## PHOTONIC DETECTORS INC.

Silicon Photodiode, U.V. Enhanced Photovoltaic

PACKAGE DIMENSIONS INCH [mm]


PHOTODIODE


ACTIVE AREA $=42.86 \mathrm{~mm}^{2}$

FEATURES

- Lownoise
- U.V.enhanced
- High shunt resistance
- Quartz windows

DESCRIPTION
The PDU-V109 is a silicon, PIN planar diffused, U.V.enhanced photodiode. Ideal for low noise photovoltaic applications. Packaged in a hermetic TO-8 metal can with a flat quartz window.

## APPLICATIONS

- Spectrometers
- Fluorescent analysers
- U.V. meters
- Colorimeters

ABSOLUTE MAXIMUM RATING (TA $=25^{\circ} \mathrm{C}$ unless otherwise noted)

| SYMBOL | PARAMETER | MIN | MAX | UNITS |
| :---: | :--- | :---: | ---: | :---: |
| $\mathrm{V}_{\text {BR }}$ | Reverse Voltage |  | 75 | V |
| $\mathrm{~T}_{\text {STG }}$ | Storage Temperature | -55 | +150 | ${ }^{\circ} \mathrm{C}$ |
| $\mathrm{T}^{\circ}$ | Operating Temperature Range | -40 | +125 | ${ }^{\circ} \mathrm{C}$ |
| $\mathrm{Ts}_{\mathrm{s}}$ | Soldering Temperature ${ }^{*}$ |  | +240 | ${ }^{\circ} \mathrm{C}$ |
| $\mathrm{I}_{\mathrm{L}}$ | Light Current |  | 0.5 | mA |

*1/16 inch from case for 3 secs max
ELECTRO-OPTICAL CHARACTERISTICS (TA $=25^{\circ} \mathrm{C}$ unless otherwise noted)

| SYMBOL | CHARACTERISTIC | TESTCONDITIONS | MIN | TYP | MAX | UNITS |
| :---: | :--- | :--- | :---: | :---: | :---: | :---: |
| Isc | Short Circuit Current | $\mathrm{H}=100 \mathrm{fc}, 2850 \mathrm{~K}$ | 405 | 500 |  | $\mu \mathrm{~A}$ |
| ID | Dark Current | $\mathrm{H}=0, \mathrm{~V}_{\mathrm{R}}=10 \mathrm{mV}$ |  | 66 | 200 | pA |
| RsH | Shunt Resistance | $\mathrm{H}=0, \mathrm{~V}_{\mathrm{R}}=10 \mathrm{mV}$ | 50 | 150 |  | $\mathrm{M} \Omega$ |
| TC RsH | Rsh Temp. Coefficient | $\mathrm{H}=0, \mathrm{~V}_{\mathrm{R}}=10 \mathrm{mV}$ |  | -8 |  | $\% /{ }^{\circ} \mathrm{C}$ |
| $\mathrm{C} J$ | Junction Capacitance | $\mathrm{H}=0, \mathrm{~V}_{\mathrm{R}}=0 \mathrm{~V}^{* *}$ |  | 4,500 |  | pF |
| $\lambda_{\text {range }}$ | Spectral Application Range | Spot Scan | 190 |  | 1100 | nm |
| R | Responsivity | $\mathrm{V}_{\mathrm{R}}=0 \mathrm{~V}, \lambda=254 \mathrm{~nm}$ | .12 | .18 |  | $\mathrm{~A} / \mathrm{W}$ |
| $\mathrm{V}_{\text {BR }}$ | Breakdown Voltage | $\mathrm{I}=10 \mu \mathrm{~A}$ | 5 | 10 |  | V |
| NEP | Noise Equivalent Power | $\mathrm{V}_{\mathrm{R}}=10 \mathrm{mV} @$ Peak |  | $1.0 \times 10^{-14}$ |  | $\mathrm{~W} / \sqrt{\mathrm{Hz}}$ |
| tr | Response Time | $\mathrm{RL}=1 \mathrm{~K} \Omega \mathrm{~V}_{\mathrm{R}}=0 \mathrm{~V}$ |  | 1,000 |  | nS |

Information in this technical data sheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject to change without notice. ${ }^{* *} \mathrm{f}=1 \mathrm{MHz}$

