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# Pigtailed PIN Photodiodes

## Technical Data

### Features

- **Variety of Flange/Pinout Options**
- **Fiber Pigtail Options**
- **Compact Package**
- **High Reliability Planar InGaAs PIN Photodiode**
- **High Responsivity**

### Applications

- **Instrumentation**
- **O-E Converters**
- **Single and Multimode Fiber Communications Systems**
- **Data Communications Receivers**
- **FDDI**

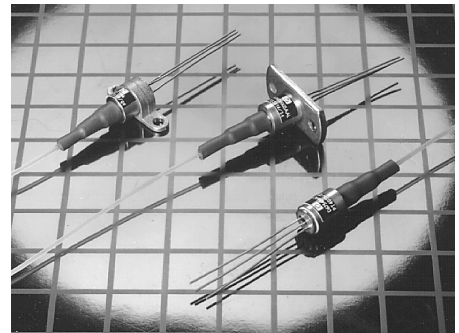
### Description

The PDT range of products includes a variety of compact fiber pigtailed devices designed for wide operating temperature, low cost applications such as fiber in the loop. The planar InGaAs photodiodes are manufactured using MOVPE growth technology and give low leakage and high responsivity performance with excellent reliability.

The construction of the devices includes a hermetically sealed photodiode and an actively aligned fiber pigtail and is designed to be compatible with the environmental requirements of the Bellcore TA-TSY-000983 document.

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### PDT1X4X



The product range includes a variety of pinout, fiber type and package mounting bracket options, designed to match the majority of offerings in the marketplace. If the specific arrangement or performance you require is not listed, please contact Hewlett-Packard. Highly flexible design and manufacturing processes allow both physical and electro-optic customization to suit your needs.

## PDT Pigtailed Photodiode Specifications

### Absolute Maximum Ratings

Absolute maximum limits mean that no catastrophic damage will occur if the product is subjected to these ratings for short periods, provided each limiting parameter is in isolation and all other parameters have values within the performance specification. It should not be assumed that limiting values of more than one parameter can be applied to the product at the same time.

| Parameter              | Symbol | Minimum | Maximum | Units |
|------------------------|--------|---------|---------|-------|
| Reverse Voltage        | $V_R$  | -       | 20      | V     |
| Reverse Current        | $I_R$  | -       | 1       | mA    |
| Forward Voltage        | $V_f$  | -       | 1       | V     |
| Forward Current        | $I_f$  | -       | 5       | mA    |
| Power Dissipation      | -      | -       | 50      | mW    |
| Operating Temperature  | $T_c$  | -40     | 85      | °C    |
| Storage Temperature    | $T_s$  | -40     | 85      | °C    |
| Soldering - 10 seconds | -      | -       | 260     | °C    |
| Fiber Pull             | -      | -       | 10      | N     |

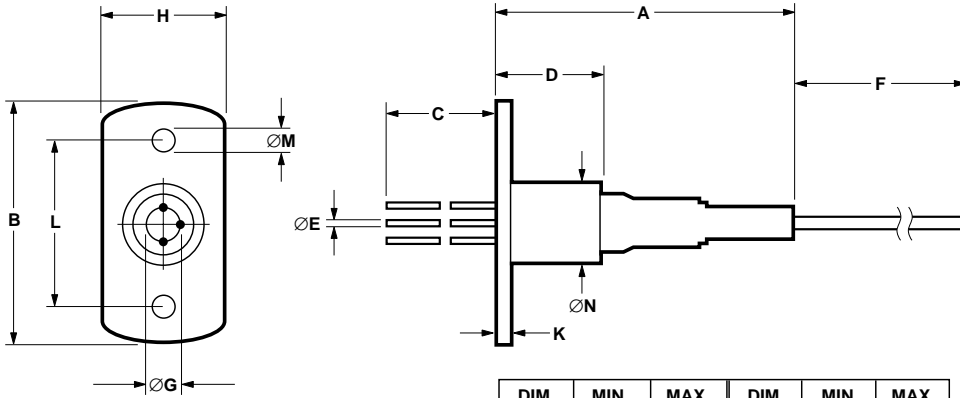
### Performance Specification

| Parameter                 | Symbol          | Test Conditions:<br>Unless Otherwise<br>Stated<br>$V_R = 5\text{ V}, T_c = 25^\circ\text{C}$ | PDT134X |      | PDT144X |      | Units |
|---------------------------|-----------------|--|---------|------|---------|------|-------|
|                           |                 |  | Min.    | Max. | Min.    | Max. |       |
| Dark Current              | $I_d$           |  | -       | 1    | -       | 1    | nA    |
|                           |                 | $T_c = 85^\circ\text{C}$   | -       | 50   | -       | 50   | nA    |
| Reverse Breakdown Voltage | $V_{br}$        | $I_R = 10\ \mu\text{A}$  | 35      | -    | 35      | -    | V     |
| Capacitance               | $C$             | 1 Mhz  | -       | 1.1  | -       | 1.7  | pF    |
| Responsivity              | $R$             | $\lambda = 1300\ \text{nm}$  | 0.7     | -    | 0.7     | -    | A/W   |
| Operating Wavelength      | $\lambda$       | 80% points   | 1200    | 1650 | 1200    | 1650 | nM    |
| Small Signal Bandwidth    | $B_w$           |  | 3       | -    | 1.5     | -    | GHz   |
| Rise/Fall Times           | $\tau_r/\tau_f$ |  | -       | 0.25 | -       | 0.5  | nS    |

**Fiber Pigtail:** Tight jacketed, self-mode stripping, multimode fiber

| Parameter                 | Minimum | Maximum | Units         |
|---------------------------|---------|---------|---------------|
| Length                    | 1.0     | -       | m             |
| Core Diameter             | 47      | 53      | $\mu\text{m}$ |
| Cladding Diameter         | 122     | 128     | $\mu\text{m}$ |
| Concentricity Error       | -       | 8       | %             |
| Secondary Jacket Diameter | 0.8     | 1.0     | mm            |

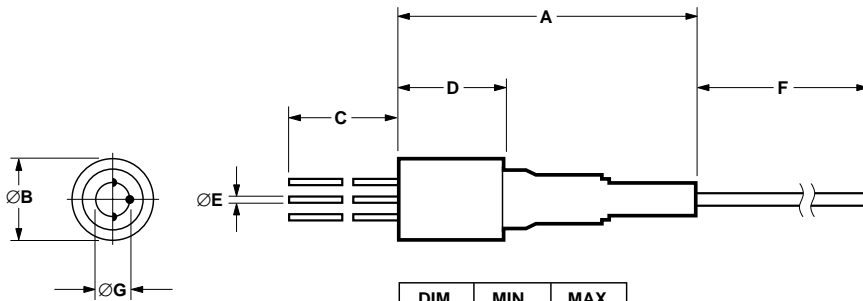
**PDT Mechanical Outline Options**  
**PDT1X4X-A**



| DIM. | MIN. | MAX. | DIM. | MIN.      | MAX.  |
|------|------|------|------|-----------|-------|
| A    | -    | 25.0 | ∅G   | 2.54 NOM. |       |
| B    | -    | 19.5 | H    | -         | 9.5   |
| C    | 12.0 | -    | J    | -         | 2.4   |
| D    | -    | 9.5  | K    | -         | 2.0   |
| E    | 0.41 | 0.47 | L    | 13.35     | 13.55 |
| F    | 1000 | -    | ∅M   | 2.1       | 2.4   |
|      |      |      | ∅N   | -         | 6.25  |

ALL DIMENSIONS IN MILLIMETERS

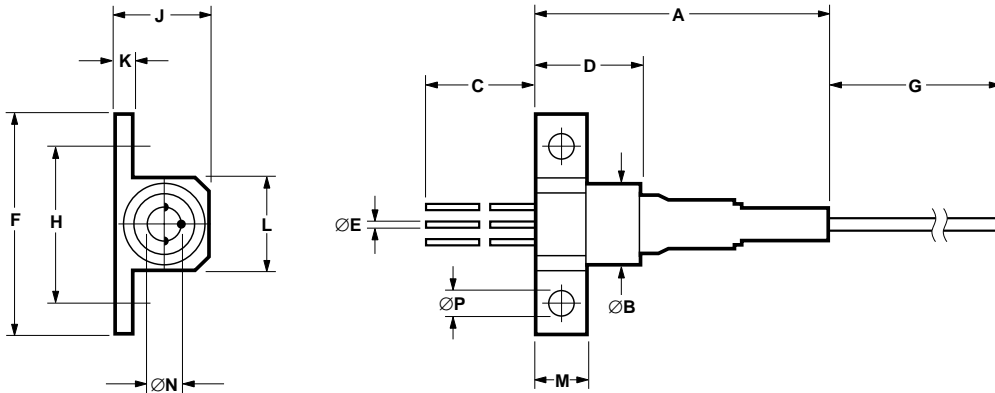
**PDT1X4X-B**



| DIM. | MIN.      | MAX. |
|------|-----------|------|
| A    | -         | 25.0 |
| ∅B   | -         | 6.25 |
| C    | 12.0      | -    |
| D    | -         | 8.5  |
| ∅E   | 0.41      | 0.47 |
| F    | 1000      | -    |
| ∅G   | 2.54 NOM. |      |

ALL DIMENSIONS IN MILLIMETERS

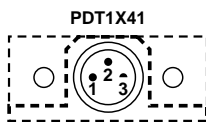
## PDT Mechanical Outline Options PDT1X4X-D



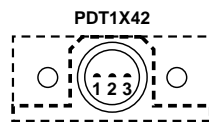
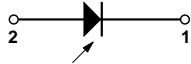
| DIM. | MIN. | MAX. | DIM. | MIN.      | MAX. |
|------|------|------|------|-----------|------|
| A    | -    | 25.0 | H    | 12.7 NOM. |      |
| ØB   | -    | 6.25 | J    | -         | 7.5  |
| C    | 12.0 | -    | K    | 0.9       | 1.1  |
| D    | -    | 9.5  | L    | -         | 7.5  |
| ØE   | 0.41 | 0.47 | M    | 3.8       | 4.2  |
| G    | 1000 | -    | ØN   | 2.54 NOM. |      |
|      |      |      | ØP   | 2.1       | 2.4  |

ALL DIMENSIONS IN MILLIMETERS

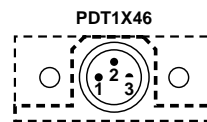
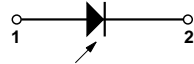
## PDT Electrical Pin-Outs



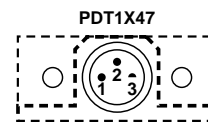
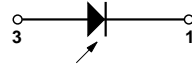
PIN 1: CATHODE + ve  
PIN 2: ANODE - ve  
PIN 3: CASE



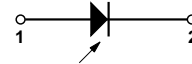
PIN 1: ANODE - ve  
PIN 2: CATHODE + ve  
PIN 3: CASE



PIN 1: CATHODE + ve  
PIN 2: CASE  
PIN 3: ANODE - ve



PIN 1: ANODE - ve  
PIN 2: CATHODE + ve  
PIN 3: CASE



## Ordering Information

**PDT1 X 4 X-X X-X X**

Connector Type:

FP = FC/PC

ST = ST®

BI = Biconic

SC = SC

DN = DIN

D4 = D4

SF = Super Polish FC/PC

TO to Mount Connection:

I = Isolated (Default if not specified)

S = Shorted

Flange Type:

A = 2 hole panel mount, 13.4 mm between centers

B = Barrel

D = 2 hole PCB mount, 12.7 mm between centers

G = 2 hole PCB mount, 14.0 mm between centers

Pin Out:

Options shown on Page 4

Device Type:

3 = 50  $\mu$ m Photodiode

4 = 90  $\mu$ m Photodiode

Fiber Type:

1 = 50/125 Fiber

Options available for single mode and 62.5/125 fibers

### Preferred Options:

PDT1346-DI

PDT1441-DI

PDT1442-AS

PDT1442-BI

PDT1442-DI

PDT1446-DI

Additional options are available to meet your specific needs. Please contact your local representative for details.