

Pigtailed PD for analog application TBP4NN3 series



- Long wavelength InGaAs PIN-PD
- Detection wavelength range of 1.1 μ m to 1.6 μ m
- SMF or MMF Pigtailed
- SC, FC, ST, or LC Connector

Features

- InGaAs long wavelength PIN photodiode
- Operation at 1310nm & 1550nm
- High responsivity, low dark current and low capacitance
- Operating temperature ; -40 $^{\circ}$ C to +85 $^{\circ}$ C
- Single-mode fiber or multimode fiber pigtailed with SC or FC connector

Description

The TBP4NN3 series is a reliable InGaAs PIN photodiode module pigtailed with SMF.

The parts of pigtailed PD module – single-mode fiber, lens and photodiode - are actively aligned by high power YAG laser welding method. This packaging guarantees high detector responsivity and low deviation over a wide temperature range(0 $^{\circ}$ C to +70 $^{\circ}$ C/-40 $^{\circ}$ C to +85 $^{\circ}$ C), and provides high optical performance for ITU-T G.651 and G.652 standard optical fiber..

Applications

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

- Analog application(for Wireless fiber optic Repeater)
- SCM(Sub-Carrier Multiplexing) Transmission
- Subscriber loops
- Private optical networks

Absolute Maximum Ratings

Parameters	Symbol	Unit	Min.	Max.	Remarks
Ambient Operating Temperature	T_{op}	°C	-40	85	Outdoor use
Storage Temperature	T_{stg}	°C	-40	85	
Reverse Voltage	V_{RP}	V	-	20	
Reverse Current	I_{RP}	mA	-	1	
Forward Current	I_{FL}	mA	-	2	
Lead Soldering Temp./Time		°C/sec		260/10	

Electrical & Optical Characteristics

(T_{op} = 25 °C)

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max.	Remark
Detection range	λ	$V_R=5V, R>0.75$	μm	1.1		1.6	
Responsivity	R	$V_R=5V, \lambda=1.3\mu m$ $V_R=5V, \lambda=1.5\mu m$	A/W	0.85 0.90			
Dark Current	I_D	$V_R=5V$	nA			1.0	
Cut-off Frequency	f_c	-3dB, $V_R=5V$	GHz	3			$R_L=50\Omega$
Reverse Breakdown Voltage	V_{BD}	$V_R=5V, I_{RD}=1\mu A$	V	20			
Capacitance	C	$V_R=5V, f=1MHz$	pF			0.6	
Second-Order Distortion	IMD2	$P_{AVG}=0dBm,$ OMI=0.4, Note1	dBc			-70	
Third-Order Distortion	IMD3	$P_{AVG}=0dBm,$ OMI=0.4, Note1	dBc			-75	
Back Reflection	IL		dB			-45	
Active Area Diameter	\varnothing		μm		70		

Note1) Two-tone two-laser test condition : $f_1=320MHz, f_2=450MHz,$ Reverse-biased at $V_R=12V,$ $P_{AVG}=0dBm, \lambda=1550nm$ with 40% OMI per channel, $f_1\pm f_2$ for IMD2, $2f_2-f_1$ & $2f_1-f_2$ for IMD3

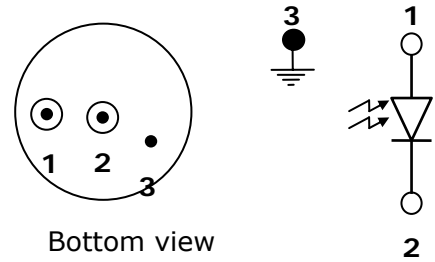
! Handling Caution

The Photo-diode can be damaged by overvoltage and current surges. Precautions should be taken for transient power supply.

This device is susceptible to damage as a result of electrostatic discharge(ESD). Take proper precautions during both handling and testing

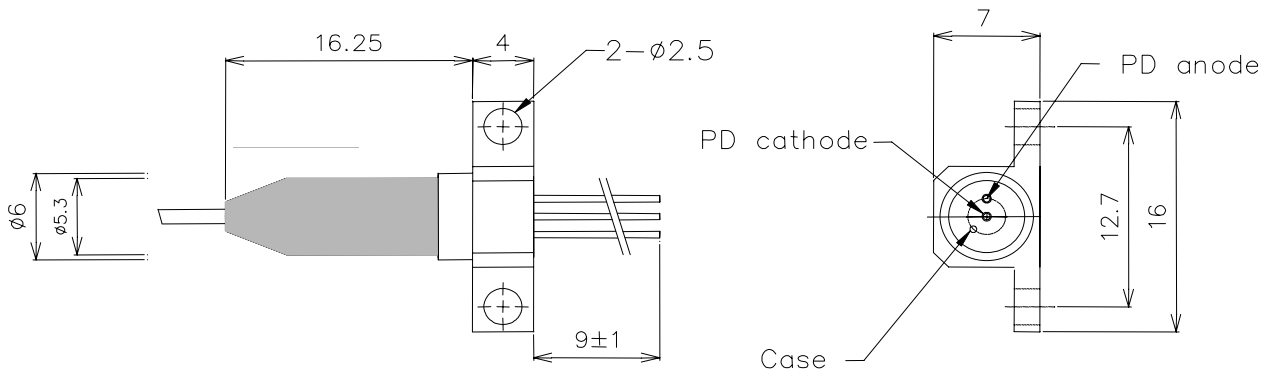
Pin Description

Pin No.	Symbol	Description
1	A _{PD}	PD anode
2	K _{PD}	PD cathode
3	GND	Case ground



Outline Diagram

- TBP4NN3-xxxH



- TBP4NN3-xxxN

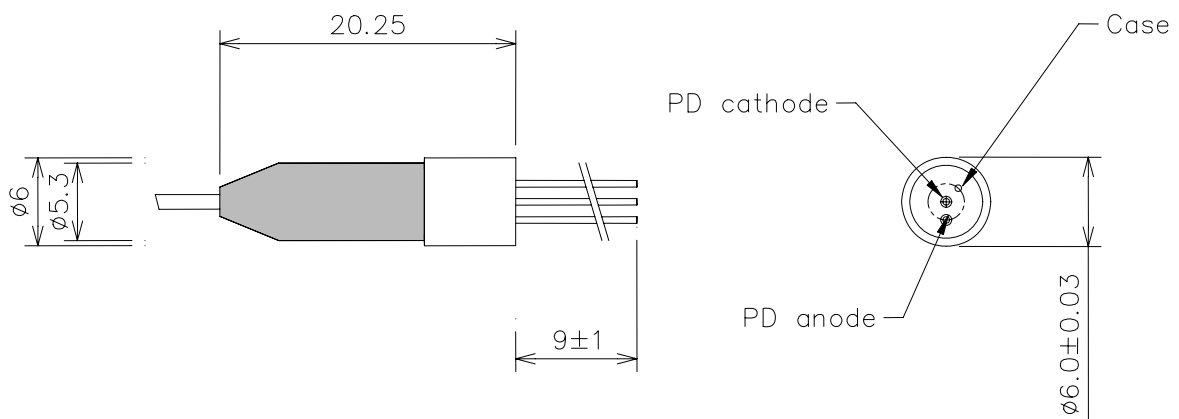


Fig.4 Pigtailed PD Package Dimensions [unit: mm]

Ordering Information

Company	Device Type		Wave-length	Data rate (PIN-TIA)	Volt. (TIA)	Pin	Temp. Range	Fiber	Connector	Flange
T	A	P	4	N	N	3	O	S	R	H
Teradian	B ;PD for wireless repeater	P ;PIN T ;PIN-TIA A ;APD	4 ; 1.3/1.5 8 ; 850nm	N ; None O ; 51Mbps 1 ;155Mbps 4 ;622Mbps 8 ;1.25Gbps G ;2.5Gbps	N ; None 3 ;3.3V 5 ;5V	3 ;3pin 4 ;4pin (differential) 5 ;5pin	I ;Indoor Use (0~70℃) O ;Outdoor Use (-40~85℃)	S ;SMF M ;MMF	N ;None S ;SC/PC F ;FC/PC T ;ST L ;LC R ;SC/APC E ;FC/APC	N ; None H ; Horizontal

*Note 1 ;

Connector type default is SC/APC and the default length of fiber is 1m

More Information

Teradian Inc.

Address 946, Dunsan-dong, Seo-gu, Daejeon, 302-120, Korea

Tel +82-42-476-4800, 4803(Oversea Sales Team)

Fax +82-42-476-4805

Homepage <http://www.teradian.com>

e-mail sales@teradian.com