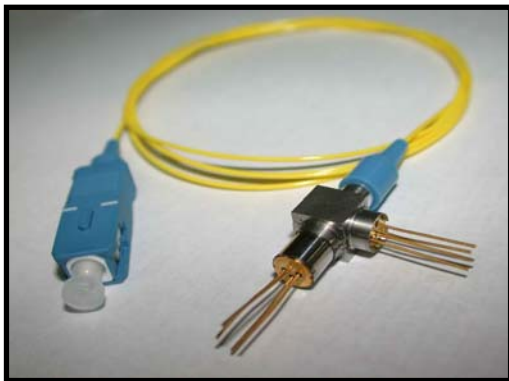


Bi-Directional WDM Module TMx7xxx Series



- Tx1.55 μ m/Rx1.31 μ m
Bi-Directional module with SMF
- SMF pigtail with SC/FC/ST connector
- High speed upto 2.5Gbps

Features

- Integrated Laser diode and photodiode using two WDM edge filters
- 1.55 μ m uncooled InGaAsP SMQW Fabry-Perot(FP) or Distributed Feedback(DFB) Laser Diode
- High sensitive InGaAs PIN-TIA
- 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 TMx7xxx series products are designed to meet the specifications of SONET and ITU-T SDH. The pigtailed WDM Bi-Directional module has an optional connector such as SC, FC or ST. The transmitter consists of a long wavelength 1.55 μ m InGaAsP SMQW laser diode (FP-LD or 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}	°C	0 -40	70 85	Indoor use Outdoor use
Storage Temperature		T_{STG}	°C	-40	85	
TX Part	Reverse Voltage of LD	V_{RL}	V	-	2	
	Reverse Voltage of Monitoring PD	I_{RP}	mA	-	2	
	Reverse Current of Monitoring PD	V_{RP}	V	-	20	
RX Part	Supply Voltage	V_{CC-GND}	V		3.5 6.0	@3.3V @5.0V
	Optical Input Power	Pin	mW	-	2.5	

Electrical & Optical Characteristics of Transmitter

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

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max.	Remarks
Threshold Current	I_{TH}	CW	mA		5	15	
Slope Efficiency	η	CW	mW/mA	0.04 0.08	0.05 0.1		TMx710x TMx720x
Fiber Output Power	P_F	CW, I_{OP} $I_{OP}=I_{TH} + 20mA$	mW		1.0 2.0		TMx710x TMx720x
Center Wavelength	λ_C	CW, I_{OP}	nm	1520	1550	1580	
Spectral Linewidth	$\Delta\lambda$	CW, I_{OP}	nm		2	3	TMF7xxx
Side Mode Suppression Ratio	SMSR	CW	dB	30			TMD7xxx
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			0.30 0.18	<1.25Gbps 2.5Gbps
Tracking Error	γ	APC, $T_C=0\sim+70^{\circ}C$ or $-40\sim+85^{\circ}C$	dB	-1.0		1.0	$I_{mPD} = \text{const.}$
Optical Isolation	ISO		dB	30			TMD7xxx

Electrical & Optical Characteristics of Receiver

(T_{op} = 25°C)

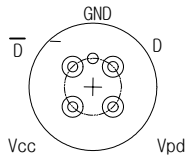
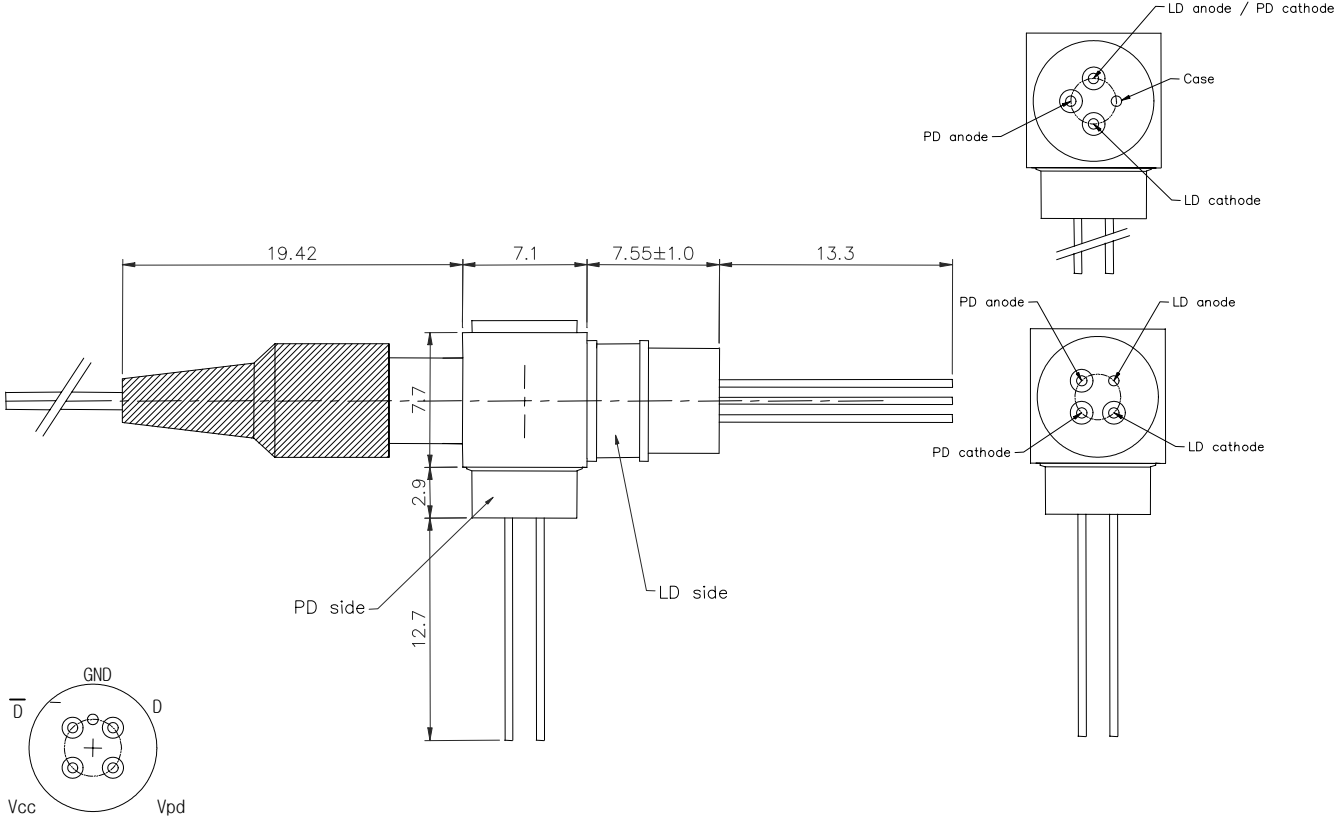
Parameters	Symbol	Condition	Unit	Min.	Typ.	Max	Remarks
Crosstalk	CRT	V _R =5V, CW	dB	45			
Sensitivity	P _{RL}	PRBS 2 ²³ -1, 10 ⁻¹⁰ BER	dBm			-34.0 -28.0 -19.0 -18.0	155Mbps 622Mbps 1.25Gbps 2.5Gbps
Detection range	λ	V _R =5V, R>0.6	nm	1260		1360	

Ordering Information

Com- pany	Laser Diode					PIN-TIA				
	Device type		Wave- length	Output Power (mW)	Pin-Out (LD)	Data Rate (bps)	Supply Voltage	Pin-Out (PD)	Conn- ector	
T	M	D	7	20	3	-	G	3	5	S
TERA dian	W ;WDM (pin-PD) M ;WDM (pin-TIA)	F ;FP D ;DFB (w/ isolator) E ;DFB (w/o isolator)	6 ; T1.3/R1.5 7 ; T1.5/R1.3	10 ;1.0 20 ;2.0	3 ;3pin 4 ;4pin		1 :155M 4 :622M 8 :1.25G G :2.5G	3 ;+3.3V 5 ;+5.0V	4 ;4Pin (Differential) 5 ;5Pin	N ;None S ;SC/PC L ;LC/PC F ;FC/PC T ;ST/PC

Outline Diagram

(unit ; mm)



Bottom View (5-lead pin-TIA)