155Mbps Multimode 780/850nm
Single Fiber Bi-Directional Optical Transceiver

Features

- Industrial standard 1x9 pin footprint
- Application wavelength 780nm / 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	-	155	-	Mbps
Optical Output Power (avg.) (1) (2) (3)						
-1		P_o	-6	-	-3	dBm
Extinction Ratio		ER	9	-	-	dB
Optical Wavelength	TR78R85	λ	760	780	800	nm
	TR85R78	λ	820	850	880	nm
Spectral Width	TR78R85	$\Delta\lambda$	-	1.0	2.5	nm
	TR85R78	$\Delta\lambda$	-	-	0.85	nm
Output Rise Time (20-80%)		t_r	-	0.4	0.8	ns
Output Fall Time (20-80%)		t_f	-	0.4	0.8	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 V
Supply Current		I_{CC}	-	-	100	mA

Parameter		Symbol	Min.	Typ.	Max.	Unit
Receiver						
Data Rate (NRZ)		B	-	155	-	Mbps
Optical Input Sensitivity (avg.) (1) (5)	TR78R85	P_{IN}	-	-	-20	dBm
	TR85R78	P_{IN}	-	-	-20	dBm
Saturation		-	-3	0	-	dBm
Optical Wavelength	TR78R85	λ	820	850	880	nm
	TR85R78	λ	760	780	800	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.)	TR78R85	P_A	-	-	-17	dBm
	TR85R78	P_A	-	-	-17	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 V
Supply Current		I_{CC}	-	-	100	mA
Optical Return Loss		RL	50	-	-	dB
Optical Cross Talk		CT	20	-	-	dB

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 IEEE802.3z Eye Diagram
(5) 2^7 -1 PRBS, BER= 10^{-12}.
(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

Ordering Information

Transmitter：780nm / Receiver：850nm

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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)

Transmitter：850nm / Receiver：780nm

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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

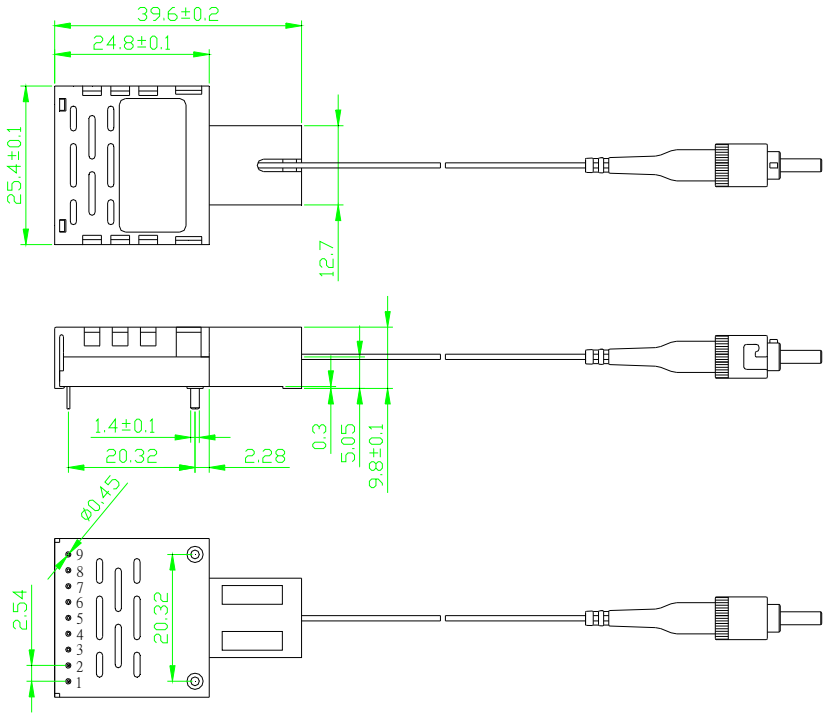
Supply Voltage：
5：5V
3：3.3V

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

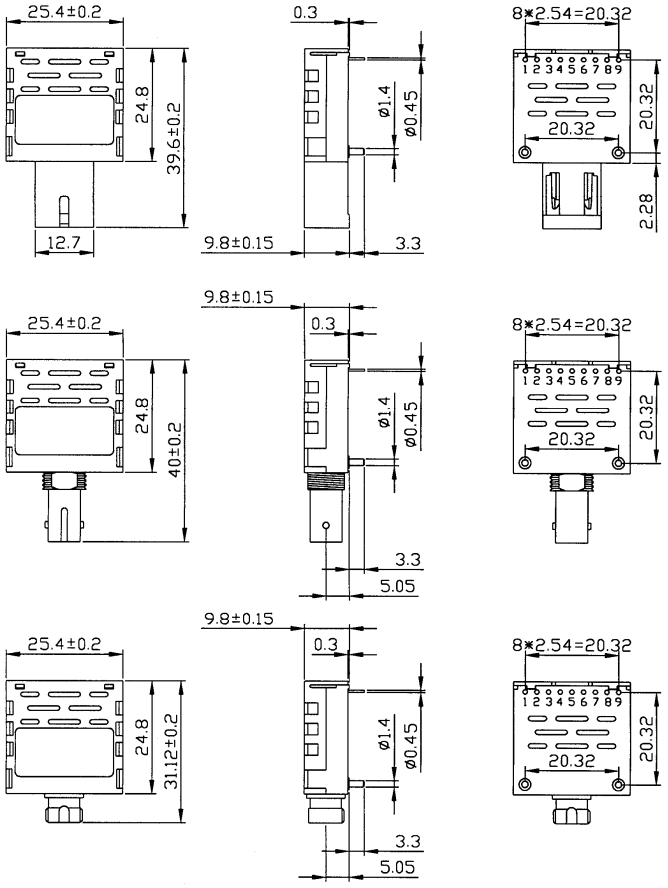
Package Type：
R：Receptacle Type
P：Pigtail Type (Fiber Length 100cm)

Outline Drawing

Pigtail Type：



Receptacle Type：



Pin No.	PIN Name	
1	V_{EER}	Rx Ground
2	RD	Rx Data Out
3	$\overline{RD}$	Rx Data Out (Inverted)
4	SD	Rx Signal Detect
5	V_{CCR}	Rx Power Supply
6	V_{CCT}	V_{CC} Power Supply
7	$\overline{TD}$	Tx Data In (Inverted)
8	TD	Tx Data In
9	V_{EET}	Tx Ground