Features

- Transceiver unit with independent
  - 1310nm MQW FP Laser diode transmitter
  - InGaAs PIN photodiode receiver
- Duplex pigtail FC connector and metallic package
- +5V Signal power supply, PECL interface logic level
- Links of 15 km with 9/125 μm signal mode fiber(SMF)

Application

- SONET/SDH
- Ethernet
- ATM
- Switches
- Routers
- Hubs

General

The optical transceiver is a high performance, cost effective module for serial optical data communication applications.

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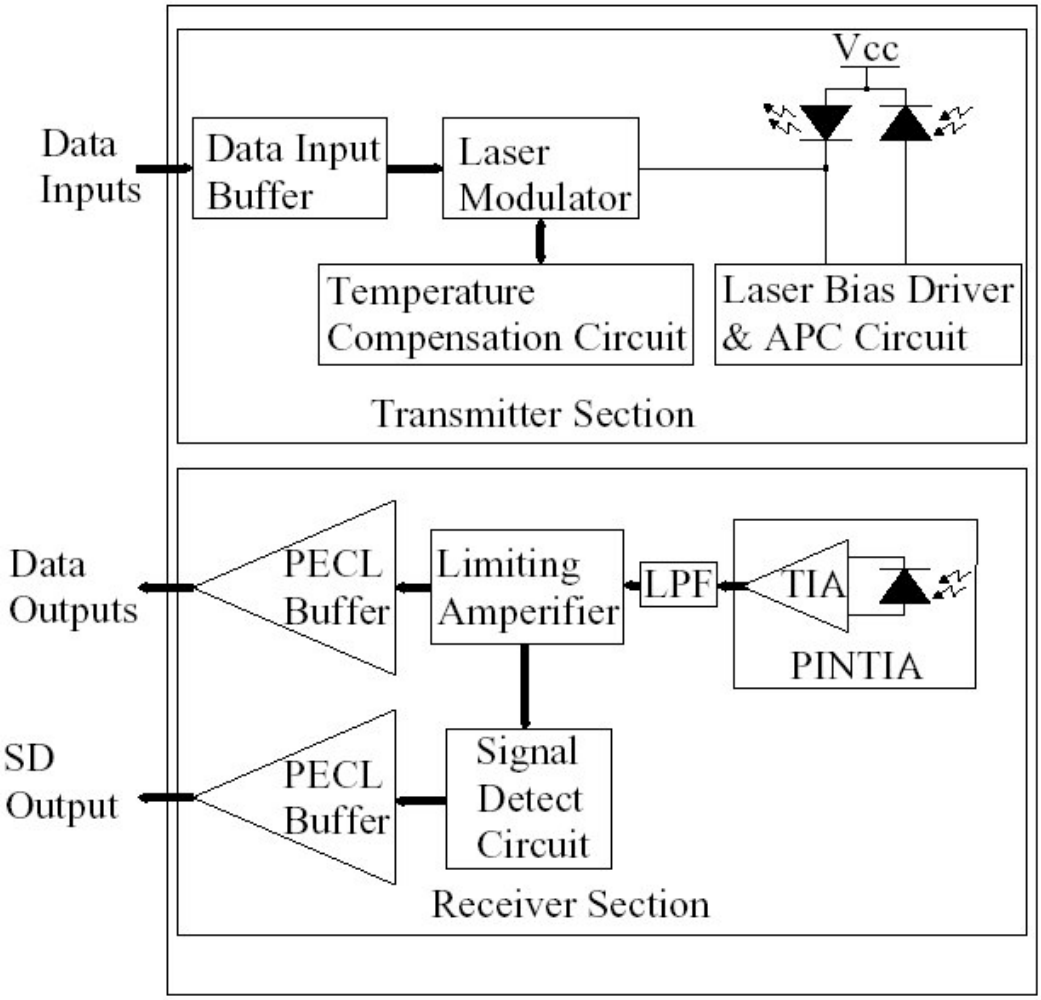


Transmitter Section

Transmitter is designed for single mode fiber and operates at a nominal wavelength of 1310nm. The transmitter module uses a MQW FP laser diode and full IEC 825 and CDRH class 1 eye safety. It contains APC function, temperature compensation circuit, PECL logic interface.

Receiver Section

The receiver section uses a hermetic packaged PINTIA (InGaAs PIN and trans—impendence amplifier) and a limiting amplifier. Which transforms input optical power to optical current through PIN PD. And the optical current is transformed to voltage signal by trans-impendence amplifier. Differential DATA and /DATA PECL data signal that is open emitter output is produced by limiting amplifier and voltage signal that is through limiting amplifier and filter. The receiver signal detect monitors input optical signal. When the optical power is not enough to support module operating normally, SD pin will beat PECL logic level 0 and signal detect appears. The PINTIA is ac coupled to limiting amplifier through a low pass filter. The LPF are enough to pass the signal from 5Mb/s to 200Mb/s without significant distortion or performance penalty.

Performance Specifications

Table1. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	Tst	-40	+85	℃
Input Voltage	-	GND	Vcc	V
Power Supply Voltage	Vcc-Vee	0	+6	V
Lead Soldering Temperature/Time	-	-	240/10	℃/S
Operating Temperature		0	70	℃

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

Tabel 2. Operating Environment

Parameter	Symbol	Min	Max	Unit
Power Supply Voltage	Vcc	+4.75	+5.25	V
Ambient Operating Temperature	-	0	+70	℃

Tabel 3. Optical and Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Center Wavelength	λ_p	1261	1310	1360	nm	-
Spectral Width	$\Delta\lambda$(RMS)	-	-	7.7	nm	-
Average Optical Output Power	Po	-15	-	-8	dBm	-
Extinction Ratio	EXT	8.2	-	-	dB	-
Power Supply Current	Icc	-	70	180	mA	1
Output Eye	Compliant with ITU recommendation G.957					
Data Inputs	PECL					
Receiver						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Sensitivity	Pr	-	-38	-36	dBm	2
Maximum input power	Ps	-6	-	-	dBm	2
Signal Detect Assert Level	-	-50	-	-	dBm	Low-level: Alarm
Signal Detect Deassert Level	-	-	-	-36	dBm	
Signal Detect Hysteresis	-	-	3	-	dB	
Operating 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 – 1100	-	VCC - 740	mV	3
Input LOW voltage	V_{IL}	VCC - 2000	-	VCC – 1580	mV	3

PECL Output Pins SD, RD+ and RD-

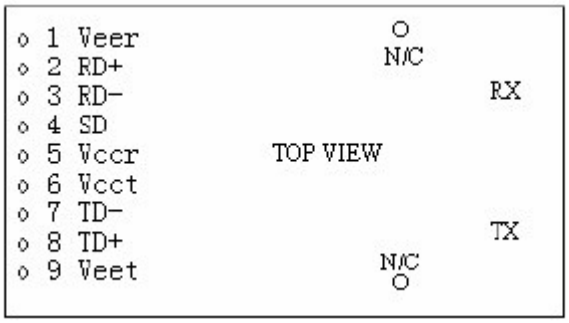
Parameter	Symbol	Min	Typ	Max	Unit	Note
LOW-level output voltage	V_{OL}	VCC – 1840	-	VCC - 1600	mV	3
HIGH-level output voltage	V_{OH}	VCC - 1100	-	VCC – 900	mV	3

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=50R connected to a level of Vcc –2V.**

Pin Definitions

Pin Out Diagram

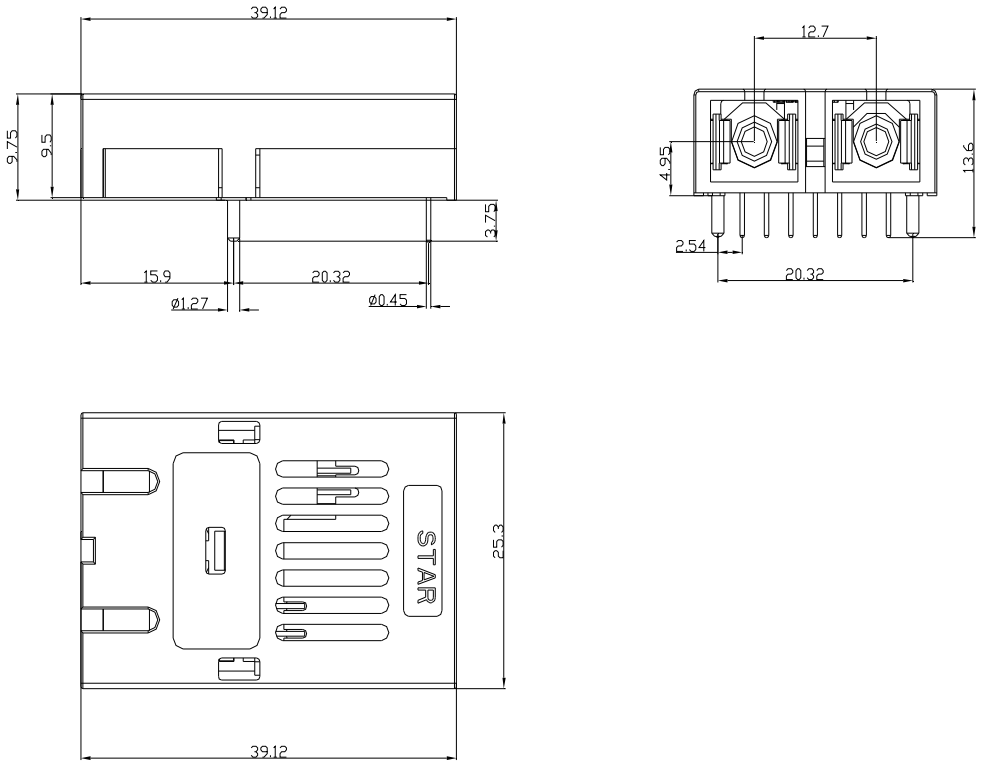


Pin Description

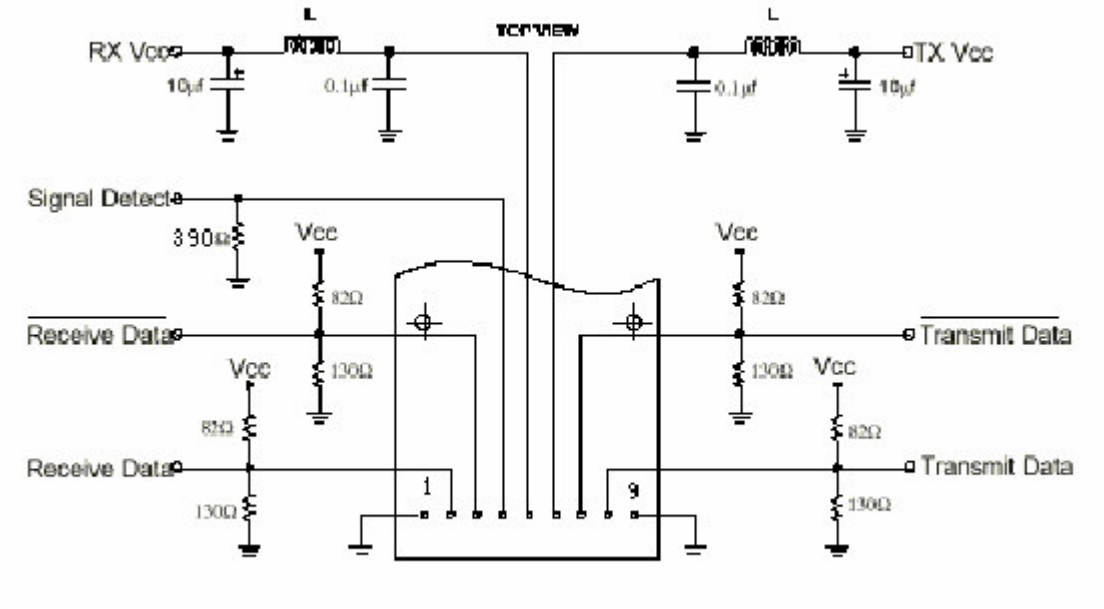
Pin#	Pin Name		Logic Level	Description
N/C	Mounting Studs		-	The two pins are not connected to the transceiver internal circuit.
1	VEER	RX Ground	N/C	Directly connect this pin to receiver signal ground plane.
2	RD+	RX Output Data	PECL	
3	RD-	RX Output Inverted Data	PECL	
4	SD	RX Signal Detect	PECL	Normal 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



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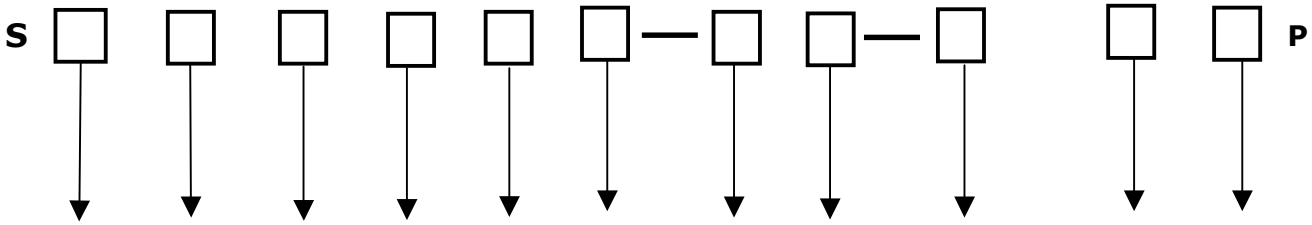
Ordering Information



Classification:	Type:	Wavelength:	LD Type:	Data rata :	Pack	Output Power:	Power:	Operate Temperature:	Signal Detect:	1:FC/PC
S: General Product	TR	3:1310 nm .	1: FP	3:155M	1:1*9(TR)	-15~-8 (dBm)	5:5V	1: 0~70℃	1: PECL Signal/ PECL Alarm	

Part number	Product Information
SSTR3131-15-111P	1310nm 155Mb/s 1*9 0~70℃