

Multimode 1.25Gbps Optical Transceiver

Features

- 850nm VCSEL transmitter
- Intermediate and long reach
- Industrial standard 1x9 pin footprint
- Duplex SC/ST/FC single mode connector interface
- Receptacle or Pigtailed
- 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	-	1250	-	Mb/s
Optical Output Power (avg.) ⁽¹⁾⁽²⁾⁽³⁾						
-1		P _o	-10	-	-5	dBm
-2		P _o	-5	-	0	dBm
Extinction Ratio		ER	9	-	-	dB
Optical Wavelength		λ _C	830	850	860	nm
Spectral Width (RMS)		Δλ	-	-	0.85	nm
Output Rise Time (20-80%)		t _r	-	-	0.26	ns
Output Fall Time (20-80%)		t _f	-	-	0.26	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
Receiver						
Data Rate (NRZ)		B	-	1250	-	Mb/s
Optical Input (avg.) Sensitivity ⁽¹⁾⁽⁵⁾		P _{IN}	-	-	-20	dBm
Saturation		P _{SAT}	-3	0	-	dBm
Optical Wavelength		λ	770	850	860	nm
Output Rise Time (20-80%)		t _r	-	-	0.4	ns
Output Fall Time (20-80%)		t _f	-	-	0.4	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	-	-	-20	dBm
Signal Detect Deasserted (avg.)		P _D	-25	-	-	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

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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) Eye mask diagram is compliant to IEEE802.3z Eye Diagram.
- (5) 2⁷ -1 PRBS, BER= 10⁻¹².
- (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	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

T R 8 5 M M 3 - V **9** **1** -- G for RoHs compliant

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

Data Coupling & SD Output Level :

Sym bol	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

R for receptacle
 P for pigtailed

Supply Voltage :
 5 : 5V
 3 : 3.3V

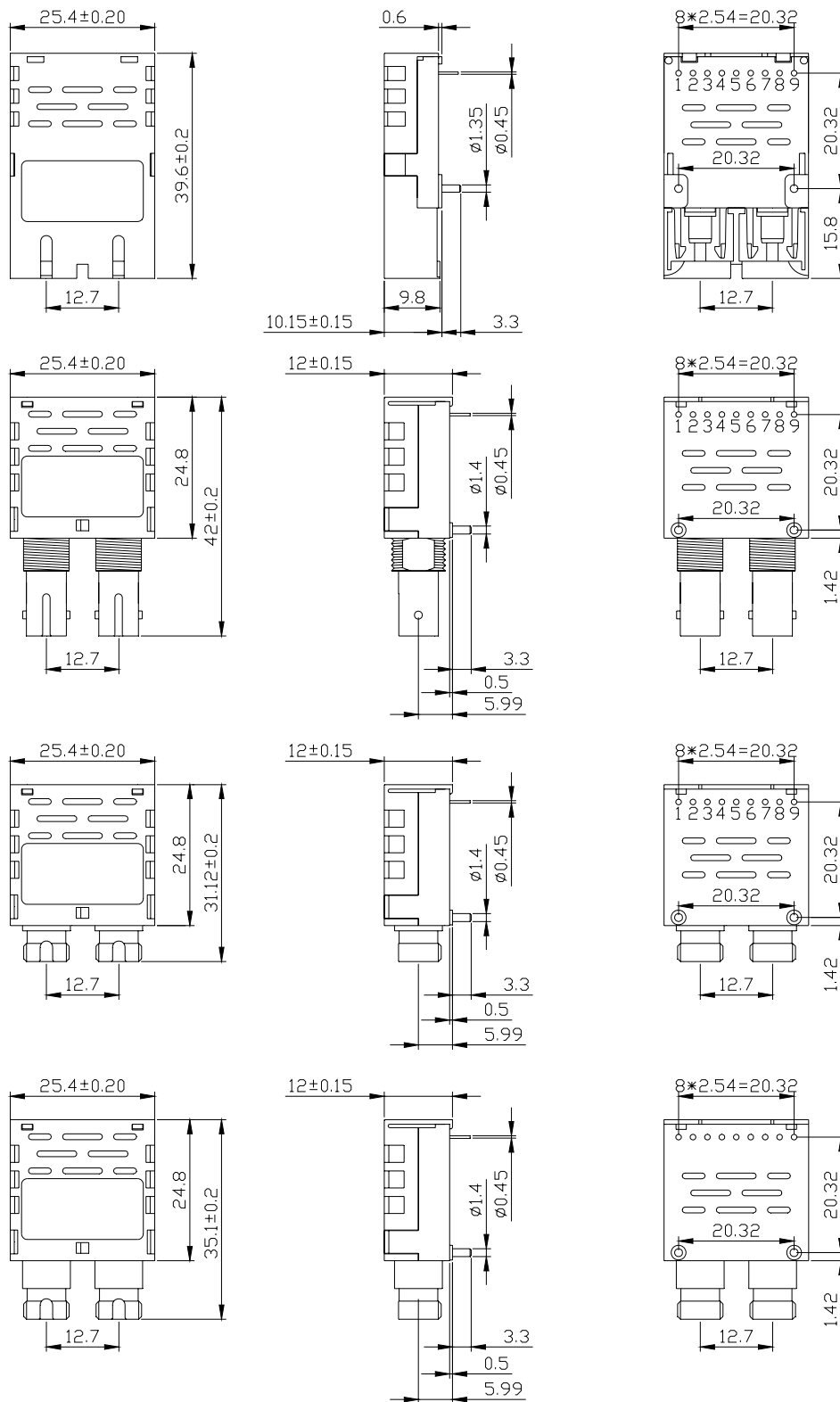
Connector Type :
 SC : SC Connector
 FC : FC Connector, short
 FL : FC Connector, long
 ST : ST Connector

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

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Outline Drawing

UNIT : mm

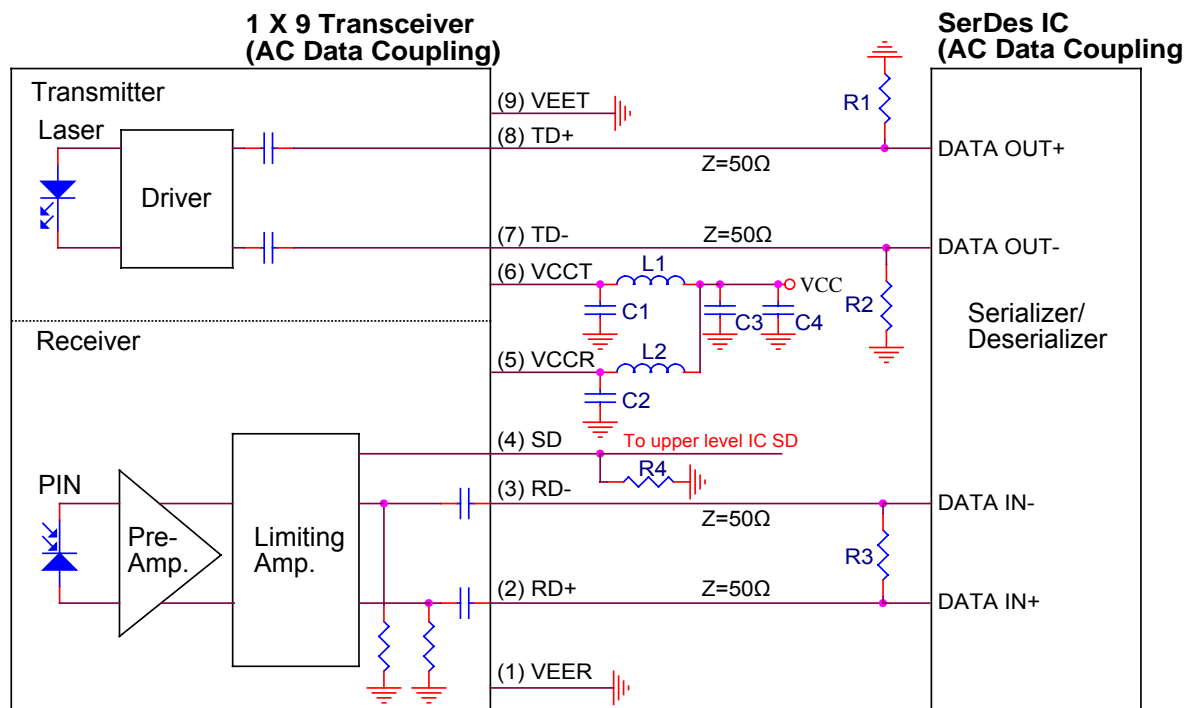


Pinout Description

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 (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 :

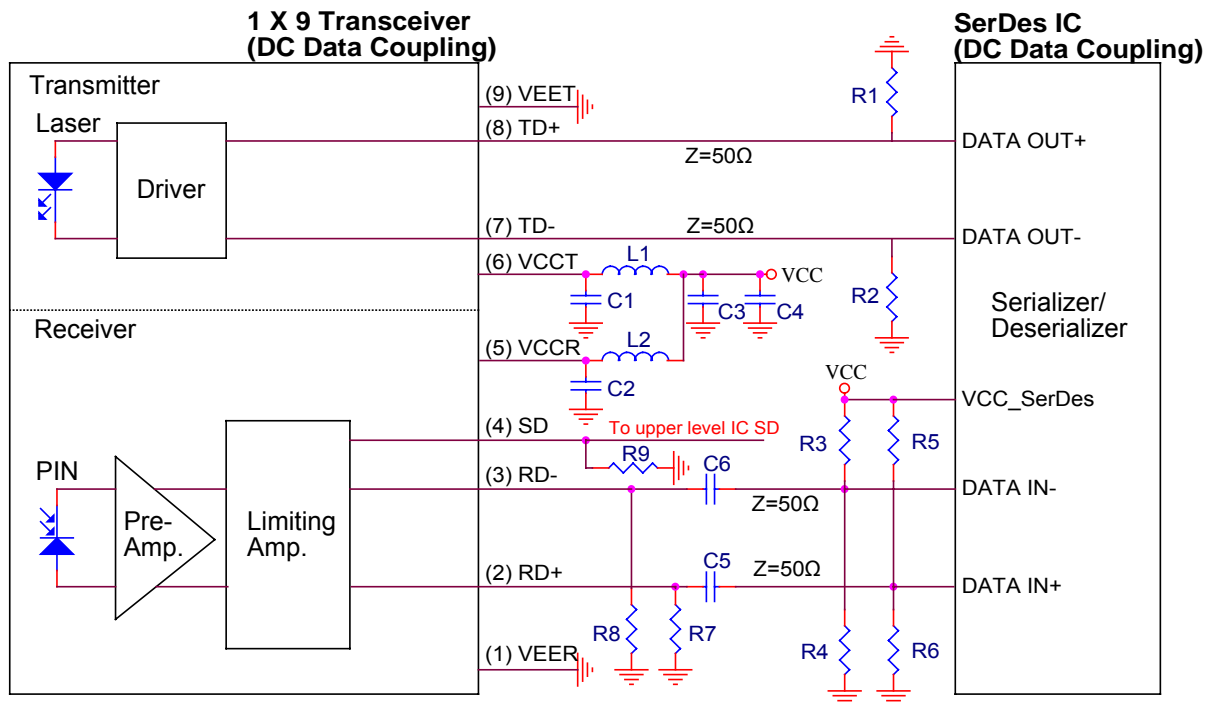


L1=L2=1μH or ferrite bead
 C1=C2=C3=0.1μF
 C4=10μF
 R1, R2, R3 depends on SerDes IC specification.
 (Consult the SerDes IC application information)
 R4=510Ω

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

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Recommended DC Coupling Interface Circuit :



$L1=L2=1\mu\text{H}$ or ferrite bead
 $C1=C2=C3=C5=C6=0.1\mu\text{F}$
 $C4=10\mu\text{F}$
 $R1, R2, R3, R4, R5, R6$ depends on SerDes IC specification.
 (Consult the SerDes IC application information)
 $R7=R8=270\Omega$ ($VCC=3.3\text{V}$)
 $=510\Omega$ ($VCC=5\text{V}$)
 $R9=510\Omega$

NOTE :
 1. Transmission line characteristic impedance $Z=50\Omega$.
 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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