# InGaAs APD FOR OTDR

## Features

- Small Dark Current:ID = 2 nA
- Small Terminal Capacitance:CT = 0.35 pF at 0.9 VBR
- High Quantum Efficiency:

  $\eta$ = 90% at $\lambda$ = 1310 nm, M = 1  $\eta$ = 77% at $\lambda$ = 1550 nm, M = 1
- High Speed Response :fc = 2.5 GHz at M = 10
- Detecting Area Size:50um

  Coaxial Module With Single Mode Fiber (SM-9/125)

## Applications

OTDR System/Other Sensing Probe

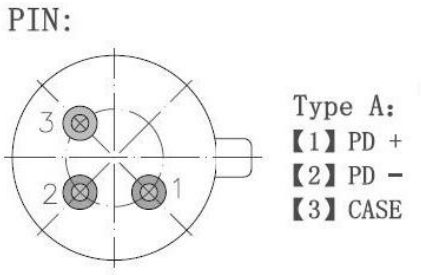
## Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| **Forward Current** | IF | | | 10 | mA |
| **Reverse Current** | IR | | | 0.5 | mA |
| **Operating Case Temp.** | TC | -40 | | 85 | °C |
| **Storage Temperature** | TSTG | -40 | | 85 | °C |
| **Lead Soldering Temp.** | TSOL | - | | 260(10s) | °C |
| **Relative Humidity** | RH | 0 | | 85 | % |

# Optical & Electrical Characteristics

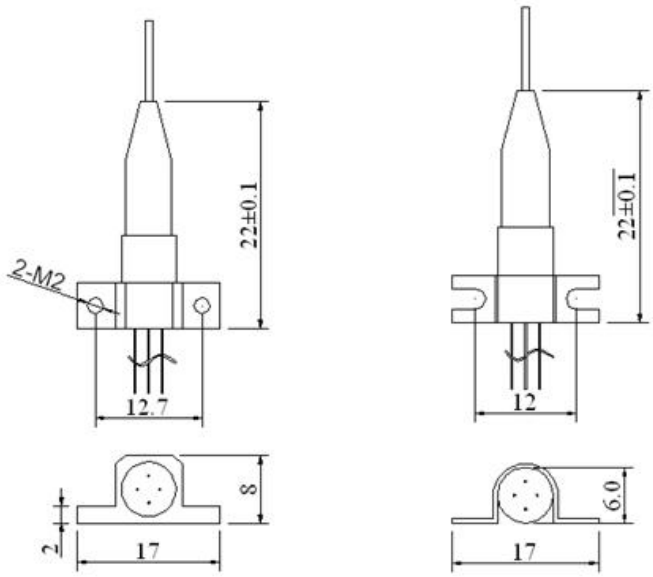
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Reverse Breakdown Voltage** | VBR | 40 | 45 | 55 | V | ID = 100 μA |
| **Temperature Coefficient of Reverse Breakdown Voltage1** | δ | | 0.2 | | %/°C | |
| **Dark Current** | ID | | 5 | 25 | nA | VR = VBR x 0.9 |
| **Multiplied Dark Current** | IDM | | 1 | 3 | nA | M = 2 to 10 |
| **Terminal Capacitance** | Ct | | 0.35 | | pF | VR = VBR x 0.9, f = 1 MHz |
| **Cut-off Frequency** | fC | 2.5 | | | GHz | M = 10 |
| **Quantum Efficiency** | η | 76 | 90 | | % | λ = 1310 nm, M = 1 |
| | | 65 | 77 | | | λ = 1550 nm, M = 1 |
| **Responsively** | S | 0.85 | 0.90 | | A/W | λ = 1310 nm, M = 1 |
| | | 0.90 | 0.95 | | | λ = 1550 nm, M = 1 |
| **Excess Noise Factor** | X | | 0.7 | | - | λ = 1310 nm, IPO = 1.0 μw, M = 10, f = 35 MHz, B = 1 MHz |
| | F | | 5 | | | λ = 1550 nm, IPO = 1.0 μw, M = 10, f = 35 MHz, B = 1 MHz |
| **Optical Return Loss** | ORL | 30 | 40 | | dB | SMF |

# Pin Assignment

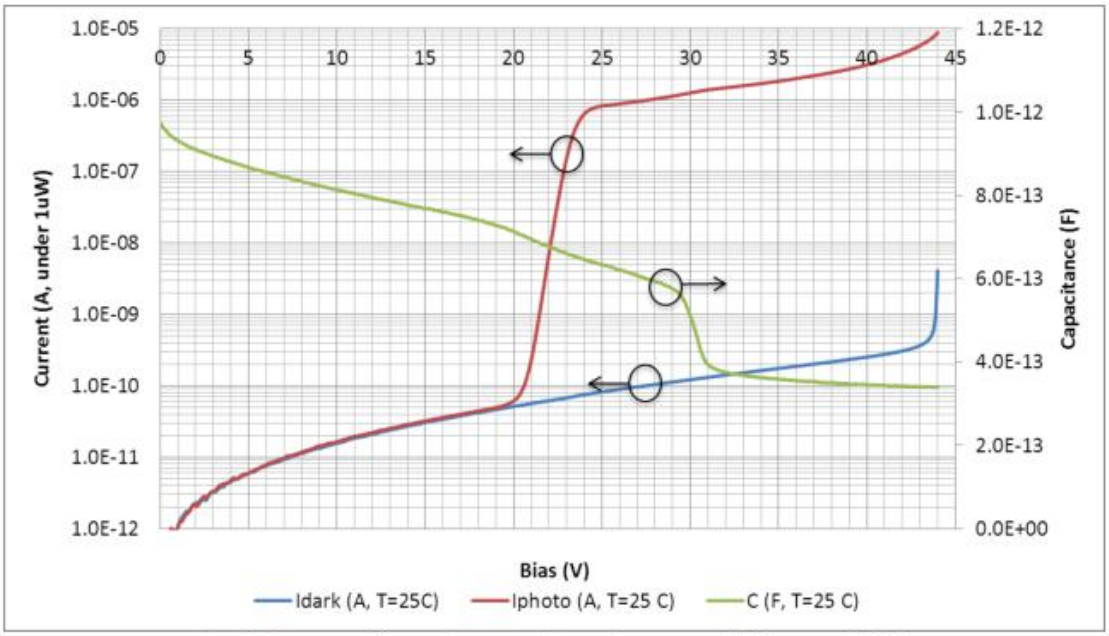



Bottom View

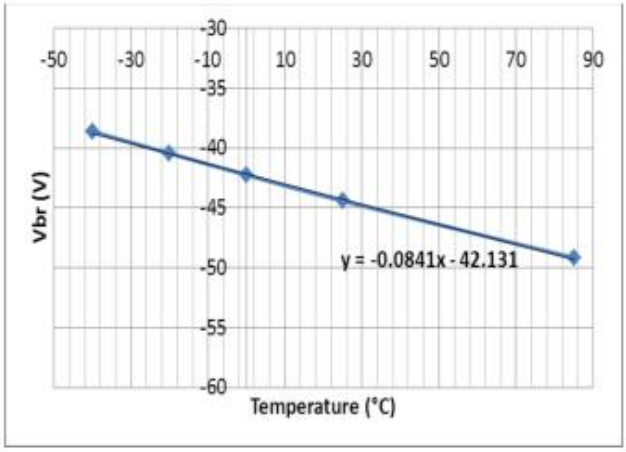
# Drawing



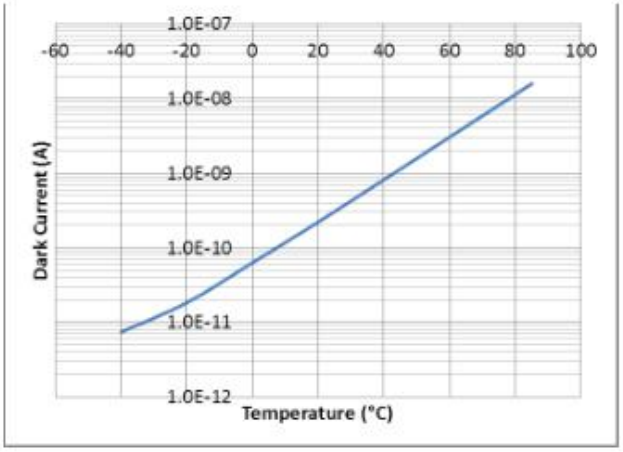

## Typical Performance at 25°C



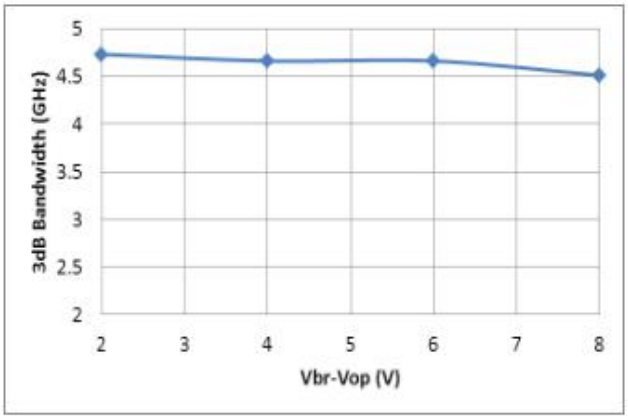

Dark Current, Photo Current, Capacitance vs. Voltage at 25°C



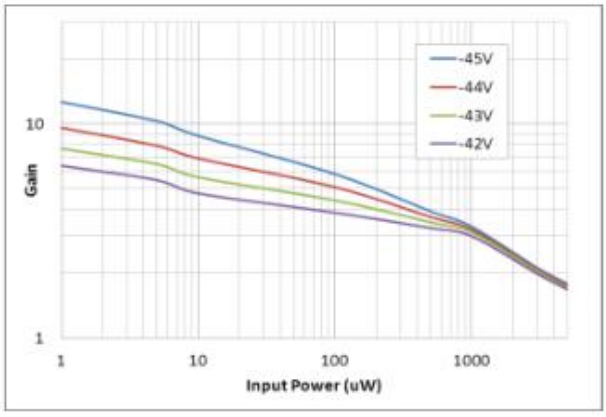

Breakdown Voltage vs. Temperature




Dark Current (at $V_{br}$-3V) vs. Temperature




Bandwidth vs. Operating Voltage (25°C)




Gain vs. Input Power (25°C)

# Order Information

## MAP-3XXX

| M | AP | -3 | X | X | X |
|---|---|---|---|---|---|
| **Mode** | **Product Type** | **Bandwidth** | **Connector** | **Fiber Type** | **Pigtail Length** |
| | | 3：3Gb/s | 1：FC/APC<br>2：FC/PC<br>3：SC/APC<br>4：SC/PC<br>5：LC/PC<br>6：LC/APC<br>W：Without | S9：9/125/900um<br>S2：9/125/250um<br>M5：50/125/900um<br>M6：62.5/125/900um | 05：0.5M<br>10：1.0M |