2.5Gbps Singlemode 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
- AC coupled LVPECL compatible data input and output
- Single supply 3.3V
- Low power consumption

Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Data Rate (NRZ)	B	-	2488.3	-	Mb/s
Optical Output Power (avg.) (1) (2) (3)					
-1	P_o	-12	-	-6	dBm
-2	P_o	-6	-	0	dBm
Extinction Ratio	ER	8.2	-	-	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 (20-80%)	t_r	-	-	180	ps
Output Fall Time (20-80%)	t_f	-	-	180	ps
Data Differential Input Voltage	V_i	500	-	2400	mV_{p-p}
Supply Voltage	Vcc	2.97	3.3	3.63	V
Supply Current	Icc	-	-	120	mA
Receiver					
Data Rate (NRZ)	B	-	2488.3	-	Mb/s
Optical Input (avg.) Sensitivity (1) (5)	P_{IN}	-	-	-18	dBm
Saturation	P_{SAT}	-3	0	-	dBm
Optical Wavelength	λ	1100	-	1600	nm
Output Rise Time (20-80%)	t_r	-	-	175	ps
Output Fall Time (20-80%)	t_f	-	-	175	ps
Data Differential Output Voltage	V_o	600	-	1200	mV_{p-p}
Signal Detect Asserted (avg.)	P_A	-	-	-18	dBm
Signal Detect Deasserted (avg.)	P_D	-28	-	-	dBm
Hysteresis	P_{HYS}	0.5	3	-	dB
Supply Voltage	Vcc	2.97	3.3	3.63	V
Supply Current	Icc	-	-	120	mA

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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) 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		-0.5	4	V

Ordering Information

SNS-T R □□ S M 4 - □□□□ 3 9 R 1 □□

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

Data Coupling & SD Output Level：

Symbol	Tx Coupling	Rx Coupling	SD
E	AC	AC	PECL
F	AC	AC	TTL

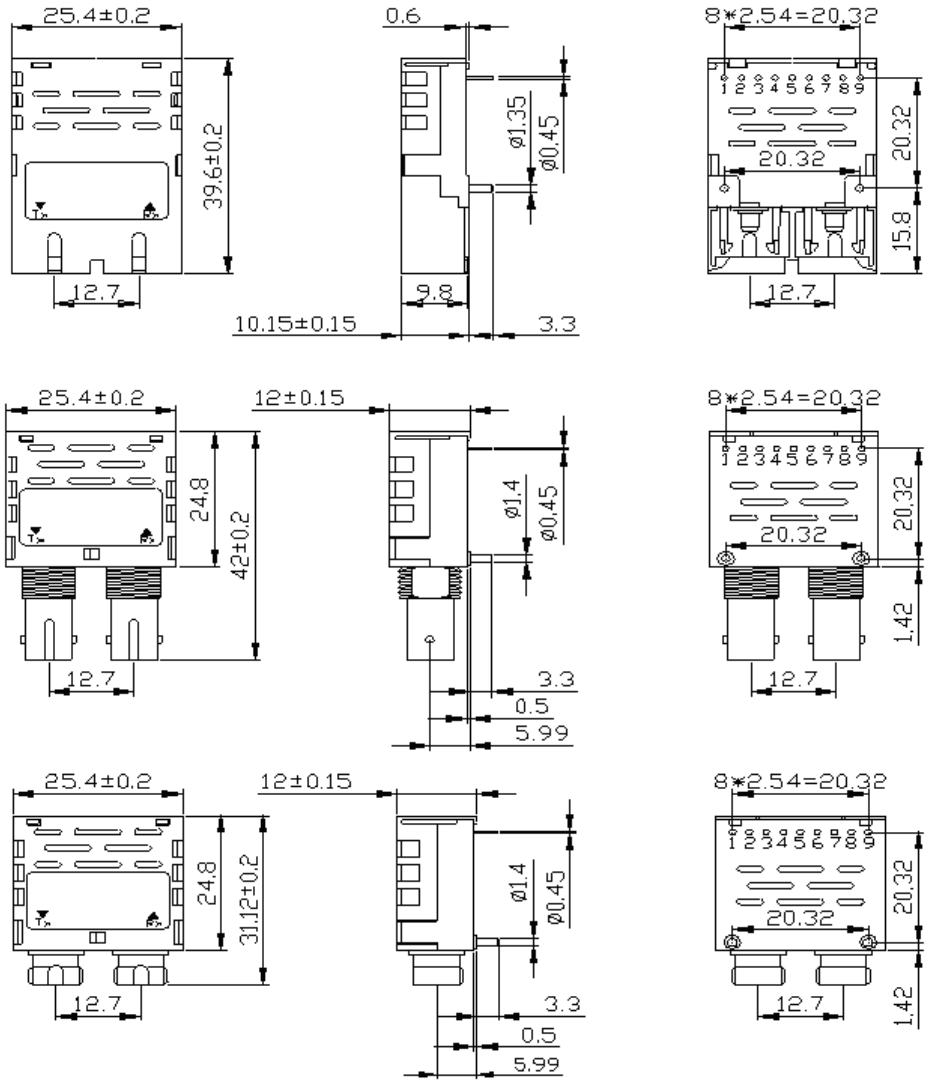
Connector Type：
SC：SC Connector
FC：FC Connector
ST：ST Connector

Laser Type：
L：FP LD
F：DFB LD

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

Wavelength：
13：1310nm
15：1550nm

Outline Drawing



UNIT：mm

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
6	V_{CCT}	Transmitter Power Supply
7	TD-	Transmitter Data In (Inverted)
8	TD+	Transmitter Data in
9	V_{EET}	Transmitter Ground

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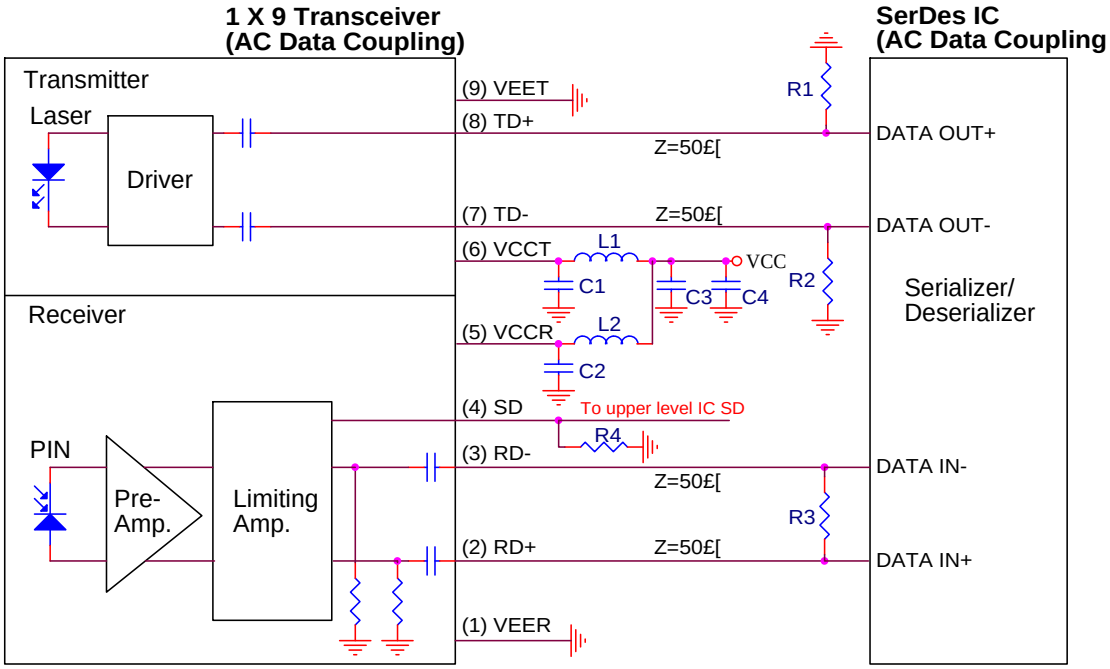
Application Notes

Recommended 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.