

Pigtailed PD for analog application TAP4NN3 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

Family Model

TAP4NN3

TZP4NN3

TBP4NN3

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 TxP4NN3 series is a reliable InGaAs PIN photodiode module pigtailed with SMF or MMF.

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 CATV Return Path-TAP4NN3, for CATV Forward Path-TZP4NN3, for Wireless fiber optic Repeater-TBP4NN3)
- SCM(Sub-Carrier Multiplexing) Transmission
- Subscriber loops
- Private optical networks

Absolute Maximum Ratings

Parameters	Symbol	Unit	Min.	Max.	Remarks
Ambient Operating Temperature	T_{op}	$^{\circ}\text{C}$	-40	85	Outdoor use
Storage Temperature	T_{stg}	$^{\circ}\text{C}$	-40	85	
Reverse Voltage	V_{RP}	V	-	15/20/	
Reverse Current	I_{RP}	mA	-	3/1 /	
Forward Current	I_{FL}	mA	-	50/2/	
Lead Soldering Temp./Time		$^{\circ}\text{C}/\text{sec}$		260/10	

Electrical & Optical Characteristics

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

Parameters	Symbol	Condition	Unit	Min.	Typ.	Max.	Remark
Detection range	λ	$V_R=5\text{V}$, $R>0.75$ $R > 0.65$	μm	1.1		1.6	
Responsivity	R	$V_R=5\text{V}$, $\lambda=1.3\mu\text{m}$ $V_R=5\text{V}$, $\lambda=1.5\mu\text{m}$	A/W	0.80 0.85	0.85 0.90		
Dark Current	I_D	$V_R=5\text{V}$	nA			1.0	
Cut-off Frequency	f_c	-3dB, $V_R=5\text{V}$	GHz	2/3			$R_L=50\Omega$
Reverse Breakdown Voltage	V_{BD}	$V_R=5\text{V}$, $I_{RD}=1\mu\text{A}$	V	25/0			
Capacitance	C	$V_R=5\text{V}$, $f=1\text{MHz}$	pF			0.6	
Second-Order Distortion	IMD2	$V_R=12\text{V}$, $P_{AVG}=0\text{dBm}$, OMI=0.4, Note1	dBc			-70	TAP4NN3 ¹⁾ TZP4NN3 ²⁾ TBP4NN3 ³⁾
Third-Order Distortion	IMD3	Note 1	dBc			-75	TZP4NN3 ²⁾ TBP4NN3 ³⁾
Back Reflection	IL		dB			-45	
Active Area Diameter	$\varnothing$		μm		75/70 45		for 2GHz for 5GHz

Note1-1) TAP4NN3 : Two-tone test condition : $f_1=13\text{MHz}$, $f_2=19\text{MHz}$, $f_1\pm f_2$ Note1-2) TZP4NN3 : Two-tone test condition : $f_1=320\text{MHz}$, $f_2=450\text{MHz}$, $f_1\pm f_2$, $\lambda=1550\text{nm}$ per channel

Note1-3) TBP4NN3 : same as the Note1-2

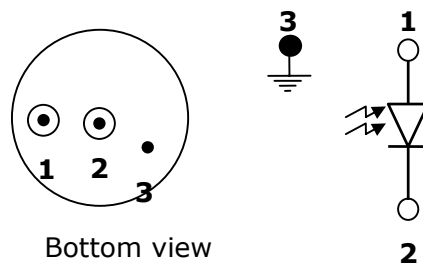
! Handling Caution

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

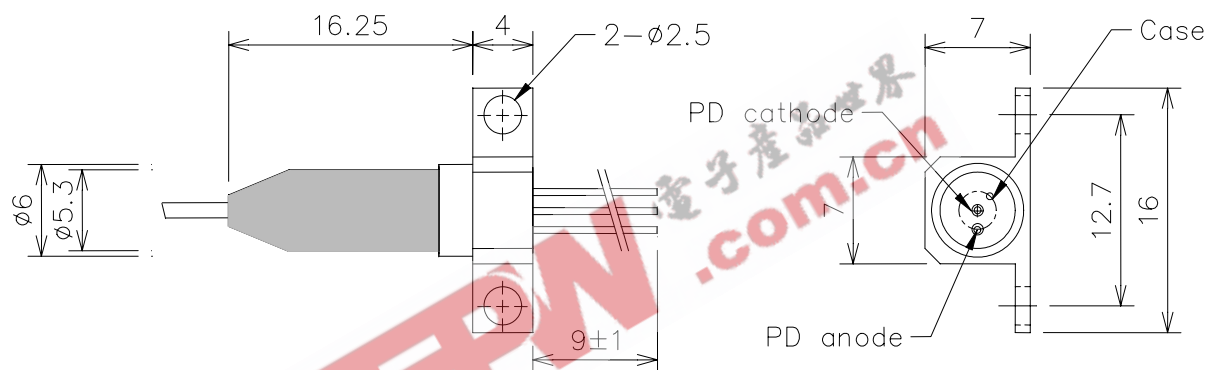
Pin Description

Pin No.	Symbol	Description
1	A_{PD}	PD anode
2	K_{PD}	PD cathode
3	GND	Case ground

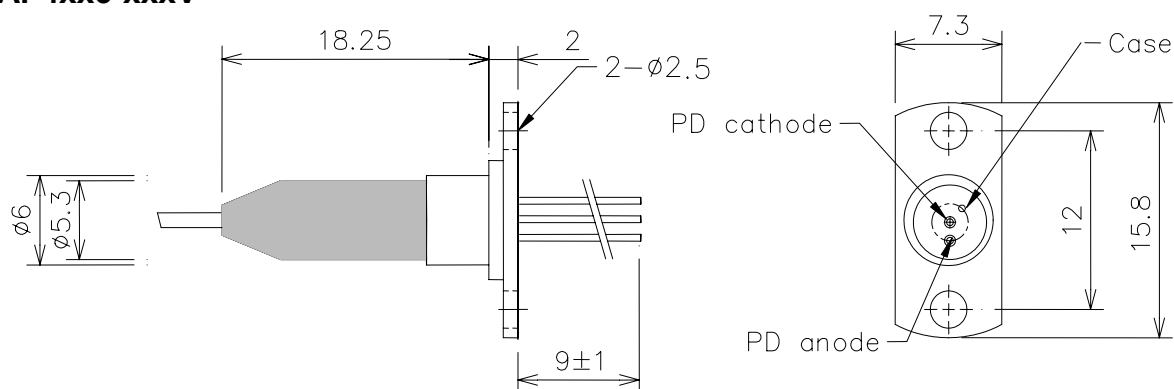


Outline Diagram

– TAP4xx3-xxxH



– TAP4xx3-xxxV



– TAP4xx3-xxxN

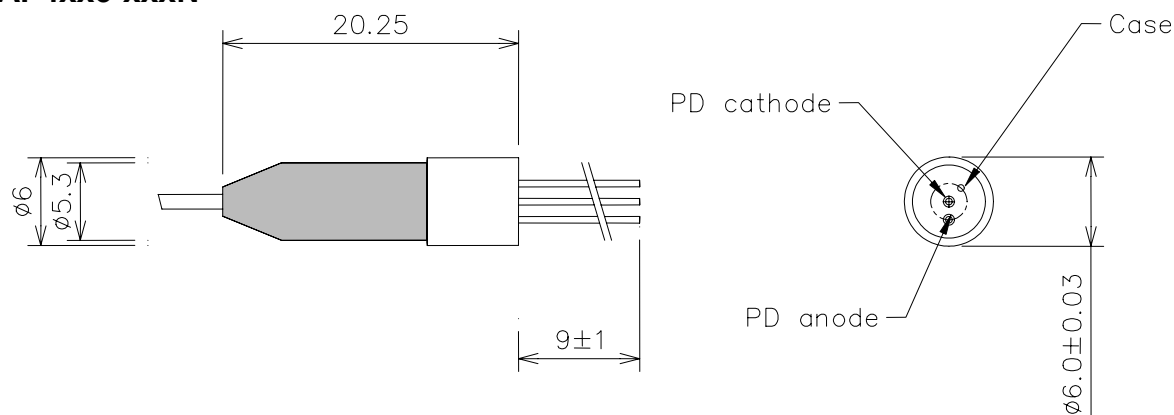


Fig.4 Pigtailed PD Package Dimensions [unit: mm]

Ordering Information

Com pany	Device Type		Wave- length	Data rate (PIN-TIA)	Volt. (TIA)	Pin	Temp. Range	Fiber	Conne ctor	Flang e
T	A	P	4	N	N	3	1	S	N	H
Tera dian	A ;PD for CATV Return path Z ;PD for CATV Forward Path B ;PD for wireless repeater	P ;PIN T ;PIN- TIA A ;APD	4 ; 1.3/1.5 8 ; 850nm	N ; None 0 ; 51Mbps 1 ;155Mbps 4 ;622Mbps 8 ;1.25Gbps G ;2.5Gbps	N ; None 3 ;3.3V 5 ;5V	3 ;3pin 4 ;4pin (diffe- rential) 5 ;5pin 6 ;4pin (single ended)	I ;Indoor Use (0~70℃) O ;Outdoor Use (-40~85℃)	S ;SMF M ;MMF	N ;None S ;SC F ;FC T ;ST L ;LC	N ; None V ; Vertical H ; Hori- zontal

*Note 1 ;

- 220m with 62.5/125μm MMF @1.25Gbps
- 500m with 50/125μm MMF @1.25Gbps
- 200m with 62.5/125μm MMF @2.125Gbps

*Note 2 ; additional order information

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

More Information

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