

1.25Gbps Multimode Single Fiber Bi-Directional Optical Transceiver

Features

- Industrial standard 1x9 pin footprint
- Application wavelength 1310nm / 850nm
- Single SC/ST/FC connector interface
- Receiver signal detect function
- Wide dynamic rang receiver with AGC function
- PECL/LVPECL logic interface, DC or AC coupling
- Single supply 3.3V or 5V
- Low power consumption



Specifications

Parameter		Symbol	Min.	Typ.	Max.	Unit
Transmitter						
Data Rate (NRZ)		B	-	1.25	-	Gbps
Optical Output Power (avg.) ^{(1) (2) (3)}	TR13R85	P_o	-6	-	-3	dBm
	TR85R13	P_o	-6	-	-3	dBm
Extinction Ratio		ER	9	-	-	dB
Optical Wavelength	TR13R85	λ	1280	1310	1340	nm
	TR85R13	λ	830	850	860	nm
Spectral Width	TR13R85	$\Delta\lambda$	-	1.0	4.0	nm
	TR85R13	$\Delta\lambda$	-	-	0.85	nm
Output Rise Time (20-80%)		t_r	-	-	260	ps
Output Fall Time (20-80%)		t_f	-	-	260	ps
Data Input ⁽⁶⁾	DC Coupled	V_{IL}	$V_{CC} - 1.810$	-	$V_{CC} - 1.475$	V
		V_{IH}	$V_{CC} - 1.165$	-	$V_{CC} - 0.880$	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 V
Supply Current		I_{CC}	-	-	100	mA

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Parameter		Symbol	Min.	Typ.	Max.	Unit
Receiver						
Data Rate (NRZ)		B	-	1.25	-	Gbps
Optical Input Sensitivity (avg.) ^{(1) (5)}	TR13R85	P _{IN}	-	-	-16	dBm
	TR85R13	P _{IN}	-	-	-16	dBm
Saturation		-	-3	0	-	dBm
Optical Wavelength	TR13R85	λ	830	850	870	nm
	TR85R13	λ	1260	1310	1360	nm
Output Rise Time (20-80%)		t _r	-	-	250	ps
Output Fall Time (20-80%)		t _f	-	-	250	ps
Data Output ⁽⁶⁾	DC Coupled	V _{OL}	V _{CC} -1.840	-	V _{CC} -1.62	V
		V _{OH}	V _{CC} -1.045	-	V _{CC} -0.88	V
	AC Coupled (Differential)	V _I	0.6	-	1.8	V
Signal Detect Asserted (avg.)	TR13R85	P _A	-	-	-16	dBm
	TR85R13	P _A	-	-	-16	dBm
Signal Detect Deasserted (avg.)		P _D	-20	-	-	dBm
Hysteresis		P _{HYS}	-	2	-	dB
Supply Voltage		V _{CC}	3.10	3.3	3.50	V
			4.75	5.0	5.25	V
Supply Current		I _{CC}	-	-	100	mA

Note :

- (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 ITU-T G.957 Eye Diagram.
- (5) 2²³ -1 PRBS, BER= 10⁻¹⁰
- (6) Compatible with PECL/LVPECL logic levels.
- (7) The transmitter output should not be viewed directly.

Absolute Maximum Ratings

Parameter		Min.	Max.	Unit
Operating Temperature	-1	-40	70	°C
	-2	-40	85	°C
Lead Soldering Limits		-	240/10	°C/sec
Supply Voltage	5V	-0.2	7	V
	3.3V	-0.2	4	V

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Ordering Information

Transmitter : 1310nm / Receiver : 850nm

T R 1 3 R 8 5 M 3 - 1 - 1 - **M**

Operating Temperature Range :

1 : -40°C ~ 70°C

2 : -40°C ~ 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

Package Type :

R : Receptacle Type

P : Pigtail Type (Fiber Length 100cm)

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Transmitter : 850nm / Receiver : 1310nm

T R 8 5 R 1 3 M 3 - 1 - 1 - □ □ □ □ M □ □

Operating Temperature Range :

1 : -40°C ~ 70°C

2 : -40°C ~ 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

Package Type :

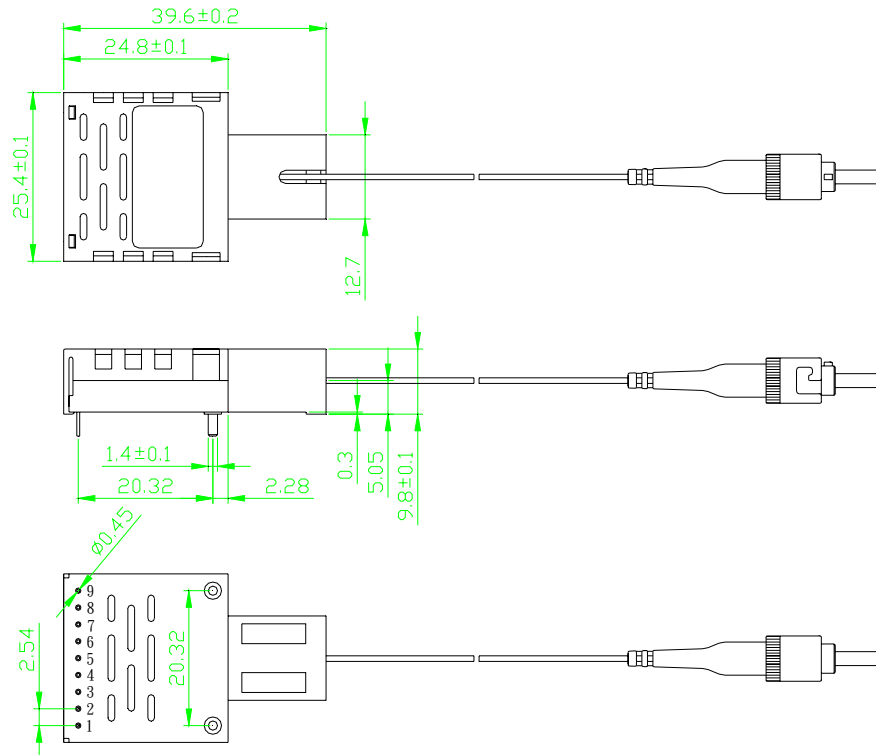
R : Receptacle Type

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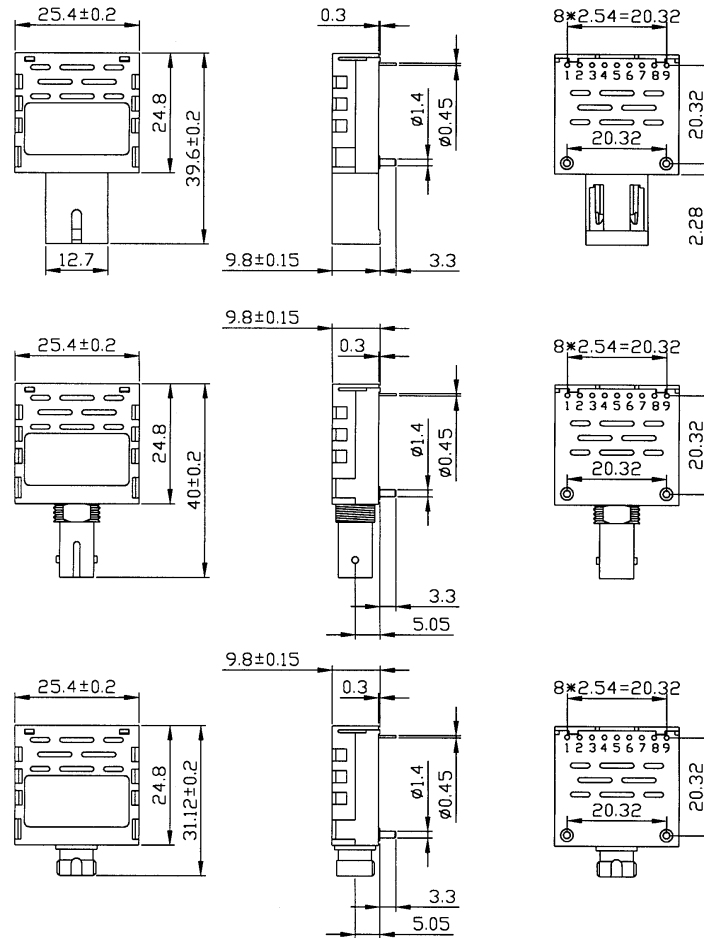
Outline Drawing

Pigtail Type :



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Receptacle Type :



Pin No.	PIN Name	
1	V _{ERR}	Rx Ground
2	RD	Rx Data Out
3	$\overline{\text{RD}}$	Rx Data Out (Inverted)
4	SD	Rx Signal Detect
5	V _{CCR}	Rx Power Supply
6	V _{OCT}	V _{CC} Power Supply
7	$\overline{\text{TD}}$	Tx Data In (Inverted)
8	TD	Tx Data In
9	V _{ERT}	Tx Ground

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