



## Pigtailed PD for analog application TAP4NN3 series



- Long wavelength InGaAs PIN-PD
- Detection wavelength range of 1.1 $\mu$ m to 1.6 $\mu$ 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	$T_{op}$	°C	-40	85	Outdoor use
Storage Temperature	$T_{stg}$	°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		°C/sec		260/10	

## Electrical & Optical Characteristics

(T<sub>op</sub> = 25°C)

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

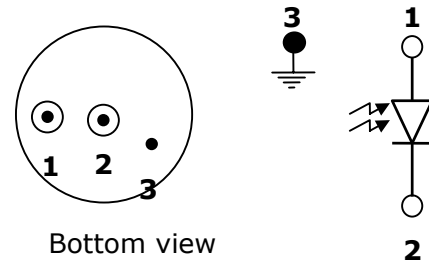
## ! Handling Caution

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

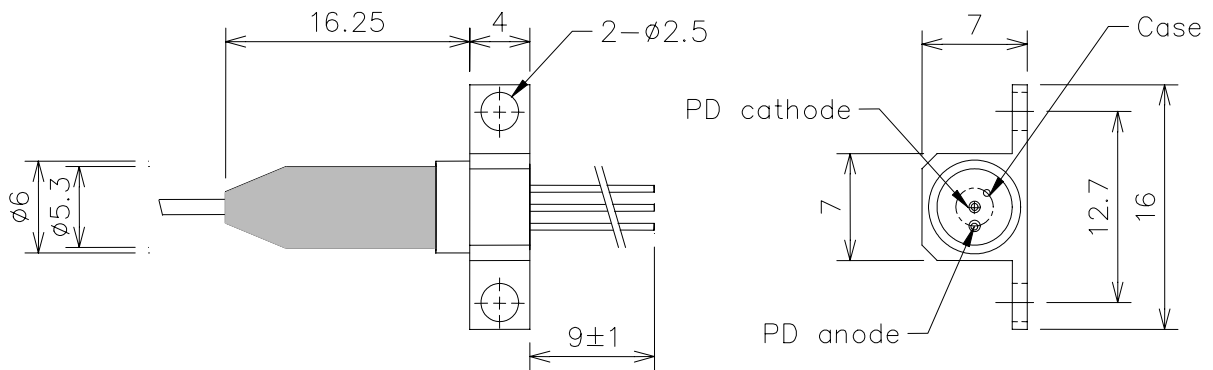
Pin Description

Pin No.	Symbol	Description
1	A <sub>PD</sub>	PD anode
2	K <sub>PD</sub>	PD cathode
3	GND	Case ground

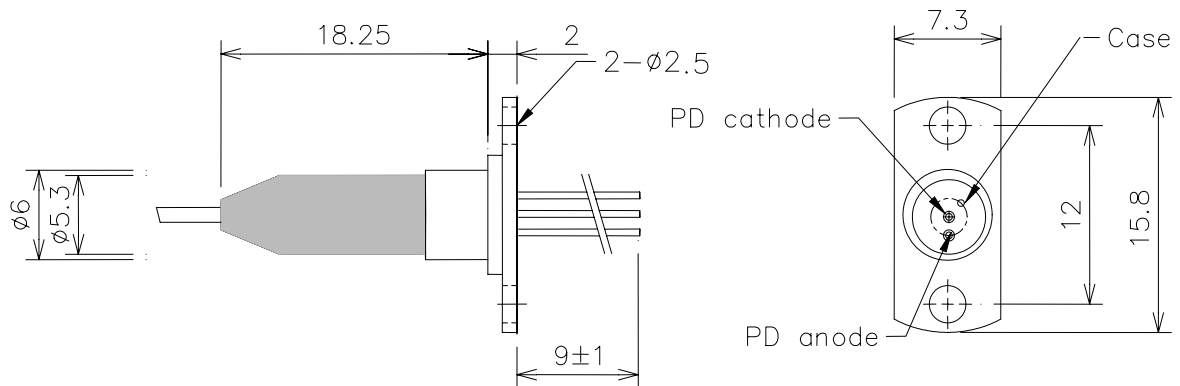


Outline Diagram

- TAP4xx3-xxxH



- TAP4xx3-xxxV



- TAP4xx3-xxxN

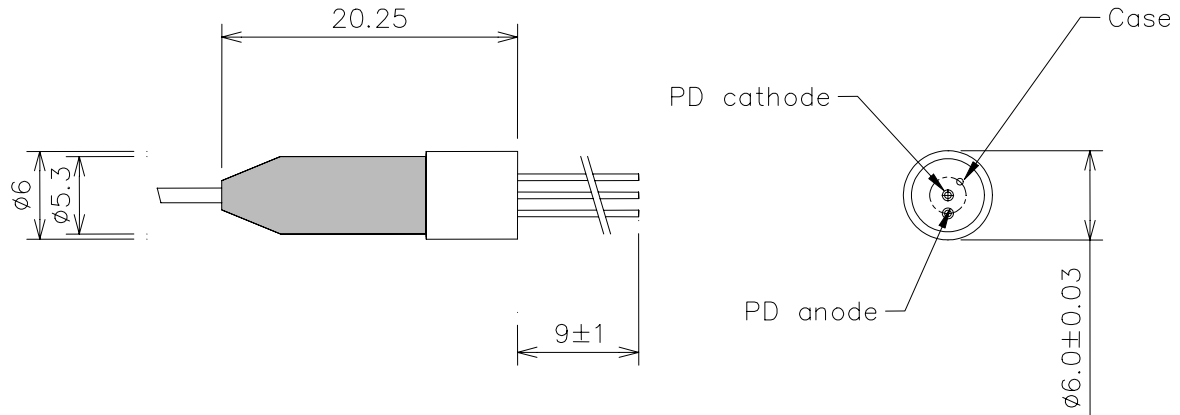


Fig.4 Pigtailed PD Package Dimensions [unit: mm]

Ordering Information

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