



PDT-F46x950-922

0.9~2.2um Dia. 950um InGaAs PIN Photodiode in TO-46 Package

Overview

The Lasermate PDT-F46x950-922 is a high responsivity in 0.9um~2.2um wavelength spectral range, low leakage current InGaAs PIN photodiode in TO-46 package with large active area of 950um diameter.



Features

- High reliability
- Low leakage current
- Low stray absorption
- High responsivity in 0.9~2.2um spectral range
- Aperture size \varnothing 950um
- Package type: TO-46

Applications

- Power monitoring
- Spectral analysis
- Light Detection and Ranging (LIDAR)
- Remote temperature sensors
- Ice/slush/moisture detection
- Gas leak detection
- Single-photodiode SWIR camera
- Covert IR sensing

Product Overview

The following table lists the available part numbers, as well as the spectral range, aperture size, and package type of each of the part numbers.

| Part Number | Spectral Range | Aperture Size | Package Type |
|-----------------|----------------|---------------------|--------------|
| PDT-F46A950-922 | 0.9-2.2um | \varnothing 950um | TO-46, 3-pin |
| PDT-F46B950-922 | 0.9-2.2um | \varnothing 950um | TO-46, 5-pin |



Specifications

| Electro-Optical Characteristics (T _{AMB} =23°C) | | | | | | | |
|--|-----------------|------------------|------|------|------|-------------------------|--------------------------------------|
| Parameters | | Symbol | Min. | Typ. | Max. | Unit | Conditions |
| Aperture size | | ∅ | | 950 | | um | |
| Spectral Range | | λ | 0.9 | | 2.2 | um | |
| Responsivity | PDT-F46A950-922 | R _e | 0.9 | 0.95 | | A/W | V _R =0V, λ=1.55um |
| | | | 1.0 | 1.05 | | | V _R =0V, λ=1.9um |
| | PDT-F46B950-922 | | 0.95 | 1.0 | | | V _R =0V, λ=1.55um |
| | | | 1.05 | 1.1 | | | V _R =0V, λ=1.9um |
| Dark Current | | I _d | | 2.5 | 5 | uA | V _R =-0.5V |
| Capacitance | | C | | 450 | 600 | pF | f=1MHz, V _R =0V |
| | | | | 300 | 400 | | f=1MHz, V _R =-0.5V |
| Saturation Power ⁽¹⁾ | | P _{sat} | 1.0 | 2.0 | | mW | V _R =0V, λ=1.55um, -0.2dB |
| Shunt Resistance | | R _{sh} | 20 | 40 | | kΩ | V _R =-10mV |
| NEP | | | | 3 | 5 | 10 ⁻¹² W/√Hz | V _R =0V, λ=1.9um, f=1kHz |
| 3dB Bandwidth | | | 6 | 10 | | MHz | V _R =-0.5V, 500hm |
| Max Cooling | PDT-F46A950-922 | | - | - | - | °C | T _{Heatsink} =20°C |
| Capability, ΔT _{MAX} ⁽²⁾ | PDT-F46B950-922 | | 35 | 40 | - | | |

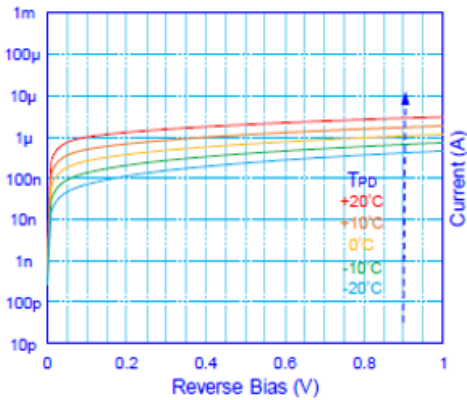
(1) Measured at the aperture center with a 1/e² beam diameter of 250um.

(2) Adequate heatsink and thermal interface material are the prerequisites for stable operation.

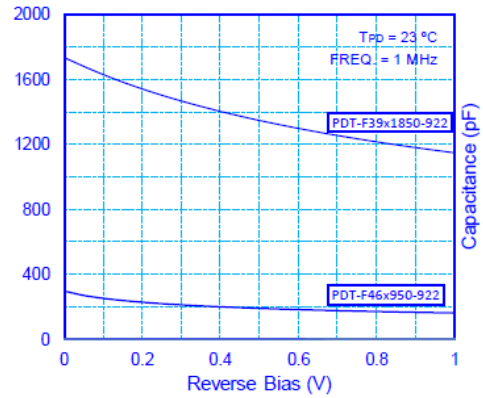
| Absolute Maximum Ratings | | | | | |
|--------------------------|-----------------|------|------|------|-----------------------------|
| Parameters | | Min. | Max. | Unit | Conditions |
| Storage Temperature | | -40 | 85 | °C | Non-condensing environment. |
| Operating Temperature | | -40 | 85 | °C | Non-condensing environment. |
| Forward Current | | | 10 | mA | |
| Reverse Current | | | 10 | mA | |
| Reverse Voltage | | | 1.5 | V | |
| TEC Current | PDT-F46A950-922 | - | - | A | |
| | PDT-F46B950-922 | - | 0.65 | A | |

Typical Characteristics

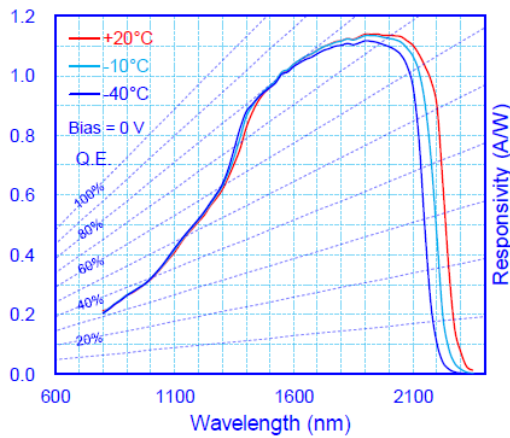
Dark Current



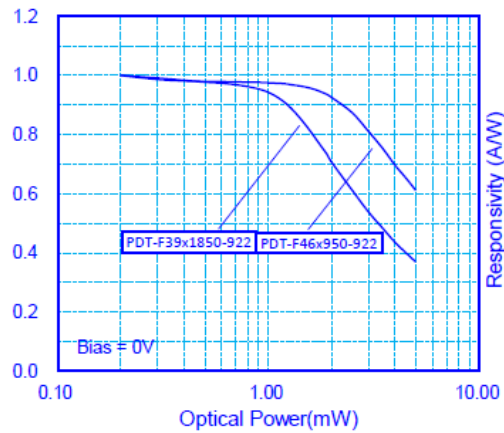
Dark Capacitance



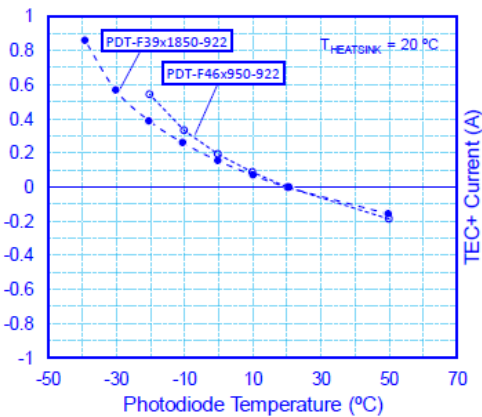
Responsivity Spectrum



Normalized Response Linearity



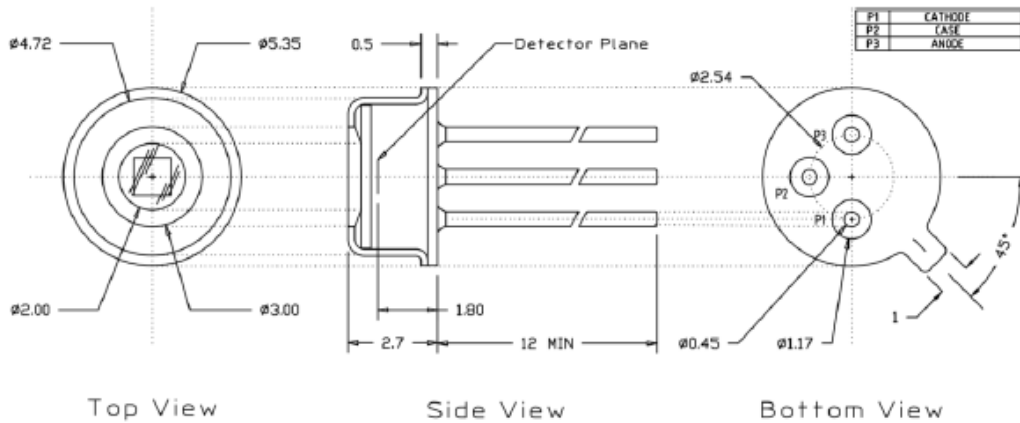
TEC Performance



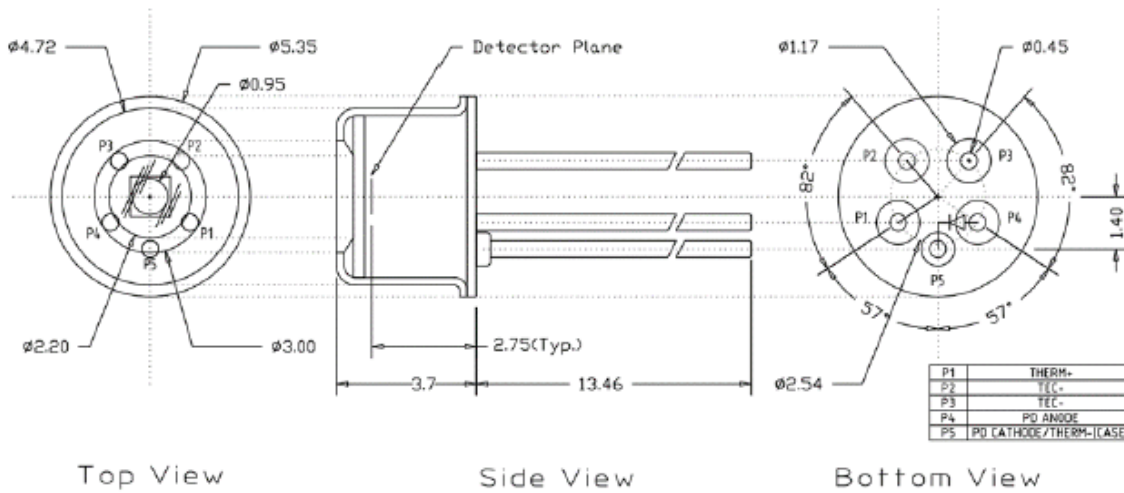
*Non-condensing environment

Outline Dimensions (unit: mm)

PDT-F46A950-922:



PDT-F46B950-922:



Additional Notes

1. Specifications are subject to change without notice.
2. The suitable ESD protective measures are needed in storage, transportation, and handling.