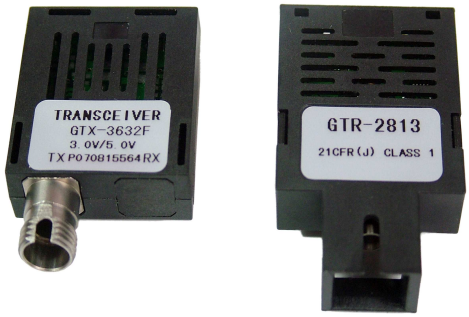
GTR-221X
Bi-Directional 1X9 Transceiver

Features



- Transmitter and receiver in one device
- SC/FC receptacle bi-directional single fiber
- 155Mbps data rate
- A type: 1310nmFPTx/1550nmRx
  B type: 1550nmFP（DFB）Tx/1310nmRx laser transmitter
- Class Ⅰ laser product compiles with IEC 60825-1
- 3.3V/ 5V power supply
- LVPECL/PECL signal input and output
- Operating Case Temperature
  Standard: 0℃~+70℃,
  Industrial:-40℃~+85℃

Applications

- WDM Application
- SDH STM-1/ SONET OC-3

Product Description

The GTR-221X optical transceiver is designed for use in155Mbps data links. It provide the SC/FC optical receptacle that is compatible with the industry standard connector. Both the transmitter and the receiver are packaged together with a top plastic cover and bottom shield. The transceiver operates with 3.3V/5V DC power supply.

Regulatory Compliance

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1(>500 V)
Electromagnetic Interference (EMI)	FCC Part 15 Class B	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2	Compatible with Class I laser product. Compatible with TÜV standards
Component Recognition	UL and CUL	UL file E317337
Green Products	RoHS	RoHS6

*Note: Products compliant with UL file E317337 use EOL9 series Part NO.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TS	-40	+85	℃
Supply Voltage	VCC	-0.5	6.0	V
Operating Relative Humidity	-		95	%
Soldering Conditions Temp/Time			260/10	℃/s

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	TA	0		+70	ºC
		-40		+85	
Power Supply Voltage	VCC	4.75	5	5.25	V
Power Supply Current	ICC		60	100	mA
Data Rate			155		Mbps

Optical and Electrical Characteristic

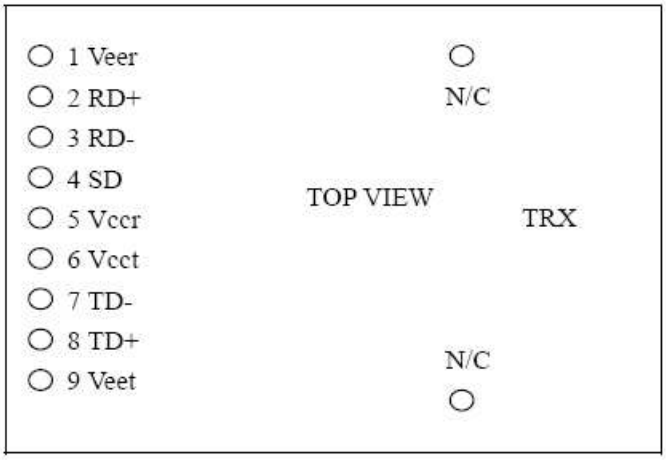
Parameter		Symbol	Min.	Typical	Max.	Unit
Transmitter						
Centre Wavelength		λ C	1260	1310	1360	nm
			1480	1550	1580	
Spectral Width	FP	σ			4	nm
	DFB				1	

TYPE A Average Output Power	20Km	P0ut	-14		-8	dBm
	40Km		-10		-5	
	60Km		-5		0	
TYPE B Average Output Power	20Km（FP）	P0ut	-14		-8	dBm
	40Km（DFB）		-10		-5	
	60Km（DFB）		-5		0	
Extinction Ratio		EX	10			dB
Rise/Fall Time (20%---80%)		tr/tf			0.5	ns
Data Input Swing Differential		Vin	500		1600	mV
Input Differential Impedance		Zin	90	100	110	Ω
Input High Voltage		VH	VCC-1165		VCC-880	mV
Input Low Voltage		VL	VCC-1810		VCC-1475	mV
Eye Diagram		Compliant with ITU-T G.957				
Data Input		LVPECL/PECL				
Receiver						
Receiver Rate		155				Mbps
Centre Wavelength		λ C	1480	1550	1580	nm
			1260	1310	1360	
Receiver Sensitivity		Pmin			-34	dBm
Receiver Overload		Pmax	-3			dBm
SD Assert		SDA			-35	dBm
SD De-Assert		SDD	-40			dBm
SD Hysteresis			0.5			dB
Output High Voltage		VH	VCC-1165		VCC-880	mV
Output Low Voltage		VL	VCC-1810		VCC-1475	mV
Data Output		LVPECL/PECL				

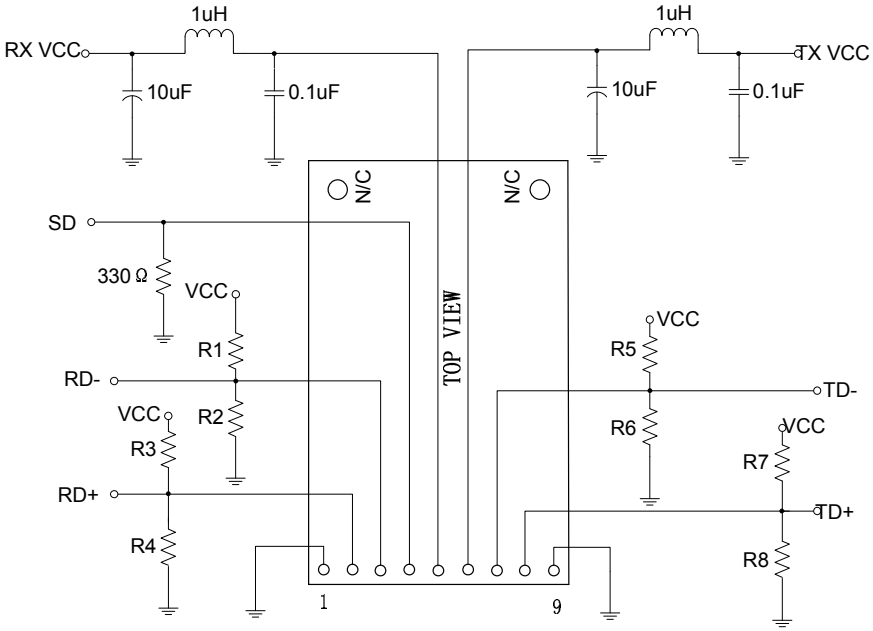
Pin Description

Pin	Name	Level	Description
1	VEER		Receiver Signal Ground, connect to receiver signal ground plane directly
2	RD+	LVPECL/PECL	Receiver Data Out, Terminate this pin with standard LVPECL/PECL techniques
3	RD-	LVPECL/PECL	Receiver Data Out, Terminate this pin with standard LVPECL/PECL techniques
4	SD	LVPECL/PECL	Signal Detect, LVTTL/TTL (Load resistor > 4.7KΩ)or LVPECL/PECL output, Normal optical input levels to the receiver result in a logic “1” output, asserted. Low input levels to the receiver result in a fault condition indicated by a logic “0”output, deasserted.
5	VccR		Receiver Power Supply ,provide +5V(+3.3V) a the recommended receiver power supply filter circuit. Locate the power filter circuit as close as possible to the VCCT pin
6	VccR		Transmitter Power Supply, provide +3.3V /+5V DC via the recommended transmitter power supply filter circuit. Locate the power filter circuit as close as possible to the VCCT pin
7	TD-	PECL	Transmitter Data in
8	TD+	PECL	Transmitter Data in
9	VEET		Transmitter Signal Ground, connect to the transmitter signal ground planed directly

Pin Definitions



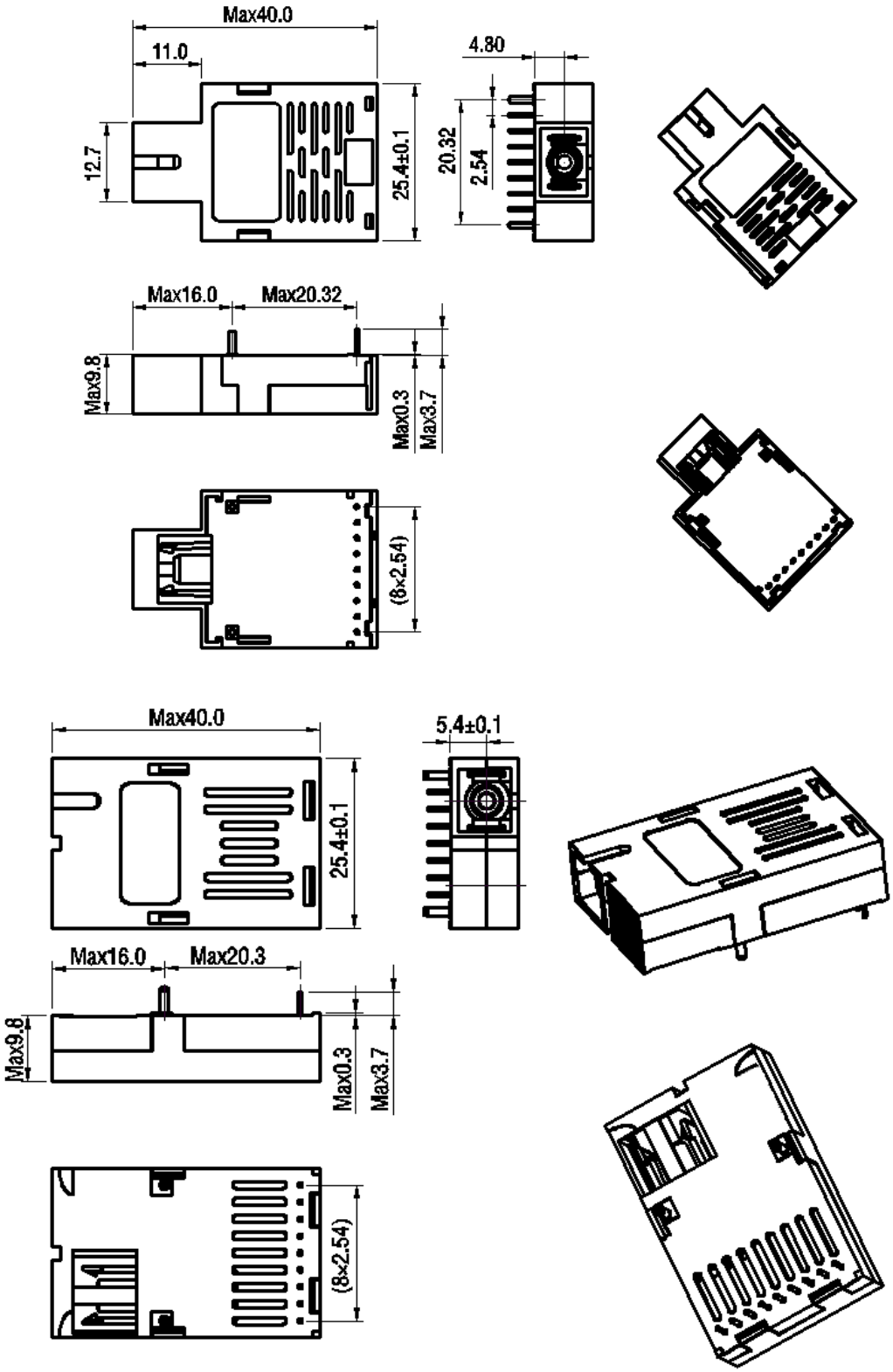
Recommended Circuit（DC-COUPLING）



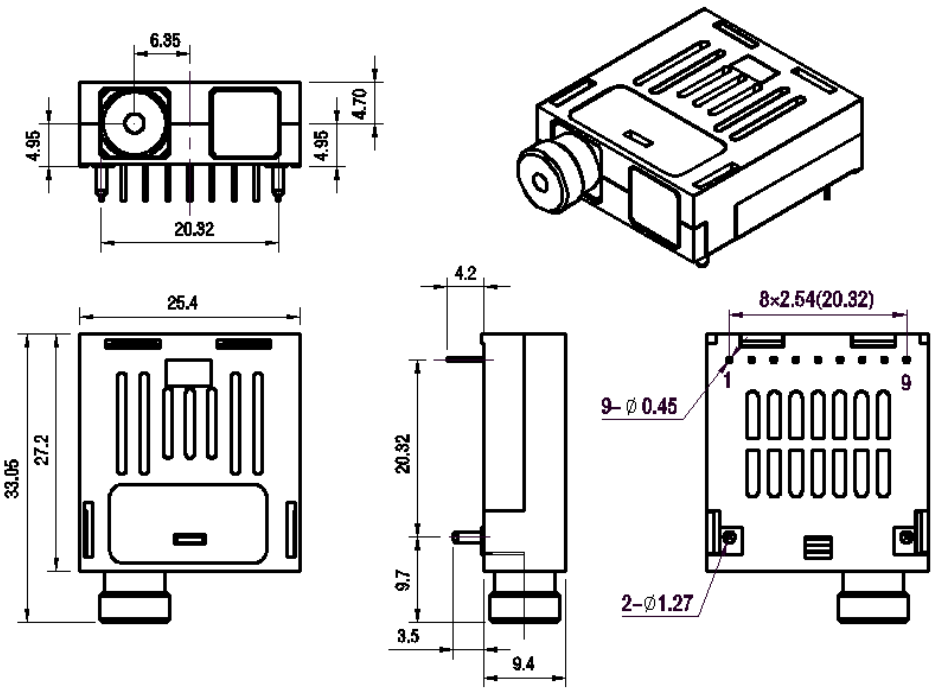
Notes:
1:Operating Voltage:+5V
R1=R3=R5=R7=82 Ω
R2=R4=R6=R8=130 Ω
2:Operating Voltage:+3.3V
R1=R3=R5=R7=130 Ω
R2=R4=R6=R8=82 Ω

Package outline (unit: mm)

SC receptacle



FC receptacle



Ordering information

Part No.	Data Rate	Laser	Fiber Type	Distance	Optical Interface
GTR-2212(A)(B)(C)	155M	1310nmFPT/1550nmR	SMF	20Km	SC/FC
GTR-2213(A)(B)(C)		1550nmFPT/1310nmR		20Km	
GTR-2214(A)(B)(C)		1310nmFPT/1550nmR		40Km	
GTR-2215(A)(B)(C)		1550nmDFB/1310nmR		40Km	
GTR-2216(A)(B)(C)		1310nmFPT/1550nmR		60Km	
GTR-2217(A)(B)(C)		1550nmDFBT/1310nmR		60Km	
GTR-2218(A)(B)(C)		1310nmFPT/1550nmR		80Km	
GTR-2219(A)(B)(C)		1550nmDFBT/1310nmR		80Km	

*A may be F, E, blank (F--FC, E--ST, blank--SC)

*B may be I (I--- Industrial operating temperature)

*C may be V, H, blank (V--3.3v, H--5V, blank--3.3v/5v)

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CONTACT:

Add: Floor 5, Building 2, No. 21 Gaopeng Avenue, High-Tech District, Chengdu City.

Tel: (+86) 028-85122709 ext 816 & 809
(+86) 028-85124308 ext 816 & 809
(+86) 028-85124306 ext 816 & 809
(+86) 028-85121709 ext 816 & 809

Fax: (+86) 028-85121912

Postal: 610041

E-mail:sales@eoptolink.com

http://www.eoptolink.com