

Features

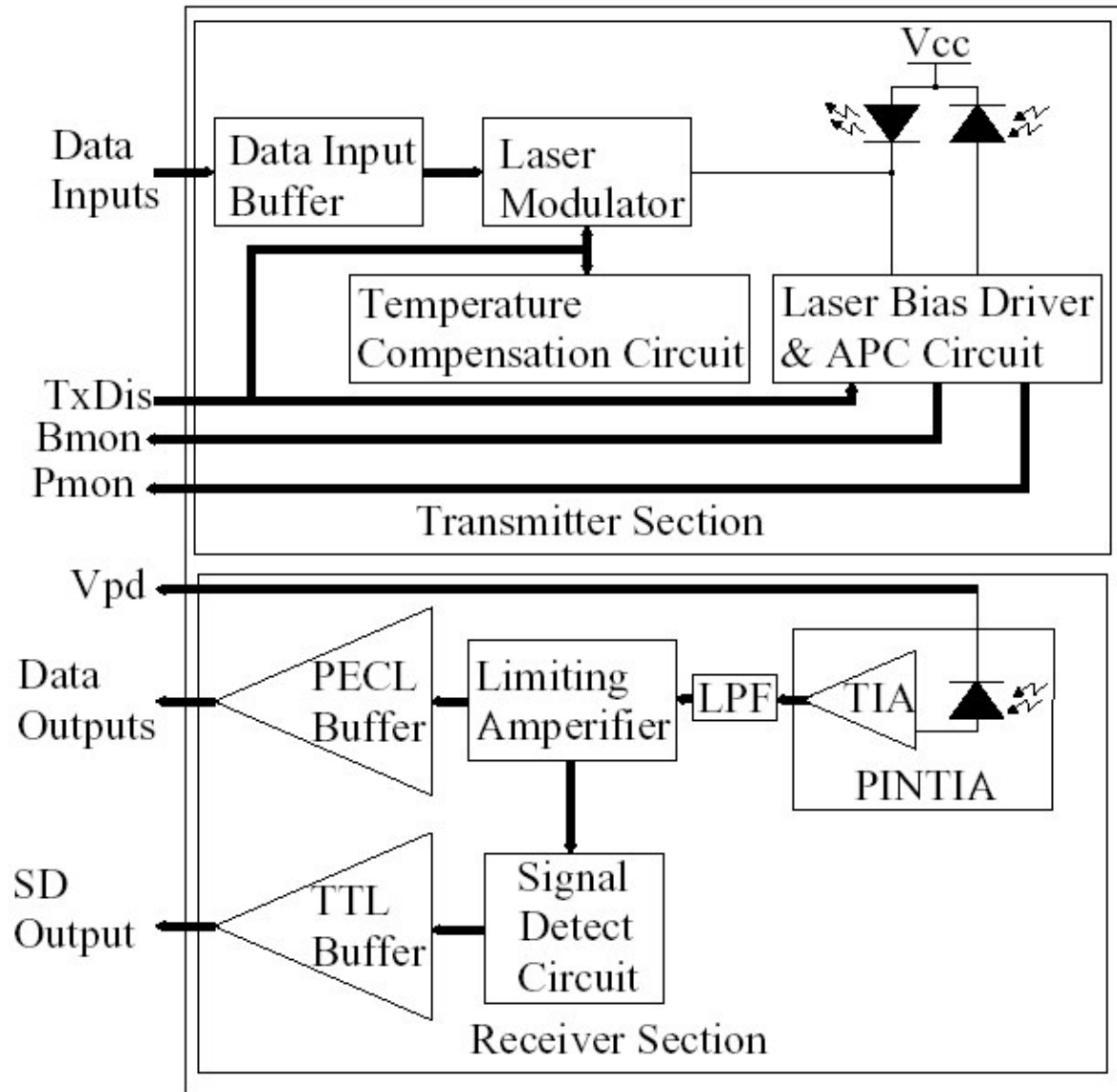
- Transceiver unit with independent
 - 1550nm DFB Laser diode transmitter
 - InGaAs PIN photodiode receiver
- Meet SFF MSA with duplex LC receptacle
- Metal enclosure for lower EMI
- +3.3V Single power supply
- Qualified to meet the intent of Bellcore reliability practices
- LVPECL logic interface simplifiers interface to external circuitry
- LVTTTL logic signal detect output
- Links of 80km with 9/125 μm signal mode fiber (SMF)

Application

- SONET/SDH
- ATM

General

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



Transmitter Section

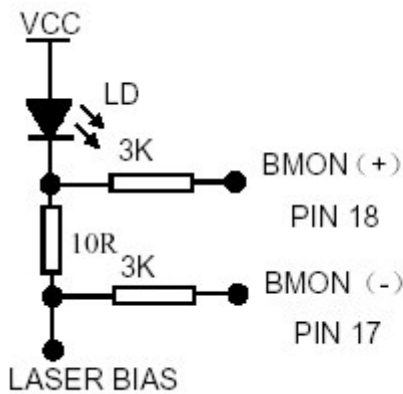


Figure 2 LD Bias Current Monitor Circuit

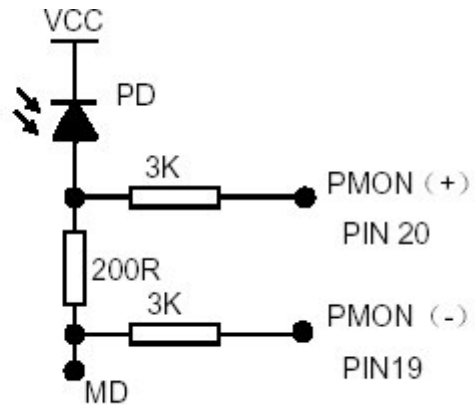


Figure 3 Power Monitor Circuit

Transmitter is designed for single mode fiber and operates at a nominal wavelength of 1550nm. The transmitter module uses a DFB laser diode and full IEC 825 and CDRH class 1 eye safety. The output optical power can be disabled via the single TxDis pin. Logic LVTTTL HIGH level disables the transmitter. It contains APC function, temperature compensation circuit, PECL data TxDis input interface, LVTTTL TxDis input interface, LD bias current monitor circuit, power monitor circuit.

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	+3.6	V	
Lead Soldering Temperature/Time	-	-	260/10	°C/S	
Operating Temperature	To	SSFF5242-23-125	0	+70	°C
		SSFF5242-23-225	-40	+85	

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

Table 2. Operating Environment

Parameter	Symbol	Min	Max	Unit	
Power Supply Voltage	Vcc	+3.1	+3.5	V	
Ambient Operating Temperature	Tc	SSFF5242-23-125	0	+70	°C
		SSFF5242-23-225	-40	+85	

Table 3. Optical and Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Center Wavelength	λ_p	1480	1550	1580	nm	
Spectral Width	$\Delta\lambda$	-	-	1	nm	
Side Mode Suppression Ratio	SMRS	30	-	-	dB	
Average Optical Output Power	P _o	-3	-	+2	dBm	
Extinction Ratio	EXT	10	-	-	dB	
Transmitter disable Voltage	V _D	2.0	-	V _{CC}	V	
Transmitter Enable Voltage	V _{EN}	0	-	0.8	V	
Data Input HIGH Voltage	V _{IH}	V _{CC} -1165	-	V _{CC} -880	mV	3
Data Input LOW Voltage	V _{IL}	V _{CC} -1810	-	V _{CC} -1475	mV	3
Power Supply Current	I _{CC}	-	70	180	mA	
Laser Bias Monitor (Bmon(+)-Bmon(-))	-	-	0.05	0.9	V	
Power Monitor (Pmon(+)-Pmon(-))	-	0.01	0.1	0.2	V	
Output Eye	Compliant with ITU recommendation G957					
Receiver Specifications						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Operate wavelength	λ	1260		1580	nm	
Sensitivity	P _r	-	-31	-28	dBm	2
Maximum input power	P _s	-3	-	-	dBm	2
Signal Detect Assert Level	-	-	-	-28	dBm	Low-level: Alarm
Signal Detect Deassert Level	-	-45	-	-	dBm	
Signal Detect Hysteresis		0.5	3	-	dB	
Operating Current	I _{CC}	-	70	180	mA	1
Data Outputs	LVPECL					

LVPECL Output Pins SD, RD+ and RD-

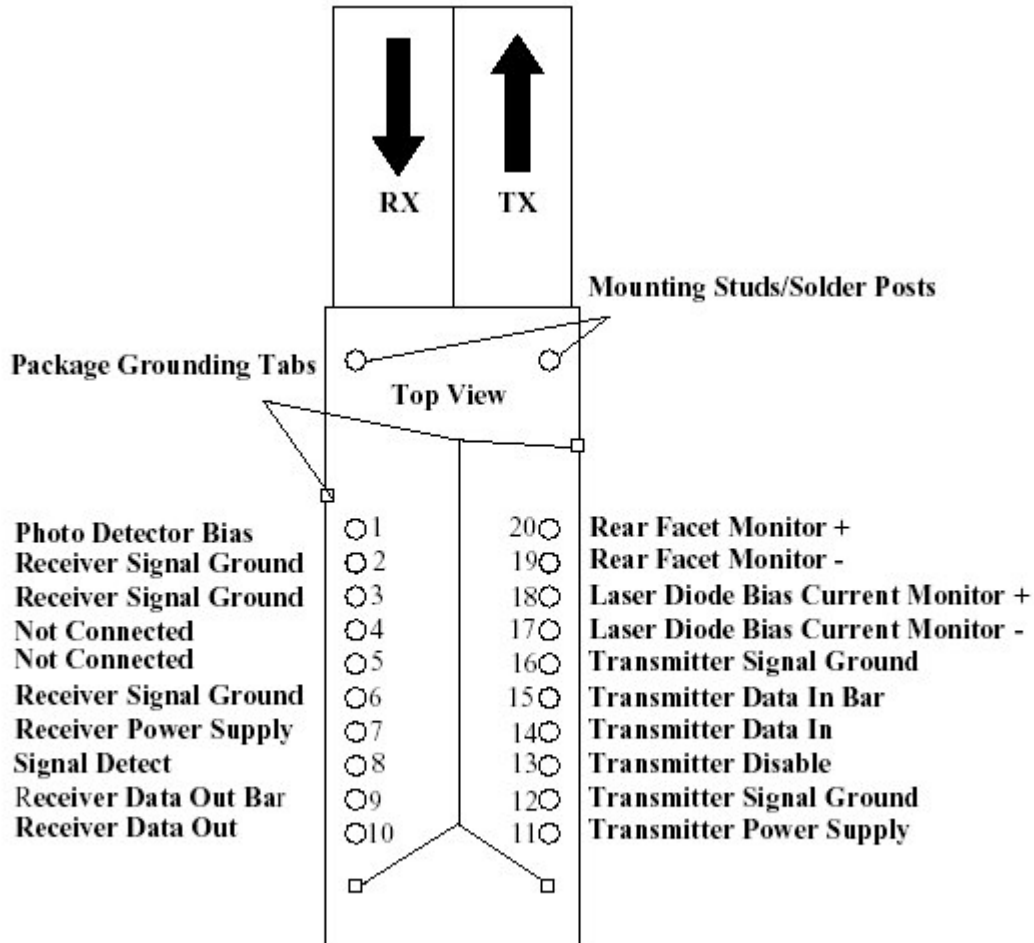
Parameter	Symbol	Min	Typ	Max	Unit	Note
LOW-level output voltage	V _{OL}	V _{CC} - 1840	-	V _{CC} - 1600	mV	3
HIGH-level output voltage	V _{OH}	V _{CC} - 1100	-	V _{CC} - 900	mV	3

Note :

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

Pin Definitions

Pin Out Diagram



Pin Description

Pin#	Name	Function	Note
		Mounting Studs/Solder Poster	Note 1
		Package Grounding Tabs	Note 2
1	Vpd	Photon detector Bias	Note 3
2	VEER	Receiver Signal Grounding	Note 4
3	VEER	Receiver Signal Grounding	Note 4
4	NC	Not Connected	
5	NC	Not Connected	
6	VEER	Receiver Signal Grounding	Note 4
7	VCCR	Receiver Power Supply	Note 5
8	SD	Signal Detect	Note 6
9	RD-	Receiver Data Out Bar	PECL logic family. DC coupled
10	RD+	Receiver Data Out	PECL logic family. DC coupled
11	VCCT	Transmitter Power Supply	Note 7
12	VEET	Transmitter Signal Ground	Note 8
13	TxDis	Transmitter Disable	Note 9
14	TD+	Transmitter Data In	PECL logic family
15	TD-	Transmitter Data In Bar	PECL logic family
16	VEET	Transmitter Signal Ground	Note 8
17	BMON-	Laser Diode Bias Current Monitor-	Note 10
18	BMON+	Laser Diode Bias Current Monitor+	Note 10
19	PMON-	Rear Facet Monitor-	Note 11
20	PMON+	Rear Facet Monitor+	Note 11

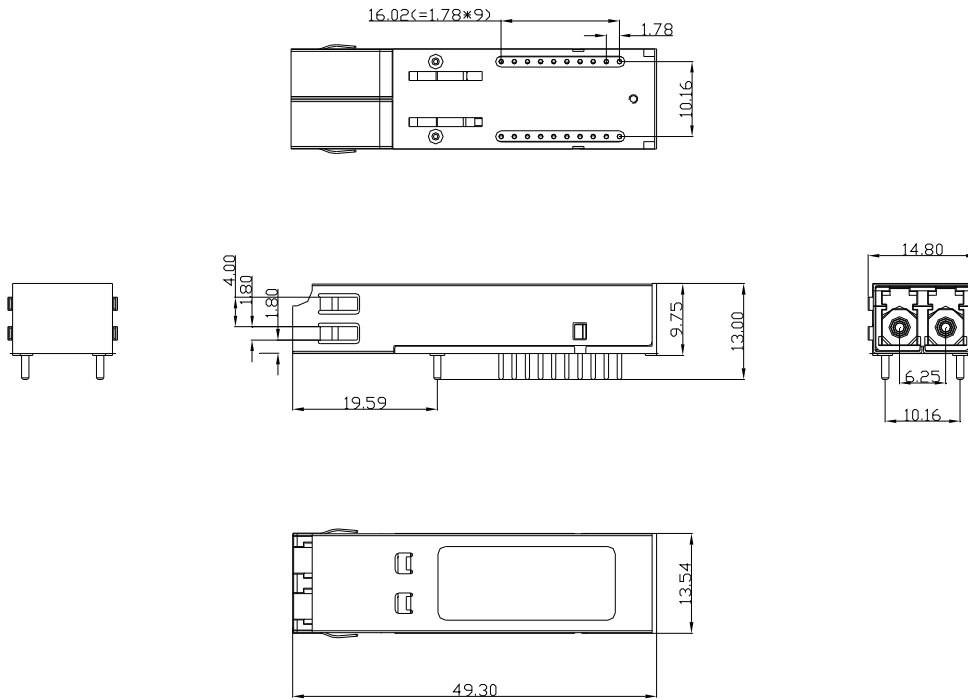
Note:

- The two mounting studs did not be connected to the interior of ground. They are provided for transceiver mechanical attachment to the circuit board. It is recommended that the holes in the circuit board be connected to chassis ground.**
- Those tabs did not be connected to the interior of ground. Connect four package grounding tabs to receiver signal ground.**
- This pin enables monitoring of photo detector bias current. The pin should either be connected directly to VCCR_X, or to VCCR_X through a resistor for monitoring photo detector bias current.**
- Directly connect these pins to the receiver ground plane.**
- Provide +3.3V DC via the recommend receiver power supply filter circuit. Locate the power supply filter circuit as close as possible to the VCCR_X pin.**
- Normal optical input levels to the receiver result in logic "1" output. Low optical input levels to the receiver result in a logic "0" output.**
- Provide +3.3V DC via the recommended transmitter power supply filter circuit. Locate the power supply filter circuit as close as possible to the VCCR TX pin.**
- Directly connect these pins to the transmitter signal ground plane.**

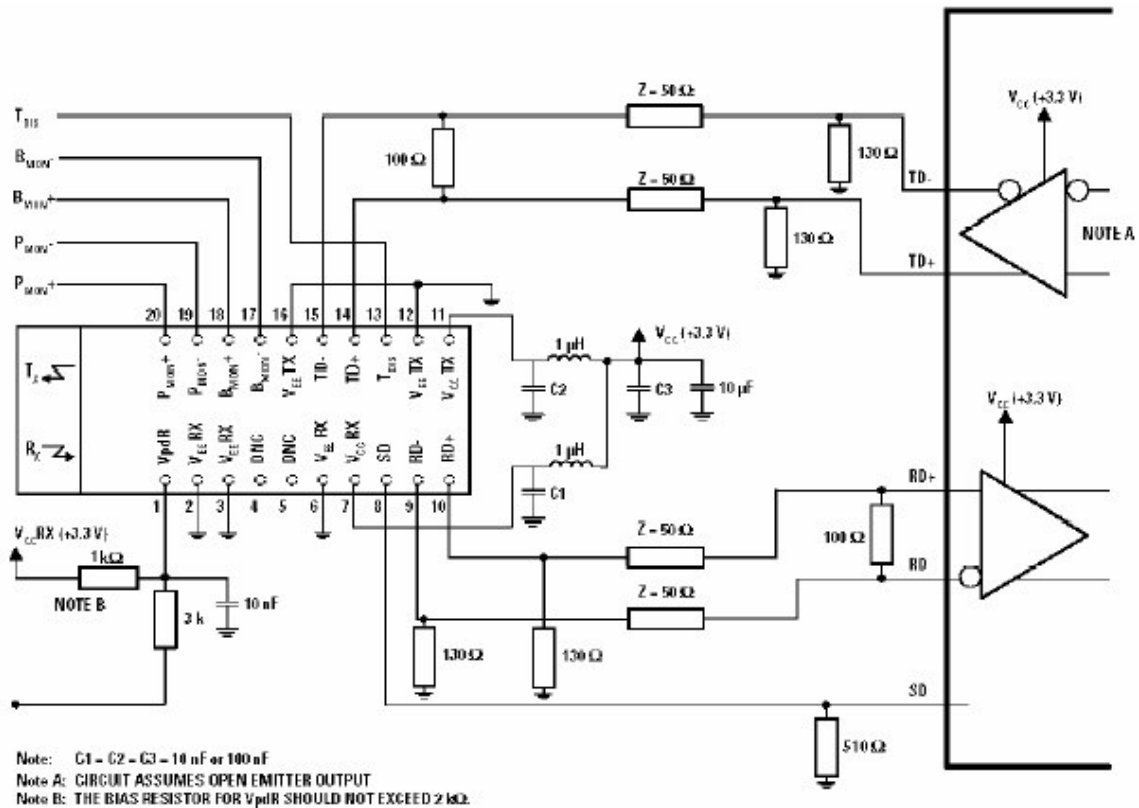
- 9. LVTTTL logic lever, to enable module connect to TTL logic low "0".
- 10. The laser diode bias current is accessible by measuring the voltage developed across pins 17 and 18.
- 11. The rear facet monitor is accessible by measuring the voltage developed across pins 19 and 20.

Package Information

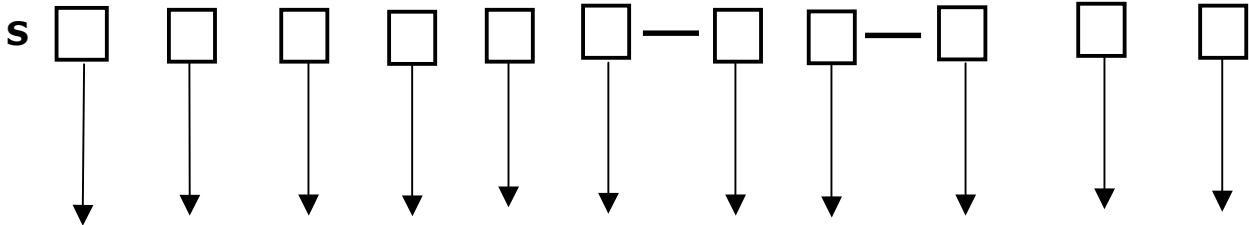
Unit: mm



Recommended Circuit



Ordering Information



Classification: Type: Wavelength: LD Type: Data Package Output Power: Operate Signal Detect: 5:LC/PC
 S: General Product FF 5:1550 nm 2: DFB rata: 2:2*10(FF -3~+2 (dBm) 3:3.3V Temperature: 1: 0~70°C 2:-45~+85°C
 2: PECL Signal/TTL Alarm

Part number	Product Information
SSFF5242-23-125	1550nm 2*10 622Mb/s 0~70°C
SSFF5242-23-225	1550nm 2*10 622Mb/s -45~+85°C