

# 1550nm/1310nm(FP) Bi-Di Transceiver Module

## Description

The PT8551 series contain a 1550nm MQW F-P laser diode and a CMOS integrated circuit LD driver as transmitter, an InGaAs photo-detector integrated with a trans-impedance amplifier (5V or optional 3.3V) into the TO-can and a post amplifier as receiver, and an edge filter (1550nm transmitting / 1310nm reflecting) to separate 1550nm output light (including 1550nm light reflected back) and 1310nm input light. Together with PT8351, the most compact and cost-effective 1550/1310nm WDM with single fiber provided, a duplex optical link can be built for a wide variety of data communication applications with high-speed up to 155Mb/s signal rate, long distance up to 20km. They use 9/125 $\mu$ m diameter single fiber with optional FC or SC/PC connector.



## Transmitter Characteristics

Parameter		Symbol	Condition	Min	Typ	Max	Unit
Center Wavelength		$\lambda$	CW	1530	1550	1570	nm
Power PT8551	-3□-1	$P_o$	-	-15	-10	-8	dBm
	-3□-2			-5	-3	0	dBm
Spectral Width		$\triangle \lambda$	CW(RMS)	-	-	4	nm
Extinction Ratio		EX	-	10	-	-	dB
Operating Current		$I_{op}$	3.3V/5.0V	-	70	100	mA

## Receiver Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Wavelength	$\lambda$	$\Delta R < 10\%$	1260	1310	1360	nm
Optical Isolation	-	1310/1550nm	30	-	-	dB
Full Duplex Sensitivity	-	$P_o = -10\text{dBm}$	-	-	-35	dBm
Signal Detect Assert Level	-	-	-50	-	-	dBm
Signal Detect Deassert Level	-	-	-	-	-36	dBm
Operating Current	$I_{op}$	3.3V/5.0V	-	80	100	mA

## Absolute Maximum Ratings

Parameter	Condition	Min	Max	Units
Operating Temperature	$T_{op}$	-40	+85	°C
Storage Temperature	$T_{stg}$	-40	+85	°C
Lead Soldering Temperature/Time	$T_{sld}$	-	240/10	°C/s
Optical Return Loss	PC connector	14	-	dB

## Features

- MQW F-P 1550nm laser diode with driver as transmitter
- InGaAs PIN with TIA and post-amplifier (5V or optional 3.3V) as receiver
- 1550 nm wavelength output, output power -10dBm (typically)
- 1310 nm wavelength input, responsivity 0.6A/W
- Isolation > 30dB and cross talk < -45dB, full duplex sensitivity -35dBm
- Integrated WDM coupler (1550nm transmitting / 1310nm reflecting)
- 1×9 compatible package single mode fiber package with optional FC or SC/PC connector
- Operation temperature from 0 to 70°C

## Applications

- Telecommunication systems
- Data communication systems