155M Single Fiber BIDI 1x9 Optical Transceiver

5144-311-1PI

5146-211-1PI

1.Feature

- 1×9 package with SC connector
- 1310nm DFB Tx/1550nm PIN Rx and
- 1550nm DFB TX/1310nm PIN RX
- 80Km 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

- Ethernet
- Telecom

3.Description

The 1×9 transceiver supports 155Mbps and 80Km transmission distance with SMF.

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

4.Performance specifications

4.1Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	Tst	-40	+85	°C
Operating Temperature	Top	-40	+85	°C
Supply Voltage	Vcc	0	+3.3	V
Input voltage	Vin	GND	Vcc	
Lead Soldering Temperature & Time	240/10			°C/s

4.2Operation Environment

Parameter	Symbol	Minimum	Maximum	Units
Supply Voltage	Vcc	3.15	3.45	V
Ambient operating Temperature	Top	-40	+85	°C
Operating Relative Humidity	-	5	95	%

4.3Transmitter Section

(Ambient Operating Temperature -40°C to +85°C, Vcc =3.3 V)

Parameter	Symbol		Min.	Typ.	Max.	Units
Data rate	-		-	155	-	Mb/s
Center Wavelength	Tx 1310	λo	1300	1310	1320	nm
	Tx 1550		1540	1550	1560	
Output Spectral width	Tx 1310	Δλ	-	-	1	nm
	Tx 1550				1	
Average Optical Output Power	Tx 1310	Po	-6	-	0	dBm
	Tx 1550		-6		0	

Extinction Ratio	Er	8	-		dB
Rise/Fall Time(20%~80%)	Tr/Tf			500	ps
Total jitter	Tj			0.43	UI
Optical Eye Diagram	IEEE 802.3u and ANSI Fibre Channel Compatible				
Input differential impendence	Zdiff		100		Ohm

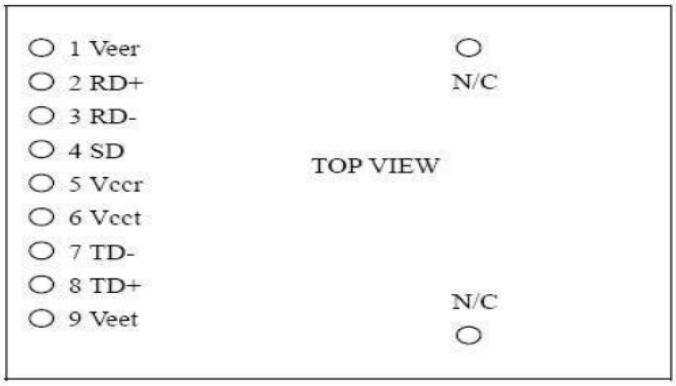
4.4Receiver Section

(Ambient Operating Temperature -40°C to +85°C, Vcc =3.3V)

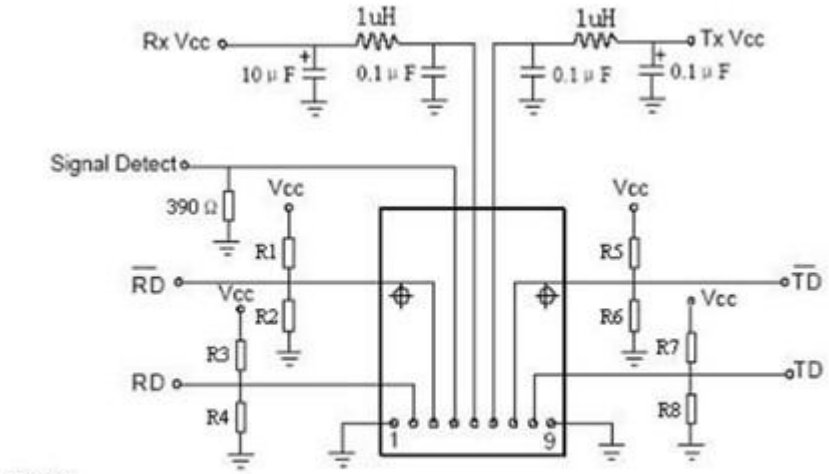
Parameter	Symbol		Min.	Typ.	Max.	unit
Data rate				155		Mb/s
Wavelength	Rx 1550	λ	1500	1550	1600	nm
	Rx 1310		1260	1310	1360	
Receiver Sensitivity	Rx 1550	Rsen	-		-34	dBm
	Rx 1310				-34	
Receiver Overload	Rov		-3			
Output differential impendence	Zdiff			100		Ohm
LOSS Thresholds	$LOSS_D$		-	-	-34	dBm
	$LOSS_A$		-45			

5.Pin Description

Pins	Name	Discription	NOTE
1	VeeR	Receiver Ground	
2	RD+	IReceived Data Output (PECL)	
3	RD-	Inv.ReceivedData Output (PECL)	
4	SD	Signal Detected (PECL)	
5	VccR	Receiver Power	
6	VccT	Transmitter Power	
7	TD-	Inv. Transmit Data Input (PECL)	
8	TD+	Transmit Data Input (PECL)	
9	VeeT	Transmitter Ground	



6.Recommended Circuit



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

7.Mechanical Dimensions