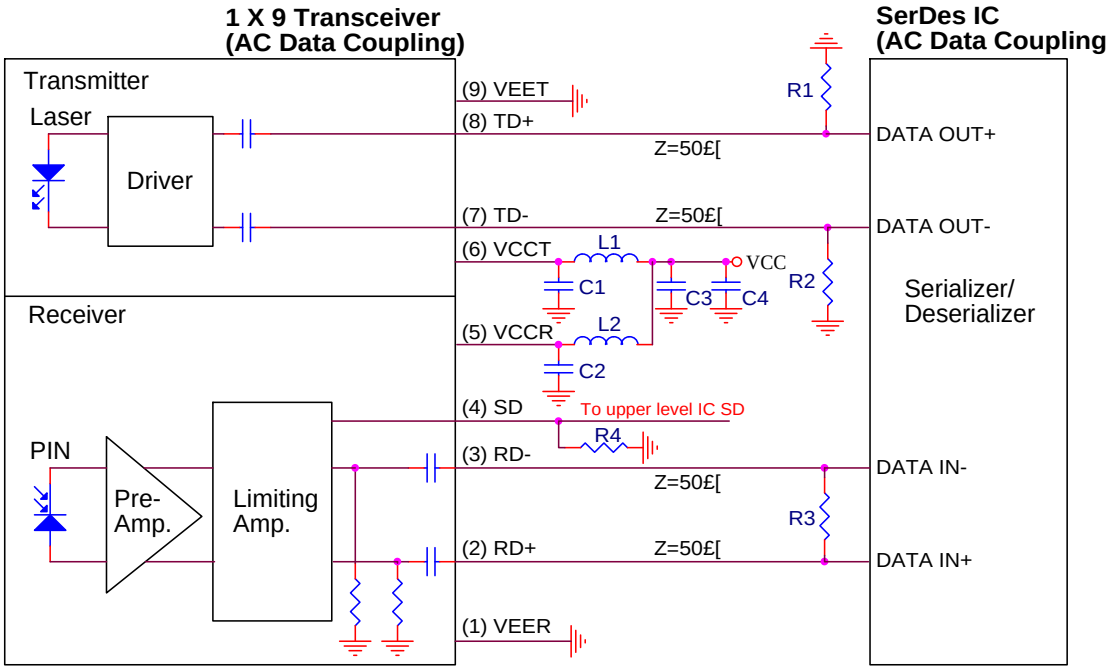
Pinout Description

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.

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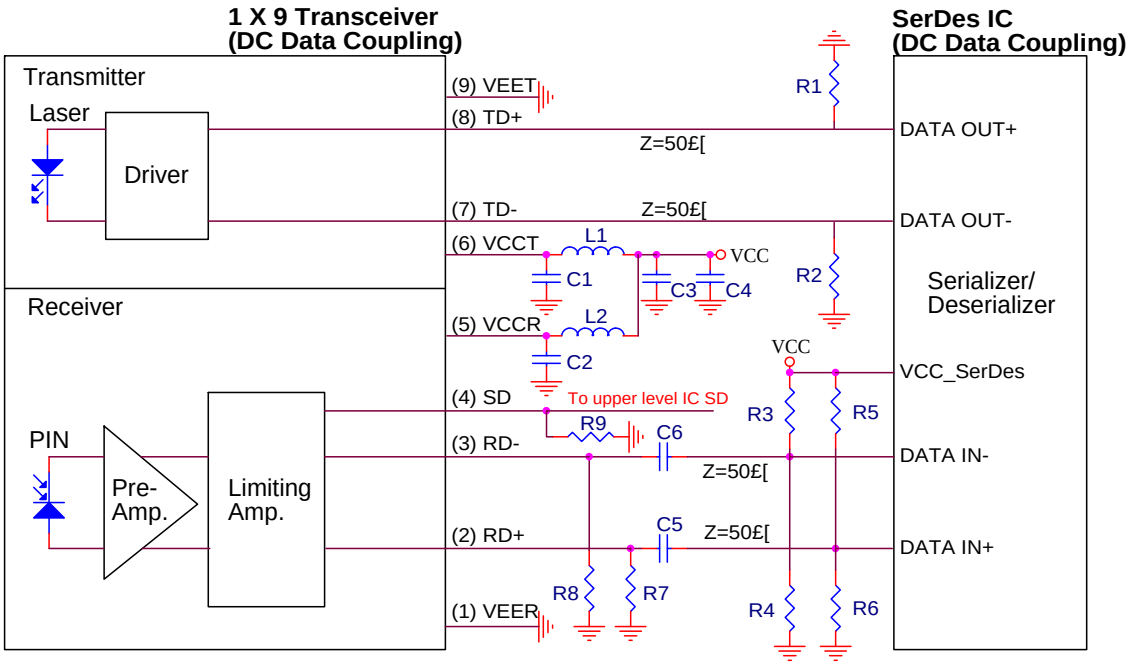
Recommended DC Coupling Interface Circuit：



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.