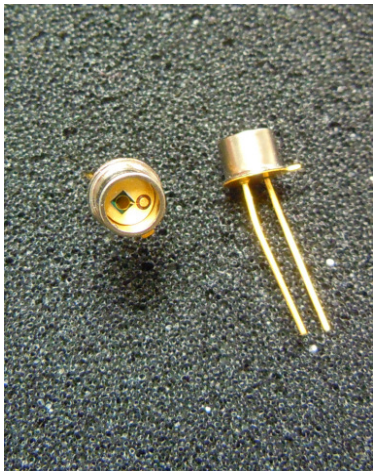
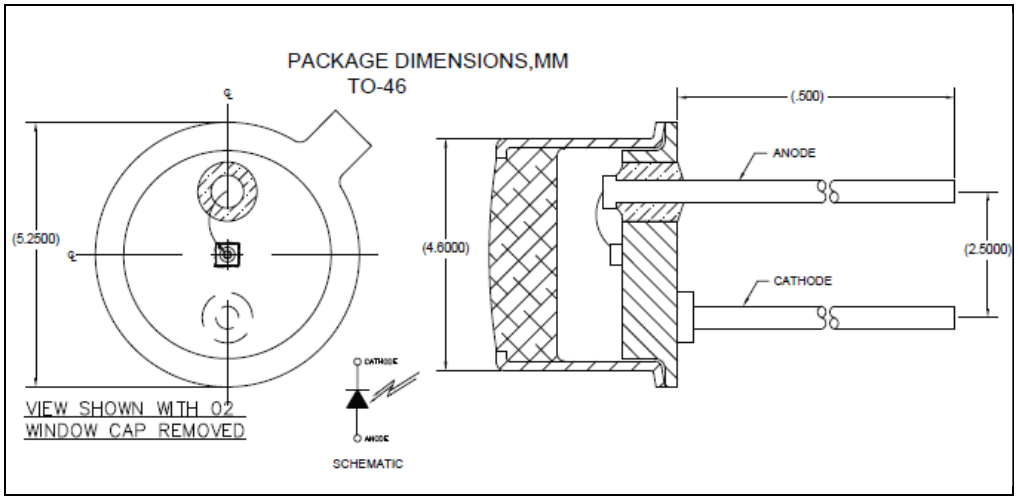
Advanced Photonix, Inc.

# *InGaAs Photodiode*

## SD039-121-011

**WWW.ADVANCEDPHOTONIX.COM** **Precision – Control – Results**






## DESCRIPTION

The SD039-121-011 is a high sensitivity, low capacitance and noise, 1mm diameter active area InGaAs photodiode, sensitive to wavelengths in visible extended (450-1700nm) spectral range and used sensing applications. The photodetector is assembled in a TO-46 package.

.

## RELIABILITY

This API high-reliability detector is in principle able to meet military test requirements (Mil-STD-750, Mil-STD-883) after proper screening and group test.

Contact API for recommendations on specific test conditions and procedures.

## MOISTURE SENSITIVITY LEVEL

API silicon light dependent resistors are classified as MSL level 1 per J-STD-020 allowing for unlimited floor time at temperatures less than or equal to 30℃ and humidity less than or equal to 85%.

## ABSOLUTE MAXIMUM RATINGS

| SYMBOL | MIN | MAX | UNITS |
|---|---|---|---|
| Operating Temperature | 0 | +85 | ℃ |
| Storage Temperature | -25 | +85 | ℃ |
| Soldering Temperature * | - | +240 | ℃ |
| Wavelength Range | 450 | 1700 | nm |
| Reverse Voltage | - | 20 | V |

*) 1/16 inch from case for 3s max.

## FEATURES

- Low Noise
- Low Dark Current and Capacitance
- High Sensitivity
- Light Detection (Visible, NIR, SWIR)

## APPLICATIONS

- Industrial Sensing
- Security and Defense
- Communication

## ESD

This device is Class 1A (HBM).

$T_a$ = 23℃ non condensing





REV 8-27-15



Advanced Photonix Inc. 1240 Avenida Acaso, Camarillo CA 93012 • Phone (805) 987-0146 • Fax (805) 484-9935

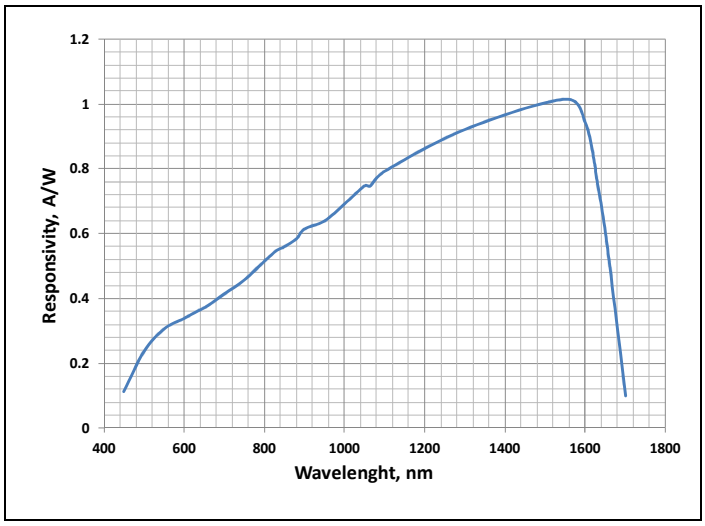
## OPTO-ELECTRICAL PARAMETERS

$T_a$ = 23°C unless noted otherwise

| PARAMETER | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| Breakdown Voltage | $I_{bias}$ = 100 µA | 10 | - | - | V |
| Responsivity | λ= 600 nm | 0.3 | 0.35 | - | A/W |
| Responsivity | λ= 1200 nm | 0.8 | 0.85 | - | A/W |
| Responsivity | λ= 1550 nm | 0.9 | 1.00 | - | A/W |
| Shunt Resistance | $V_{bias}$ = 10 mV | 0.8 | 5 | - | MΩ |
| Dark Current | $V_{bias}$ = 1V | - | 20 | 100 | nA |
| Capacitance | $V_{bias}$ = 1V; f = 1 MHz | - | 40 | 70 | pF |
| Rise Time (50Ω load) | $V_{bias}$ = 1V; λ= 826 nm | - | 5 | - | ns |
| Noise Equivalent Power | λ= 900 nm | - | 1.6 | - | $10^{-13}W/Hz^{0.5}$ |

## TYPICAL PERFORMANCE

### SPECTRAL RESPONSE










Advanced Photonix Inc. 1240 Avenida Acaso, Camarillo CA 93012 • Phone (805) 987-0146 • Fax (805) 484-9935