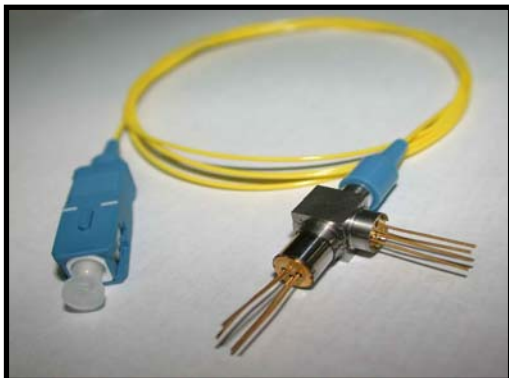


Bi-Directional WDM Module

TWDx20x Series



- 1.31 μ m/1.55 μ m
Bi-Directional module (Diplexer)
- 1.3 or 1.5 DFB-LD & pin PD
- SMF pigtail with SC/FC/ST connector
- High speed upto 1.25Gbps or 1 GHz

Features

- Integrated Laser diode and photodiode using two WDM edge filters
- 1.31 μ m or 1.55 μ m uncooled InGaAsP MQW DFB Laser
- High sensitive InGaAs PIN Photo diode
- SMF pigtail with SC/FC/ST connector
- Operating temperature ; 0 to +70 $^{\circ}$ C/-40 to +85 $^{\circ}$ C
- Tested by Teradian's Reliability and Qualification Program

Description

The TWDxxxx series are designed for general optical network applications.

The transmitter consists of a long wavelength 1.3 μ m(or 1.5 μ m) InGaAsP MQW laser diode (DFB-LD) and the receiver includes a planar InGaAs PIN photodiode with low dark current, capacitance and noise.

The modules are designed to used in an operating temperature range of 0 $^{\circ}$ C to +70 $^{\circ}$ C or -40 $^{\circ}$ C to +85 $^{\circ}$ C.

Applications

Used in telecommunication and data communication systems, from medium to high speed for intra-office, short-haul and long-haul applications.

- Fiber in the loop(FTTO, FTTC, FTTH, PON)
- Subscriber loops
- High-speed data links, Single-mode FDDI
- Private optical networks
- Data link, Video link and Media converter

Absolute Maximum Ratings

Parameters		Symbol	Unit	Min.	Max.	Remarks
Ambient Operating Temperature		T_{OP}	$^{\circ}C$	0 -40	70 85	Indoor use Outdoor use
Storage Temperature		T_{STG}	$^{\circ}C$	-40	85	
TX Part	Reverse Voltage of LD	V_{RL}	V	-	2	
	Reverse Voltage of Monitoring PD	V_{RP}	V	-	15	
	Forward Current of Monitoring PD	I_{FP}	mA	-	2	
RX Part	Reverse Voltage	V_{RP}	V		30	
	Forward Current	I_F	mA	-	10	
	Reverse Current	V_{RP}	V	-	5	

Electrical & Optical Characteristics of Transmitter

($T_{OP} = 25^{\circ}C$)

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max.	Remarks
Threshold Current	I_{TH}	CW	mA		8 10	15 15	TWD620x TWD720x
Slope Efficiency	η	CW	mW/mA	0.08	0.1		
Fiber Output Power	P_F	CW, I_{OP} $I_{OP}=I_{TH} + 25mA$	mW	2.0	2.5		
Center Wavelength	λ_C	CW, I_{OP}	nm	1290 1530	1310 1550	1330 1570	TWD620x TWD720x
Spectral Linewidth	$\Delta\lambda$	CW, I_{OP}	nm			1	
Side Mode Suppression Ratio	SMSR	CW, I_{OP}	dB	30			
Optical isolation			dB	30			
Forward Voltage	V_f	CW, I_{OP}	V		1.0	1.5	
Dark Current(m-PD)	I_D	$V_{RP}=5V$	nA		1	10	
Monitor Current(m-PD)	I_{MPD}	$V_R=5V, @ I_{OP}$	mA	0.08			
Capacitance(m-PD)		$V_R=5V, f=1MHz$	pF			10	
Rise/Fall Time	t_R, t_F	$I_b = I_{TH}, 20-80\%$	nsec		0.2	0.30	
Tracking Error	γ	APC, $T_C=0\sim+70^{\circ}C$ or $-40\sim+85^{\circ}C$	dB	-1.0		1.0	$I_{MPD}=\text{const.}$

Electrical & Optical Characteristics of Receiver

(T_{op} = 25°C)

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max	Remarks
Responsivity	R	Pin=-10dBm	dBm	0.70 0.65	0.80 0.75		TWD620x TWD720x
Crosstalk ^{NOTE1)}	CRT	V _R =5V, CW	dB	45			
Dark Current	I _D	V _R =5V	nA		1.0	2.0	
Capacitance	C	V _R =5V, f=1MHz	pF			1.0	
Detection range	λ	V _R =5V, R>0.6	nm	1500 1260	1550 1310	1600 1360	TWD620x TWD720x

Note 1) Crosstalk is defined as $10 \times \log(I_2/I_1)$

with PD-current I₂ at P_{output}=P_f

and PD-current I₁ at at P_{output}= 0 and P_{input} =P_f

Ordering Information

Com- pany	Laser Diode					PIN-PD					
	Device type		Wave- length	Output Power (mW)	Pin-Out (LD)	Temp.	Fiber	Connector	Flange		
	T	W	D	6	20	3	-	I	S	S	N
TERA dian	W ;WDM (pin-PD)	D ;DFB	6 ; T1.3/R1.5 7 ; T1.5/R1.3	20 ; 2.0mW	3 ;3pin 4 ;4pin		I ;Indoor (0~70°C) O ;Outdoor (-40~85°C)	S ;SMF M ;MMF	N ;None S ;SC F ;FC T ;ST L ;LC	N ;None	

Outline Diagram

TWDx20x

(unit ; mm)

