

622Mbps Singlemode Optical Transceiver

The Appointech 622 Mb/s single mode transceiver modules incorporate name brand TO-18 1310nm/1550nm LDs. InGaAs PIN photodiodes and CMOS TIA, together with own high quality circuit design and package assembly to assure performance reliability. The molded SC/ST/FC duplex case and 9 pin single row footprint are standard compliant products, which allow the board designer to create a single 9 pin layout for both multimode and singlemode applications. Metal FC connector is also available.



All modules employ the Appointech highly stable 1310nm/1550nm laser diode optical sub-assemblies. The Laser Diode driver IC has built-in Automatic power Control (APC) function. The receiver's transimpedance amplifier has Automatic gain Control (AGC) to provide wide dynamic range.

Each transceiver is shipped with a process plug inserted which must remain in place during wave soldering/aqueous washing, or when not mated to an optical connector.

Features

- Industrial standard 1x9 pin footprint
- Duplex SC/ST/FC single mode connector Interface
- Receiver signal detect function
- Name-brand 1310 nm / 1550 nm laser with APC
- Wide dynamic rang receiver with AGC
- PECL/LVPECL logic interface, DC or AC coupling
- Single supply 5V/3.3V
- Low power consumption

Applications

- ATM backbones
- ATM switches
- SONET OC-12
- SDH STM-4
- Point-to-Point links for
 - Peripheral I/O
 - PBX intermode links

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Specifications (T_A = 0 to 70° C)

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Data Rate (NRZ)	B	-	622	-	Mb/s
Optical Output Power (avg.) (1) (3)	P _o	-	-	-	dBm
-1		-12	-	-6	
-2		-6	-	0	
Extinction Ratio	-	8.3	-	-	dB
Optical Wavelength	λ	1260 1525	1310 1550	1360 1575	nm
Spectral Width	Δλ	-	1.0	3.0	nm
Output Rise Time (10-90%)	t _r	-	0.5	0.8	ns
Output Fall Time (10-90%)	t _f	-	0.5	0.8	ns
Data Input (6)	V _{IL} N _{IH}	V _{cc} -1.810 V _{cc} -1.165	- -	V _{cc} -1.475 V _{cc} -0.880	V V
Supply Voltage	V _{cc}	4.75 3.10	5.0 3.3	5.25 3.50	V
Supply Current	I _{cc}	-	-	110	mA
Receiver					
Data rate (NRZ)	B	-	622	-	Mb/s
Optical Input (avg.) Sensitivity (1) (5)	P _{IN}	-	-30	-28	dBm
Saturation	-	-3	0	-	dBm
Optical Wavelength	λ	1260 1500	1310 1550	1360 1600	nm
Output Rise Time (10-90%)	t _r	-	0.5	0.8	ns
Output Fall Time (10-90%)	t _f	-	0.5	0.8	ns
Data Output (6)	V _{OL} V _{OH}	V _{cc} -1.840 V _{cc} -1.045	- -	V _{cc} -1.62 V _{cc} -0.88	V V
Signal Detect Asserted (avg)	P _A	-	-	-28	dBm
Signal Detect Deasserted (avg)	P _D	-35	-	-	dBm
Hysteresis	-	-	2	-	dB
Supply Voltage	V _{cc}	4.75 3.10	5.0 3.3	5.25 3.50	V
Supply Current	I _{cc}	-	-	100	mA

- (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 ITU-T G.957 Eye Diagram.
- (5) 2²³-1PRBS, BER= 10⁻¹⁰.
- (6) Compatible with LVPECL and PECL logic levels.
- (7) Mates with optical connectors meeting JIS C 5973.
- (8) The transmitter output should not be viewed directly.

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Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
Operating Temperature	0	70	°C
Storage Temperature	-40	100	°C
Lead Soldering Limits	-	240/10	°C /sec
Supply Voltage	5V	7	V
	3.3V	4	V

Ordering Information

L for FP Laser Connector type R for receptacle
 F for DFB Laser SC, FC or ST P for pigtail

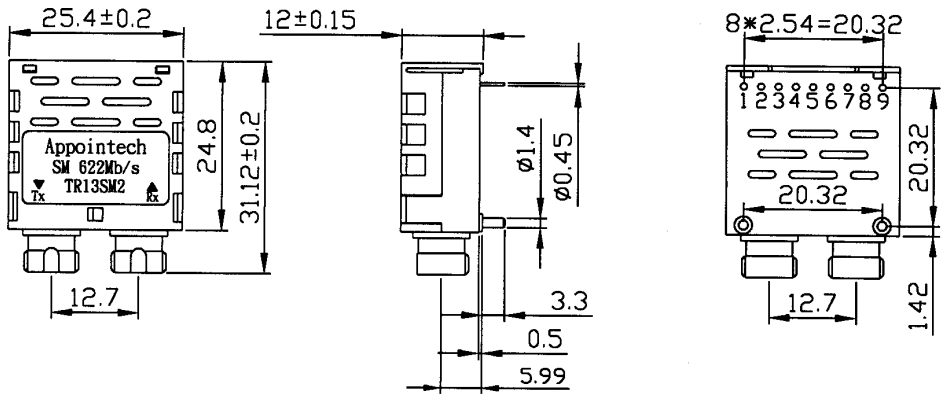
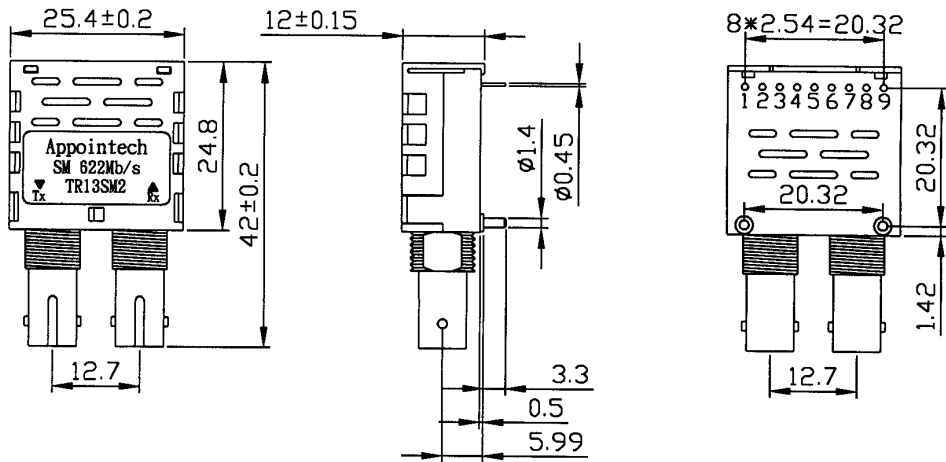
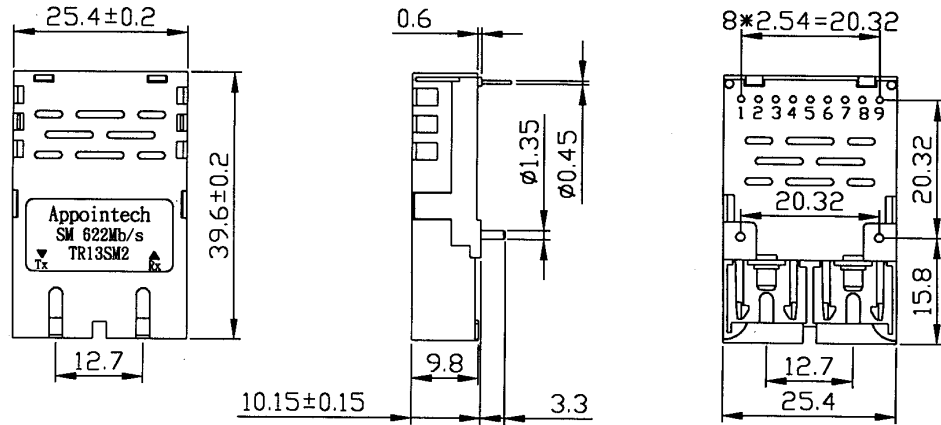
TR SM2- 9 1

Wavelength Grade Supply voltage
 13 for 1310nm 1 for -12~-6dBm 5 for 5V
 15 for 1550nm 2 for -6 ~ 0dBm 3 for 3.3V

No.	Tx	Rx	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

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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 _{CCT}	V _{CC} Power Supply
7	$\overline{\text{TD}}$	Tx Data In (Inverted)
8	TD	Tx Data In
9	V _{BET}	Tx Ground