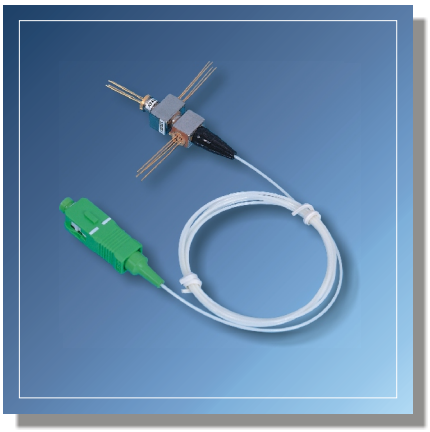
1310nm/1310nm/1550nm Triplexer Assembly(Preliminary)

Description

The PT8748 contains a 1310nm MQW F-P laser diode as transmitter, a 1310nm digital receiver(PT4250) and a 1550nm video receiver(PT2650) as receivers, and a splitter to separate input and output light. A thin film optical filter used to isolate signals at 1550nm from those at 1310nm. So a triplex optical link can be built for a wide variety of data and video communicate applications. They use 9/125μm diameter single fiber with FC/APC or SC/APC connector.



1310nm Digital Transmitter Charcteristics

Parameter	Condition	Min	Typ	Max	Units
Wavelength	CW −40℃ ~ +85℃	1260	1310	1360	nm
Threshold Current	CW,25℃	-	10	15	mA
Operating Current	CW;25℃; 0.15mW Optical output	-	20	41	mA
Output Power	CW;25℃; I_{th}+20mA	0.07	0.15	0.4	mW
Forward Resistance	25℃	3	5	8	Ω
Spectral Width	CW	-	-	4	nm
Forward Voltage	25℃@50mA	1.0	-	1.35	V
Dynamic Spectral Width (RMS)	25℃	-	-	4.0	nm
Monitor PD Current	25℃	0.1	-	1.5	mA
Monitor PD Tracking Error	−40℃ ~ +85℃	−1.5	-	+1.5	dB

1310nm Digital Receiver Charcteristics

Parameter	Condition	Min	Typ	Max	Unit
Wavelength	CW	1260	-	1360	nm
Responsivity	1310nm	0.3	-	-	A/W
Sensitivity (Half Duplex)	155Mb/s	−32	-	-	dBm
	622Mb/s	−27	-	-	
	1.25Gb/s	−22	-	-	
Dark Current	Bias = 15V T=25℃	-	-	20	nA
Optical Cross Talk	Full duplex, Optical return loss >45dB	-	-	−28	dB
Optical Isolation 1310nm/1550nm	Half duplex	-	-	−35	dB
Optical Return Loss	-	-	-	−28	dB

Features

- MQW F-P 1310nm laser diode as transmitter
- InGaAs PIN with TIA (5V and 3.3V options) as receiver
- 1310 nm wavelength output, output power up to 0.4mW
- 1550 nm wavelength input, responsivity 0.7A/W
- Isolation > 35dB and cross talk <− 28dB for low cross talk versions
- Integrated WDM coupler (1310nm transmitting/ 1550nm reflecting)
- Coaxial single mode fiber package with optional FC/APC or SC/APC connector
- Operation temperature from −40 to 85℃

Applications

- Telecommunication systems
- Data communication systems
- CATV

1550nm Video Receiver Charcteristics

Parameter	Condition	Min	Typ	Max	Unit
Wavelength	CW	1480	-	1580	nm
Responsivity	1550nm	0.7	-	-	A/W
Frequency Range	-	40	-	1000	MHz
Frequency Response	622Mb/s	−0.5	-	+0.5	dB
CSO	0dBm,2-tone test w/ 40% each	-	-	70	dB
CTB	0dBm,2-tone test w/ 40% each	-	-	80	dB
Dark Current	Bias = 5V	-	-	50	nA
Optical Isolation 1550nm/1310nm	Half Duplex	-	-	−40	dB
Optical Cross Talk 1310nm/1550nm	Full Duplex, Optical Return Loss >45dB	-	-	−40	dB
Optical Return Loss	-	-	-	−35	dB

Absolute Maximum Ratings

Parameter	Condition	Min	Typ	Max	Unit
Operating Temperature	T_{op}	−40	25	85	℃
Storage Temperature	T_{stg}	−40	25	85	℃
Lead Soldering Temperature/Time	T_{sld}	-	-	240/10	℃/s
Supply Voltage	V_{cc} (Rx only) V_{cc} (Video Rx only)	-	3.3 12	3.6 12.5	V
Supply Current	I_{cc}(Rx only)	-	18	25	mA

Mechanical Outline