

Features

- Transceiver unit with independent
 - 1310nm DFB Laser diode transmitter
 - InGaAs PIN photodiode receiver
- Duplex SC receptacle and plastic package
- +5V Signal power supply, PECL interface logic level
- Operate data rates from 5Mb/s to 1270Mb/s (NRZ)
- Compliant with specifications for IEEE 802.3z/Gbabit Ethernet and SONET OC-24
- Wave solderable and washable with process plug inserted

Application

- SONET OC-24
- ATM
- IEEE 802.3z/Gibabit Ethernet

General

The optical transceiver is a high performance, cost effective module for serial optical data communication applications. It is designed to provide a SONET/IEEE 802.3 compliant link for OC-24/Gigabit Ethernet long reach links.

Transmitter Section

Transmitter is designed for single mode fiber and operates at a nominal wavelength of 1310nm. The transmitter module uses a DFB laser diode and full IEC825 and CDRH class 1 eye safety. It contains APC function, temperature compensation circuit and PECL logic interface, as shown in figure 1.

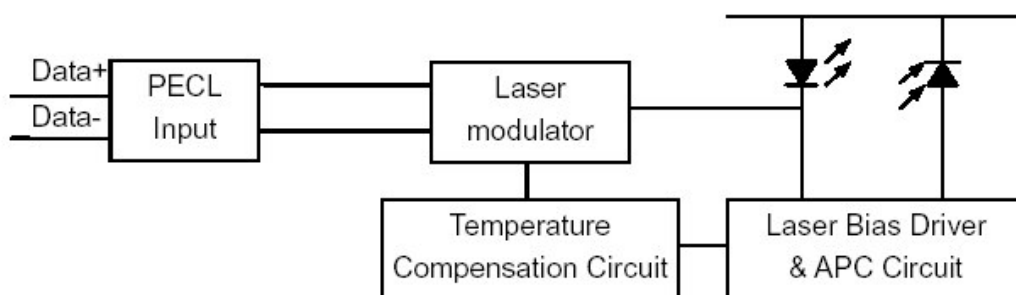


Figure1. Transmitter Block Diagram

Receiver Section

The receiver section uses a hermetic packaged front end receiver (InGaAs PIN and preamplifier). The postamplifier is ac coupled to preamplifier through a capacitor and a low pass filter, as shown in figure 2. The capacitor and LPF are enough to pass the signal from 5Mb/s to 1270Mb/s without significant distortion or performance penalty. The LPF limits the preamplifier bandwidth to improve receiver sensitivity. Figure 2 shows the receiver section which proves PECL logic differential outputs and a signal detect output. As the input optical is decreased, Signal Detect will switch from high to low (deassert point). As the input optical power is increased from very low levels, Signal Detect will switch back from low to high (assert point).The assert level will be at least 0.5 dB higher than the de-assert level.

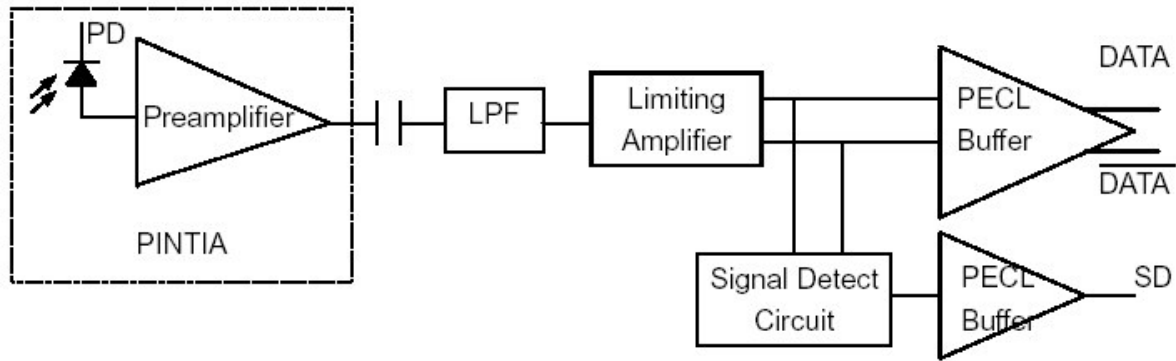


Figure 2. Receiver Block Diagram

Performance Specifications

Table1. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	
Storage Temperature	Tst	-40	+85	°C	
Input Voltage	-	GND	Vcc	V	
Power Supply Voltage	Vcc-Vee	0	+6	V	
Lead Soldering Temperature/Time	-	-	240/10	°C/S	
Operating Temperature	To	SSTR3251-25-113	0	+70	°C
		SSTR3251-25-213	-40	+85	

Note: Stress in excess of maximum absolute ratings can cause permanent damage to the module

Table2. Operating Environment

Parameter	Symbol	Min	Max	Unit	
Power Supply Voltage	Vcc	+4.75	+5.25	V	
Ambient Operating Temperature	Tc	SSTR3251-25-113	0	+70	°C
		SSTR3251-25-213	-40	+85	

Table 3. Optical and Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Center Wavelength	λ_p	1280	1310	1335	nm	-
Spectral Width	$\Delta\lambda(-20dB)$	-	-	1	nm	-
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Optical Output Power	Po	-3	-	+2	dBm	-
Extinction Ratio	EXT	10	-	-	Db	-
Power Supply Current	Icc	-	70	180	Ma	1
Data Inputs	PECL					
Output Eye	Compliant with Bellcore TR-NWT-000253 and ITU Recommendation G957					
Receiver						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Sensitivity	Pr	-	-25	-23	dBm	2
Maximum input power	Ps	-3	-	-	dBm	2
Signal Detect Assert Level	-	-35	-	-	dBm	Low Level: Alarm
Signal Detect Deassert Level	-	-	-	-23	dBm	
Signal Detect Hysteresis	-	-	3	-	dB	
Power Supply Current	Icc	-	80	100	mA	1
Data Outputs	PECL					
Alarm Output	PECL					

PECL Input Pins SD, TD+ and TD-

Parameter	Symbol	Min	Typ	Max	Unit	Note
Input HIGH voltage	V _{IH}	VCC - 1165	-	VCC - 880	mV	3
Input LOW voltage	V _{IL}	VCC - 1810	-	VCC - 1475	mV	3

PECL Output Pins SD, RD+ and RD-

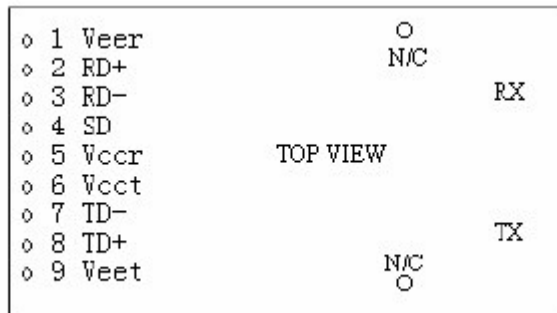
Parameter	Symbol	Min	Typ	Max	Unit	Note
LOW-level output voltage	V _{oL}	VCC - 1840	-	VCC - 1600	mV	3
HIGH-level output voltage	V _{oH}	VCC - 1100	-	VCC - 900	mV	3

Note :

1. The current excludes the output load current.
2. Minimum Sensitivity and saturation levels for a 2^{23} -1 PRBS with 72 ones and 72 zeros inserted (ITU recommendation G958)
3. RL=50 R (Ohms) connected to a level of VCC-2V

Pin Definitions

Pin Diagram

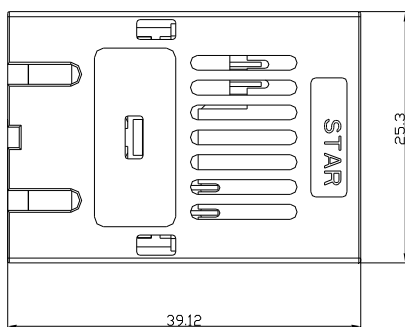
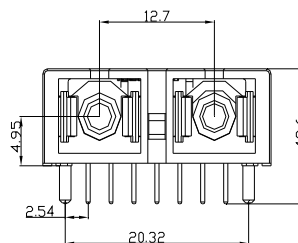
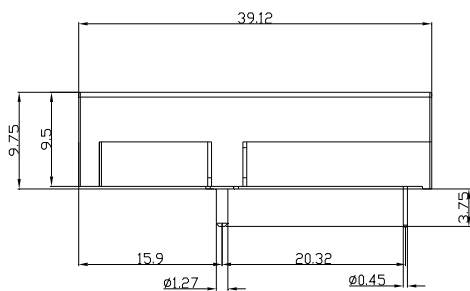


Pin Description

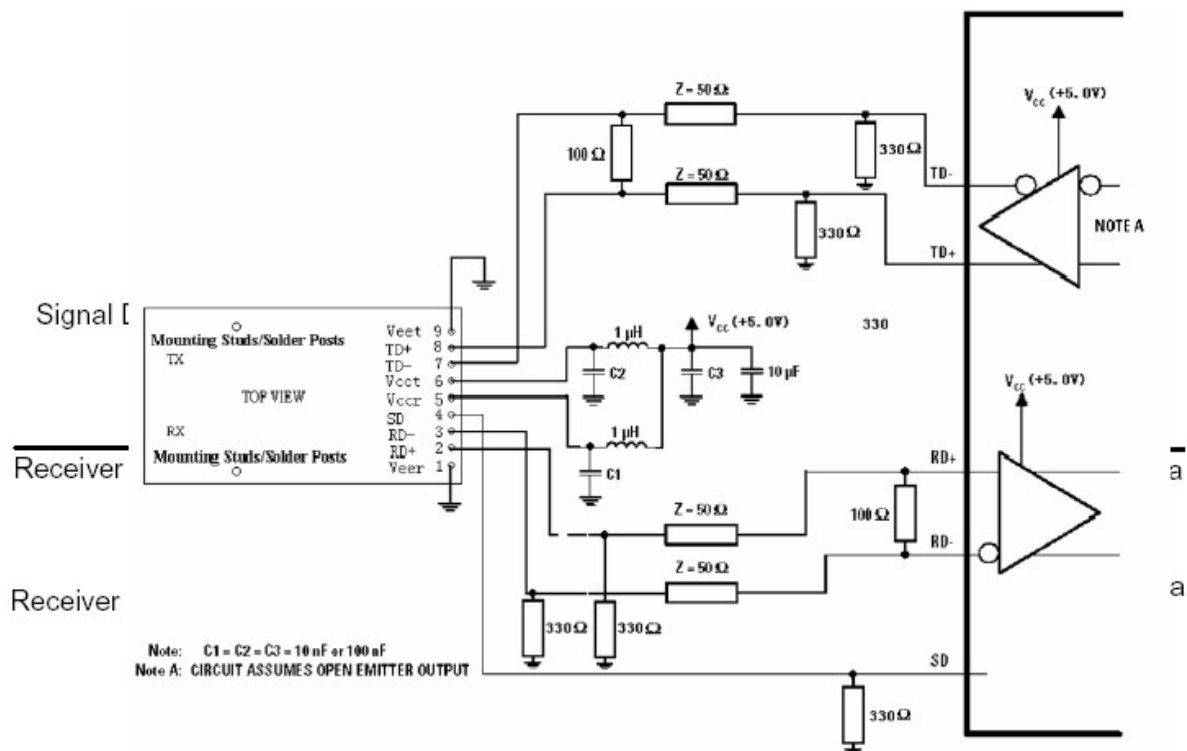
Pin#	Pin Name		Logic Level	Description
N/C	Mounting Studs		-	The two pins are not connected to the transceiver internal circuit.
1	VEER	RX Ground	N/C	Directly connect this pin to receiver signal ground plane.
2	RD+	RX Output Data	PECL	
3	RD-	RX Output Inverted Data	PECL	
4	SD	RX Signal Detect	PECL	Normal Operation: Logic "1" output, represents that optical is present at receiver input. Fault Condition: Logic "0" output
5	VCCR	RX Power Supply	N/C	Provide +5V DC through the recommended power supply filter circuit. Place the filter circuit as close as possible to the VCCR pin.
6	VCCT	TX Power Supply	N/C	Provide +5V DC through the recommended power supply filter circuit. Place the filter circuit as close as possible to the VCCT pin
7	TD-	TX Invert Data Input	PECL	-
8	TD+	TX Data Input	PECL	-
9	VEET	TX Ground	N/C	Directly connect this pin to transmitter signal ground plane.

Package Information

Unit:mm



Recommended Circuit



Obtaining Document

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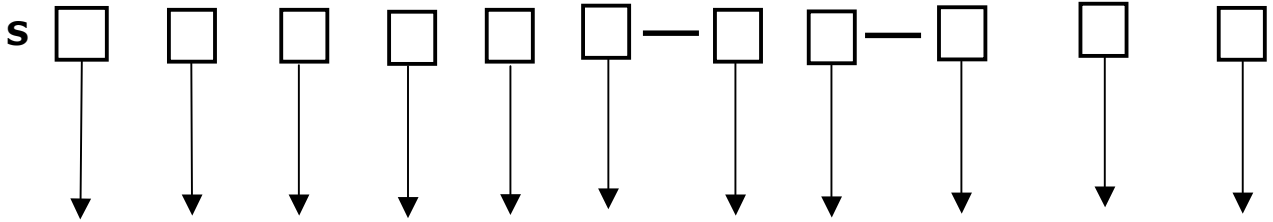
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Ordering Information



Classification:	Type:	Wavelength:	LD Type:	Data	Pack	Output	Power:	Operate	Signal	3:SC/PC
S: General	TR	3:1310 nm	2:DFB	rate :	1:1*9(TR)	Power:	5:5V	Temperature:	Detect:	
Information	.			5:1.25G		-10~-3	(dBm)	1: 0~70°C	1: PECL	
								2: -45~+85°C	Signal/ PECL	
									Alarm	

Part number	Product Information
SSTR3251-15-113	1310nm 1.25Gb/s 1×9 0~70°C
SSTR3251-15-213	1310nm 1.25Gb/s 1×9 -45~+85°C