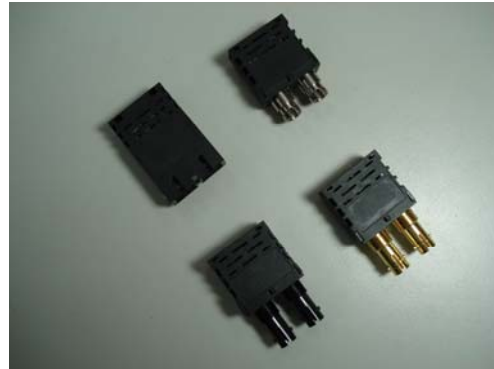


1.25Gbps CWDM Optical Transceiver

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	-	1250	-	Mb/s
Optical Output Power (avg.) ^{(1) (2) (3)}						
-1		P _o	-12	-	-6	dBm
-2		P _o	-6	-	0	dBm
-3		P _o	0	-	-	dBm
Extinction Ratio		ER	9	-	-	dB
CWDM Optical Wavelengths		λ_c	1310	-	1610	nm
Wavelength Variation				+/- 3		nm
Wavelength Spacing				20		nm
Spectral Width (RMS, -20dB)		$\Delta\lambda$			1	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	-	-	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



1.25Gbps CWDM Optical Transceiver

Parameter		Symbol	Min.	Typ.	Max.	Unit
Receiver						
Data Rate (NRZ)		B	-	1250	-	Mb/s
Optical Input (avg.) Sensitivity ⁽¹⁾⁽⁵⁾						
-1		P _{IN}	-	-	-23	dBm
-2		P _{IN}	-	-	-25	dBm
-3		P _{IN}	-	-	-33	dBm
Saturation		P _{SAT}	-3	0	-	dBm
Optical Wavelength		λ	1100	-	1700	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	-	-	-23	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 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

1.25Gbps CWDM Optical Transceiver

Ordering Information

T R S M 3 - F 9 G --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

Sensitivity Grade : (refer to Specifications)

- 1 : -1
- 2 : -2

P for pigtail

R for receptacle

Supply Voltage :

- 5 : 5V
- 3 : 3.3V

Connector Type :

- SC : SC Connector
- FC : FC Connector
- ST : ST Connector

Laser Type :

- F : DFB LD

Tx Output Power Grade :

(refer to Specifications)

- 1 : -1
- 2 : -2; 3: -3

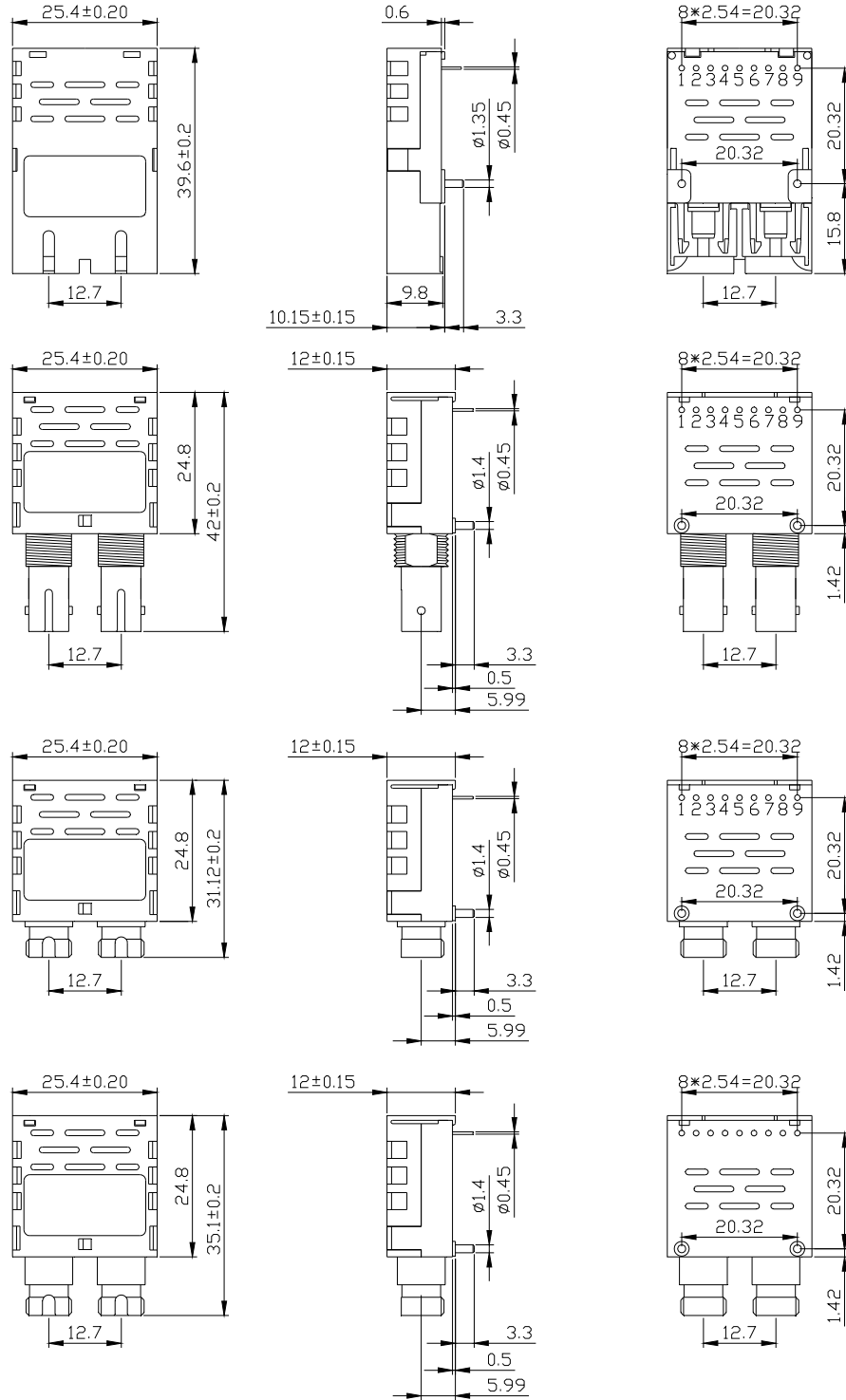
CWDM Wavelength :

- 31 : 1310nm
- 55 : 1550nm
- etc.

1.25Gbps CWDM Optical Transceiver

Outline Drawing

UNIT : mm



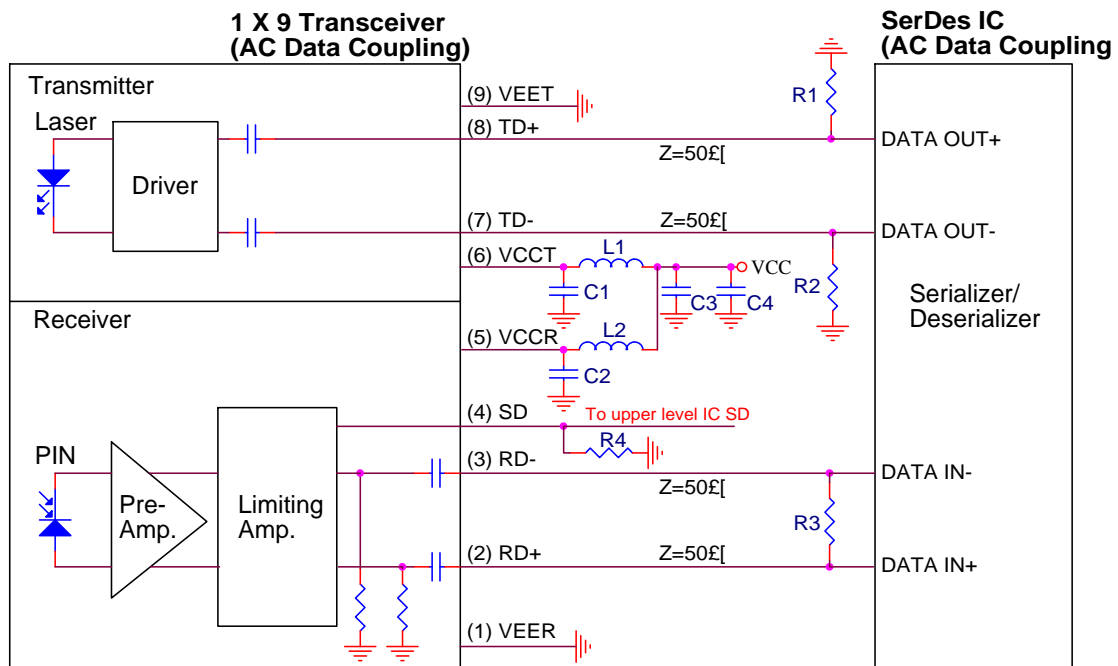
1.25Gbps CWDM Optical Transceiver

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 :

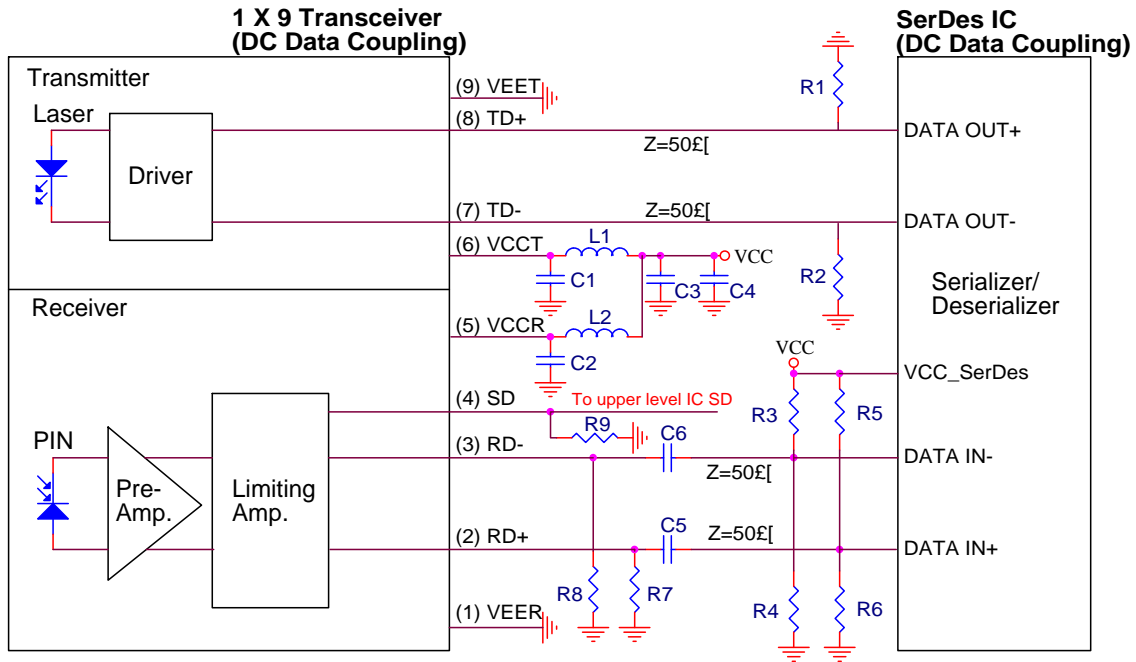


L1=L2=1 μ H or ferrite bead
 C1=C2=C3=0.1 μ F
 C4=10 μ F
 R1, R2, R3 depends on SerDes IC specification.
 (Consult the SerDes IC application information)
 R4=510 Ω

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

1.25Gbps CWDM Optical Transceiver

Recommended DC Coupling Interface Circuit :



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

NOTE:G
 1. Transmission line characteristic impedance $Z=50\text{g}\Omega$.
 2. $R1, R2, R3, R4, R5, R6$ as close to SerDes IC as possible.
 3. $R7, R8$ as close to 1X9 Transceiver as possible.