



2.5G Single Fiber BIDI 1x9 Optical Transceiver

5414-331-1P

5416-231-1P

1.Feature

- 1×9 package with SC connector
- 1310nm DFB Tx/1550nm PIN Rx and
- 1550nm DFB TX/1310nm PIN RX
- 20Km transmission with SMF
- +3.3V single power supply
- LVPECL compatible data input/output interface
- Low EMI and excellent ESD protection
- laser safety standard IEC-60825 compliant
- Compatible with RoHS



2.Application

- OC-48 IR-1 / SDH STM S-16.1
- SONET OC-12 SR / SDH STM I-4
- SONET OC-3 SR / SDH STM I-1
- Gigabit Ethernet / 1x/2x Fibre Channel

3.Description

The 1×9 transceiver supports 2.5Gbps and 20Km transmission distance with SMF.

The transceiver consists of two sections: The transmitter section incorporates a FP laser. the receiver section consists of a PIN photodiode integrated with a trans-impedance preamplifier (TIA).





4. Performance specifications

4.1 Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	Tst	-40	+85	°C
Operating Temperature	Top	0	+70	°C
Supply Voltage	Vcc	0	+3.6	V
Input voltage	Vin	GND	Vcc	
Lead Soldering Temperature & Time	240/10			°C/s

4.2 Operation Environment

Parameter	Symbol	Minimum	Maximum	Units
Supply Voltage	Vcc	3.15	3.45	V
Ambient operating Temperature	Top	0	+70	°C
Operating Relative Humidity	-	5	95	%

4.3 Transmitter Section

(Ambient Operating Temperature 0°C to +70°C, Vcc = 3.3 V)

Parameter	Symbol		Min.	Typ.	Max.	Units
Data rate	-		-	2500	-	Mb/s
Center Wavelength	Tx 1310	λ_o	1300	1310	1320	nm
	Tx 1550		1540	1550	1560	
Output Spectral width	Tx 1310	$\Delta\lambda$	-	-	1	nm
	Tx 1550				1	
Average Optical Output Power	Tx 1310	Po	-5	-	0	dBm



	Tx 1550		-5		0	
Extinction Ratio	Er		8	-	-	dB
Rise/Fall Time(20%~80 %)	Tr/Tf				0.16	ns
Total jitter	Tj				0.07	UI
Optical Eye Diagram	IEEE 802.3z and ANSI Fibre Channel Compatible					
Input differential impedence	Zdiff			100		Ohm

4.4Receiver Section

(Ambient Operating Temperature 0°C to +70°C, Vcc =3.3 V)

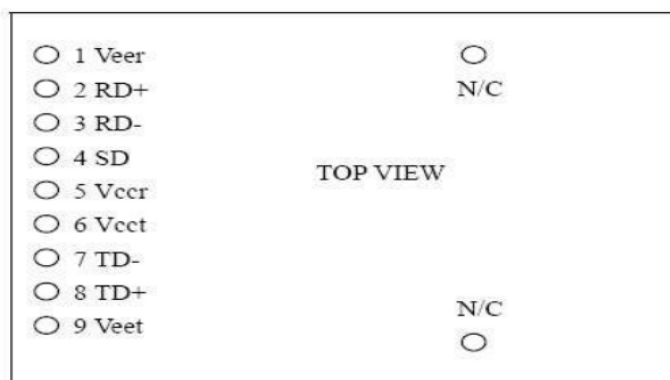
Parameter	Symbol		Min.	Typ.	Max.	unit
Data rate				2500		Mb/s
Wavelength	Rx 1550	λ	1500	1550	1600	nm
	Rx 1310		1260	1310	1360	
Receiver Sensitivity	Rx 1550	Rsen	-		-22	dBm
	Rx 1310				-22	
Receiver Overload	Rov		-3			
Output differential impedance	Zdiff			100		Ohm
LOSS Thresholds	LOSS _D		-	-	-23	dBm
	LOSS _A		-36			

5.Pin Description

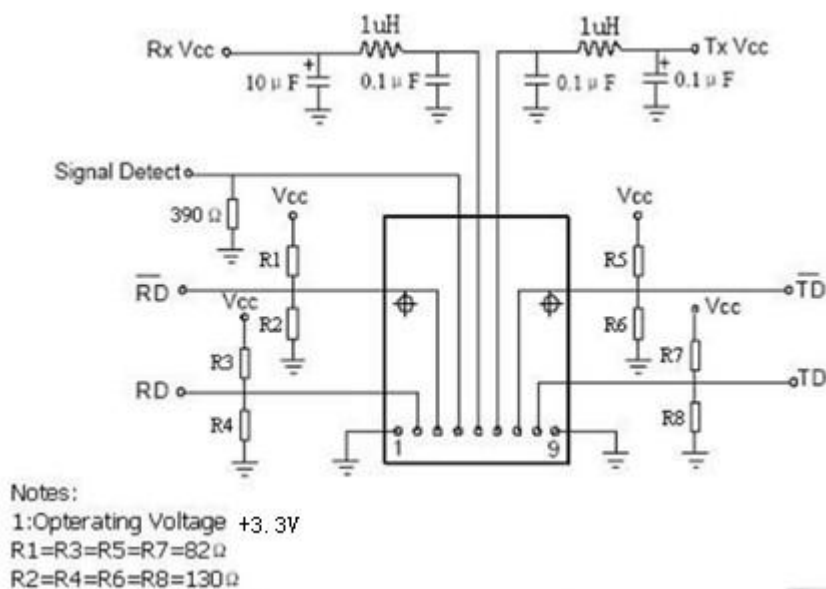
Pins	Name	Discription	NOTE
1	VeeR	Receiver Ground	
2	RD+	IReceived Data Output (LVPECL)	



3	RD-	Inv.ReceivedData Output (LVPECL)	
4	SD	Signal Detected (LVPECL)	
5	VccR	Receiver Power	
6	VccT	Transmitter Power	
7	TD-	Inv. Transmit Data Input (LVPECL)	
8	TD+	Transmit Data Input (LVPECL)	
9	VeeT	Transmitter Ground	



6.Recommended Circuit





7.Mechanical Dimensions

