



.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_{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



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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 _{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.)	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 4.75	3.3 5.0	3.50 5.25	V 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

SNS-TR13R85M3 - 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

SNS-TR85R13M3 - 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 :

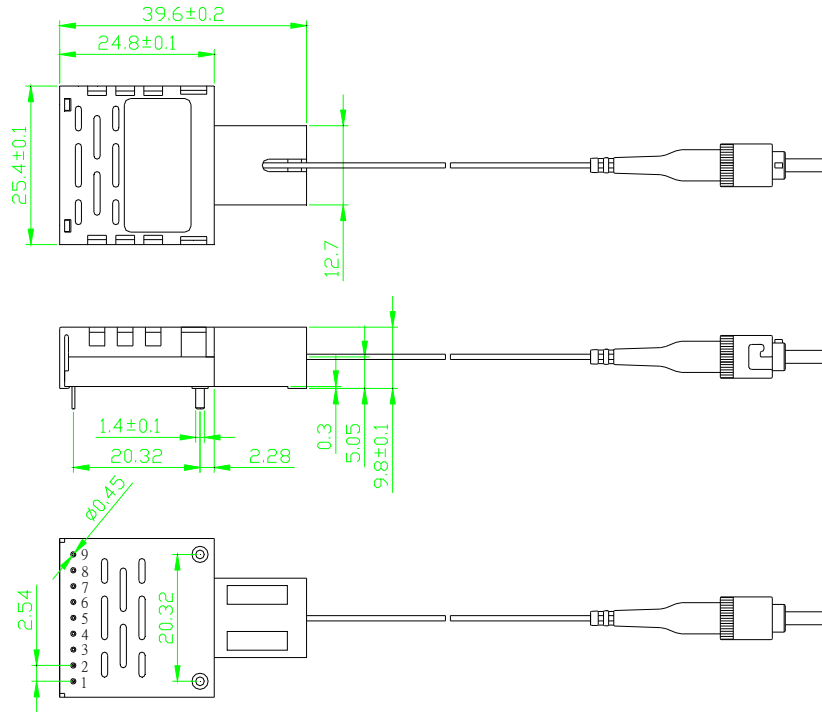
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Outline Drawing

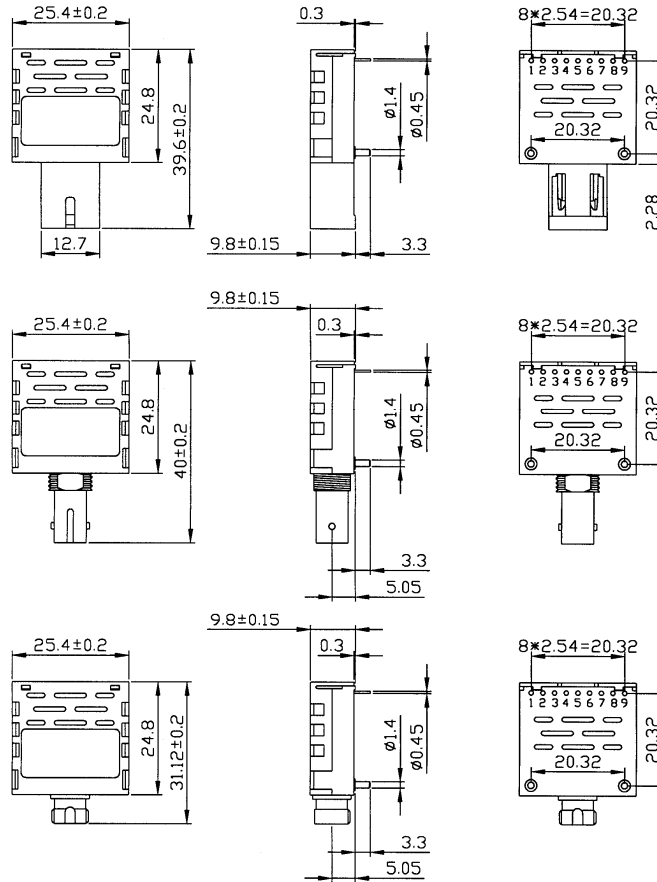
Pigtail Type :





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Receptacle Type :



Pin No.	PIN Name	
1	V _{EER}	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 _{EET}	Tx Ground