

## PDA-1300

### InGaAs PIN Photodiode Module for CATV Receiver

#### DESCRIPTION

PDA-1300 InGaAs PIN Photodiode series are high quality analog photodetectors designed for AM CATV receiver applications. These coaxial modules are optically aligned to optimize performance and balance the parameters of responsivity, distortion and back reflection. PDA-1300 series are suitable in forward and return path applications including AM-VSB CATV, QAM 64/256, PON, FTTC and FTTH receivers.

#### FEATURES

##### Electro-Optical

- I Low Inter-modulation Distortion
- I High Responsivity
- I Low Back Reflection

##### Packaging

- I Single mode 900  $\mu\text{m}$  fiber with or without a connector
- I Single mode 250  $\mu\text{m}$  fiber with or without a connector

#### ABSOLUTE MAXIMUM RATINGS

Stress in excess of the absolute maximum rating can cause permanent damage to the device. These are absolute stress rating only. Functional operation of the device is not implied at these or any other conditions in excess of these given in the operational sections of the datasheet. Exposure to absolute ratings for extended periods can adversely affect device reliability.

| Parameter                   | Symbol       | Min | Max    | Unit                          |
|-----------------------------|--------------|-----|--------|-------------------------------|
| Forward Current             |              |     | 10     | mA                            |
| Reverse Current             |              |     | 10     | mA                            |
| Reverse Voltage             |              |     | 25     | V                             |
| Power Dissipation           | $P_{DISS}$   |     | 100    | mW                            |
| Soldering Temperature       | $T_{solder}$ |     | 260/10 | $^{\circ}\text{C}/\text{sec}$ |
| Operating Temperature Range | $T_{op}$     | -40 | 85     | $^{\circ}\text{C}$            |
| Storage Temperature Range   | $T_{stg}$    | -40 | 85     | $^{\circ}\text{C}$            |

#### CHARACTERISTICS

| ELECTRICAL AND OPTICAL CHARACTERISTICS ( $T_C = 25^{\circ}\text{C}$ , $V_R = 12\text{V}$ ) |  |  |      |      |      |      |
|--|--|--|------|------|------|------|
| Symbol   | Parameter  | Test Conditions                                    | Min. | Typ. | Max. | Unit |
| R  | Responsivity                                     | $\lambda = 1300\text{nm}$                          | 0.8  |      |      | A/W  |
|  |  | $\lambda = 1550\text{nm}$                          | 0.85 |      |      |      |
| IM2  | 2 <sup>nd</sup> Order Intermodulation Modulation | Note (1*)  |      |      | -70  | dBc  |
| BR   | Back Reflection                                  | $\lambda = 1300\text{ nm}, 1550\text{ nm}$         |      |      | -40  | dB   |
| $I_{dark}$   | Dark Current                                     | $V_R = 5\text{V}$                                  |      |      | 1    | nA   |
| C  | Capacitance                                      | $f = 1\text{MHz}$ , Case Ground, $V_R = 5\text{V}$ |      |      | 0.9  | pF   |
| BW   | Bandwidth  | 3 dB down, $R_L = 50\Omega$                        | 2.0  |      |      | GHz  |
|  | Fiber Length                                     |  | 1.0  |      | 1.5  | m    |

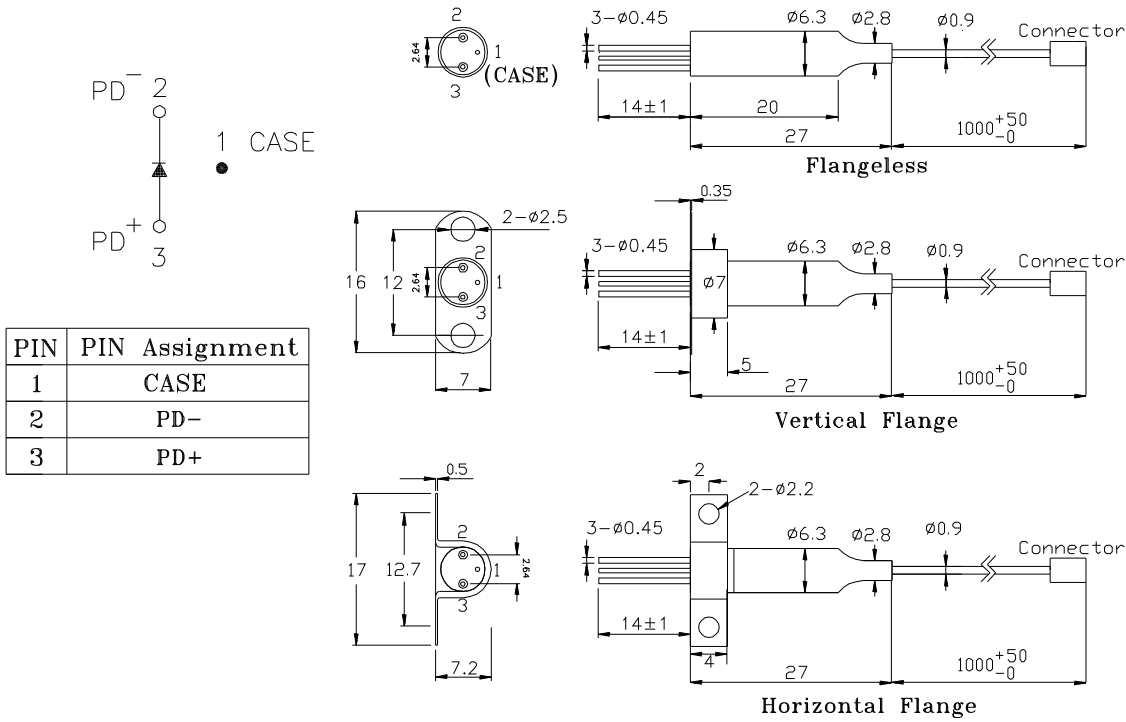
1\*. IM2 measured at  $V_R = 12\text{V}$ ,  $\lambda = 1550\text{nm}$ ,  $P_{avg} = 0\text{dBm}$ ,  $MI = 0.7$ ,  $R_{LOAD} = 50$ ,  $f_1 + f_2 = 850.25\text{ MHz}$ ,  $f_1 - f_2 = 50.25\text{ MHz}$

**PRECAUTIONS for USE**

ESD protection is imperative. Use of grounding straps, anti-static mats, and other ESD protective equipment is recommended when handling or testing an InGaAs PIN or any other junction photodiodes.

Fiber pigtailed should be handled with less than 10N pull and with a bending radius greater than 30 mm.

**MECHANICAL DIMENSION (mm) and PIN ASSIGNMENT**



**Note:** 1. Specifications subject to change without notice.

2. Other PIN assignment is available upon request.

**ORDER INFORMATION**

Part No.: P D A - 1 3 0   -

| Code | Fiber Buffer |
|------|--------------|
| 0    | 900 $\mu$ m  |
| 1    | 250 $\mu$ m  |

| Code   | PIN Assignment |
|--------|----------------|
| Blank  | Standard       |
| A to Z | others         |

| Code | Flange     |
|------|------------|
| V    | Vertical   |
| H    | Horizontal |
| X    | No Flange  |

| Code | Connector Type |
|------|----------------|
| X    | No Connector   |
| SA   | SC/APC         |
| FA   | FC/APC         |