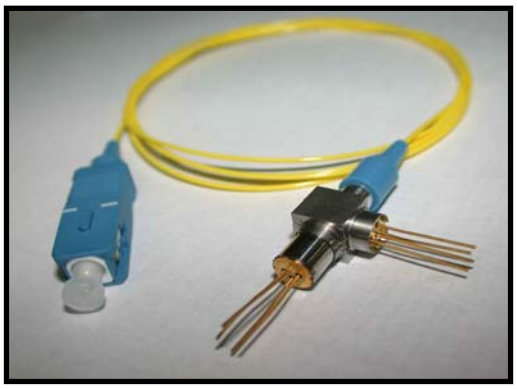
Bi-Directional WDM Module
TWFx05x_TWFx20x Series



- 1.31μm/1.55μm
  Bi-Directional module (Diplexer)
- 1.3 or 1.5 FP-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
- 1.31μm or 1.55μm uncooled InGaAsP SMQW Fabry-Perot(FP)
- High sensitive InGaAs PIN Photo diode
- SMF pigtail with SC/FC/ST connector
- Operating temperature ; 0 to +70℃/-40 to +85℃
- Tested by Teradian's Reliability and Qualification Program

Description

The TWFxxxx series are designed for general optical network applications.
The transmitter consists of a long wavelength 1.3μm(or 1.5μm) InGaAsP SMQW laser diode (FP-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℃ to +70℃ or -40℃ to +85℃.

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

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Absolute Maximum Ratings

Parameters		Symbol	Unit	Min.	Max.	Remarks
Ambient Operating Temperature		T_{OP}	℃	0 -40	70 85	Indoor use Outdoor use
Storage Temperature		T_{STG}	℃	-40	85	
TX Part	Reverse Voltage of LD	V_{RL}	V	-	2	
	Reverse Voltage of Monitoring PD	V_{RP}	V	-	20	
	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℃)

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max.	Remarks
Threshold Current	I_{TH}	CW	mA		7 9	15 17	TWF6xxx TWx7xxx
Slope Efficiency	η	CW	mW/mA	0.020 0.016 0.08	0.025 0.020 0.1		TWF605x TWF705x TWFx20x
Fiber Output Power	P_F	CW, I_{OP} $I_{op}=I_{TH}$ + 25mA	mW	0.5 0.4 2.0	0.6 0.5 2.5		TWF605x TWF705x TWFx20x
Center Wavelength	λ_C	CW, I_{OP}	nm	1290	1310	1330	
Spectral Linewidth	$\Delta\lambda$	CW, I_{OP}	nm		2	3	
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	
Tracking Error	γ	APC,T_C=0~+70℃ or -40~+85℃	dB	-1.0		1.0	I_{mPD}=const.

Electrical & Optical Characteristics of Receiver

(T_{op} = 25℃)

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max	Remarks
Responsivity	R	Pin=-10dBm	dBm	0.70 0.65	0.80 0.75		TWF6xxx TWF7xxx
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	TWF6xxx TWF7xxx

Note 1) Crosstalk is defined as 10xlog(I_2/I_1)
with PD-current I_2 at $P_{output}=P_f$
and PD-current I_1 at at P_{output}= 0 and $P_{input}=P_f$

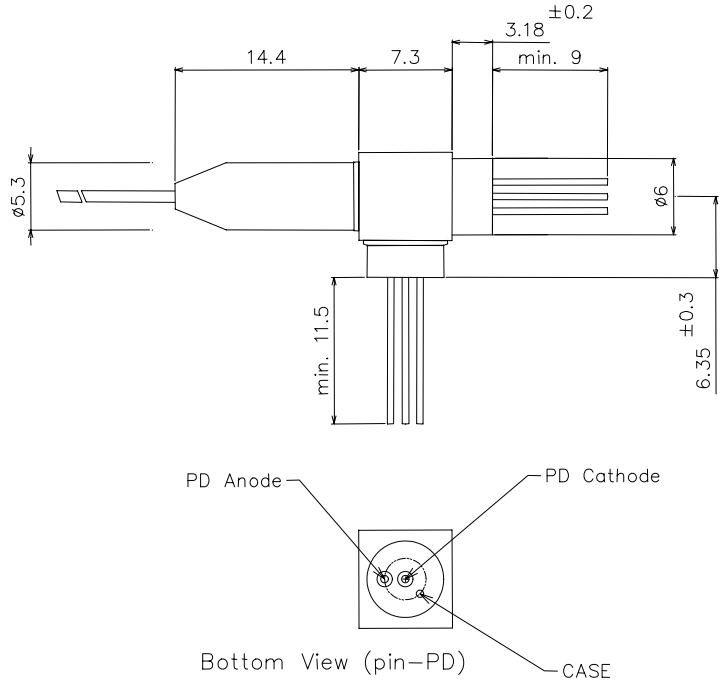
Ordering Information

Com-pany	Laser Diode						PIN-PD			
	Device type		Wave-length	Output Power (mW)	Pin-Out (LD)		Temp.	Fiber	Connector	Flange
T	W	F	6	05	3	-	I	S	S	N
TERA dian	**W**;WDM (pin-PD)	**F**;FP	**6**; T1.3/R1.5 **7**; T1.5/R1.3	**05**;0.5 **20**;2.0	**3**;3pin **4**;4pin		**I**;Indoor (0~70℃) **O**;Outdoor (-40~85℃)	**S**;SMF **M**;MMF	**N**;None **S**;SC **F**;FC **T**;ST **L**;LC	**N**;None

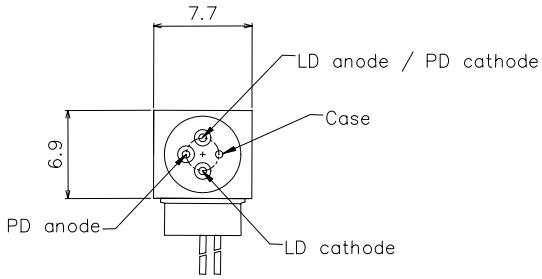
Outline Diagram

TWFx05x

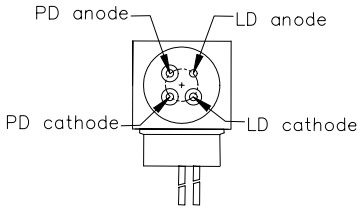
(unit ; mm)



Bottom View (pin–PD)

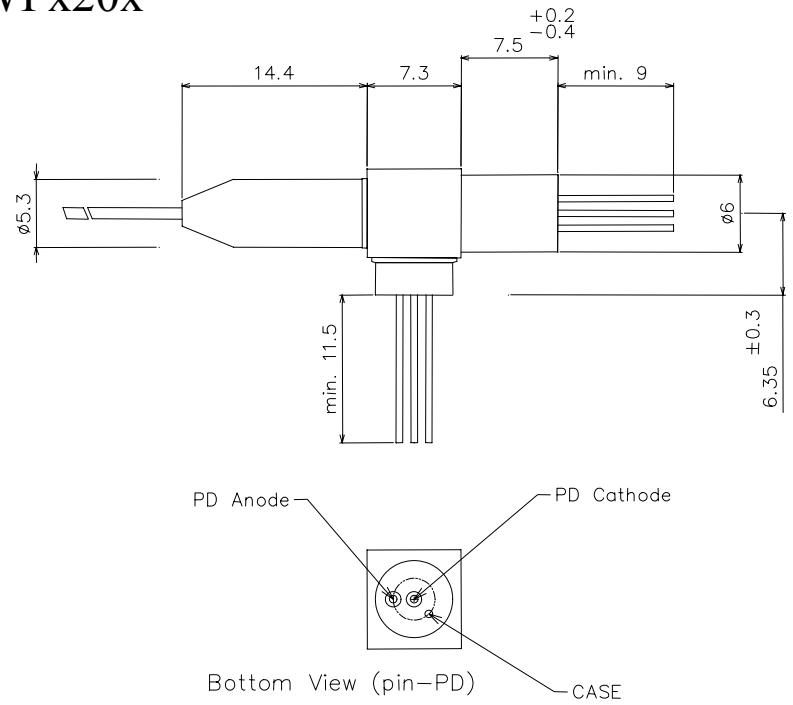


Bottom View (3–pin type)

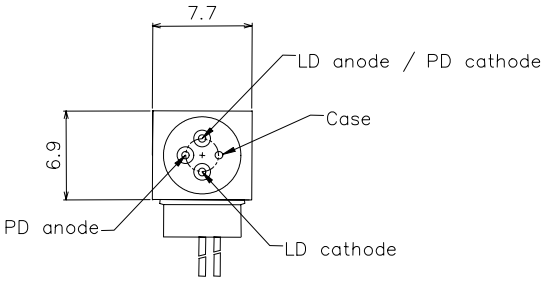


Bottom View (4–pin type)

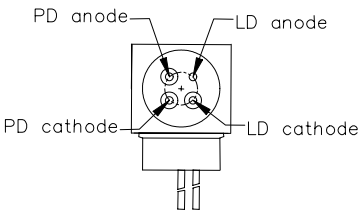
TWFx20x



Bottom View (pin–PD)



Bottom View (3–pin type)



Bottom View (4–pin type)

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