PDT-F39A3000-917
0.9~1.7um Dia. 3000um InGaAs PIN Photodiode in TO-39 Package

Overview

The Lasermate PDT-F39A3000-917 is a high responsivity in 0.9um~1.7um wavelength spectral range, low leakage current, high shunt resistance InGaAs PIN photodiode in TO-39 package with 3000um diameter large active area.

Features

- Highly reliable planar device
- Low leakage current
- Low stray absorption
- High shunt resistance
- High responsivity in 0.9~1.7um spectral range
- Aperture size ⌀3000um
- Package type: TO-39

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
- Optical powering

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-F39A3000-917	0.9-1.7um	⌀3000um	TO-39, 3-pin

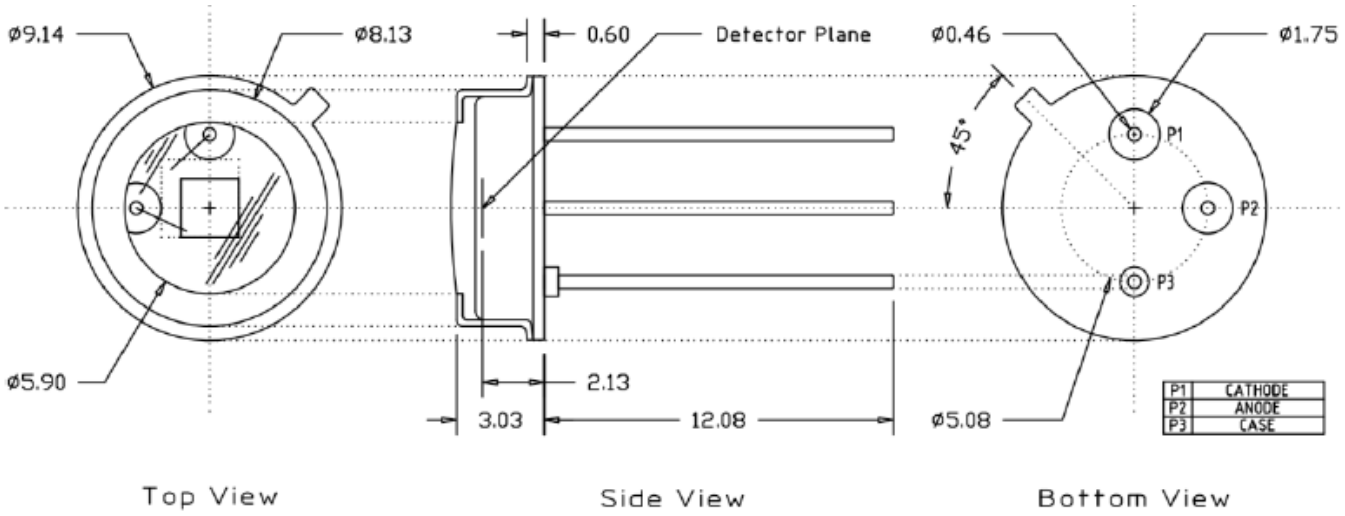
Specifications

Electro-Optical Characteristics (T_{AMB}=23°C)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Aperture size	⌀		3000		um	
Spectral Range	λ	0.9		1.7	um	
Responsivity	R_e	0.1	0.15		A/W	V_R=0V, λ=0.85um
		0.8	0.9			V_R=0V, λ=1.3um
		0.9	0.95			V_R=0V, λ=1.55um
Dark Current	Id		10	20	nA	V_R=-5V
Capacitance	C		900	1300	pF	f=1MHz, V_R=0V
			500	700		f=1MHz, V_R=-5V
Saturation Power (1)	P_{sat}	1.5	3		mW	V_R=0V, λ=1.55um, -0.2dB
Shunt Resistance	R_{sh}	5	10		MΩ	V_R=-10mV
NEP			4	8	10^{-14}W/√Hz	V_R=0V, λ=1.55um, f=1kHz
3dB Bandwidth		4.5	6		MHz	V_R=-5V, 50Ω

(1) Measured at the aperture center with a $1/e^2$ beam diameter of 250um.
(2) Adequate heatsink and thermal interface material are the prerequisites for stable operation.

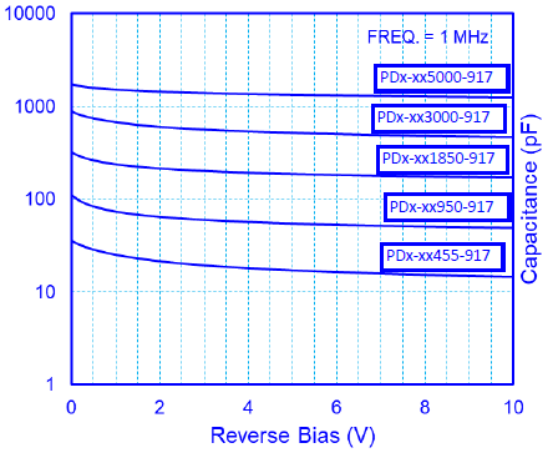
Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	85	°C	Non-condensing environment.
Operating Temperature	-40	85	°C	Non-condensing environment.
Forward Current		10	mA	
Reverse Current		10	mA	
Reverse Voltage		10	V	

Outline Dimensions (unit: mm)

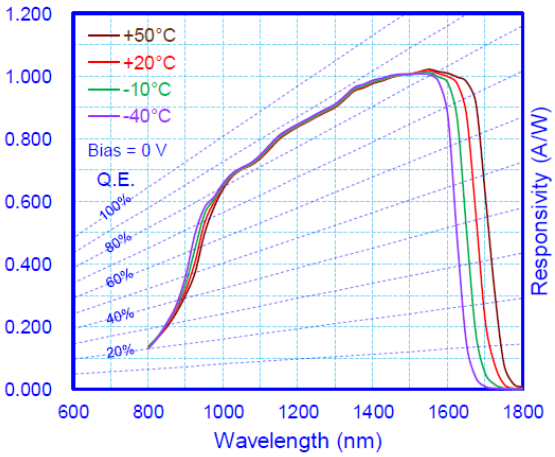


Typical Characteristics

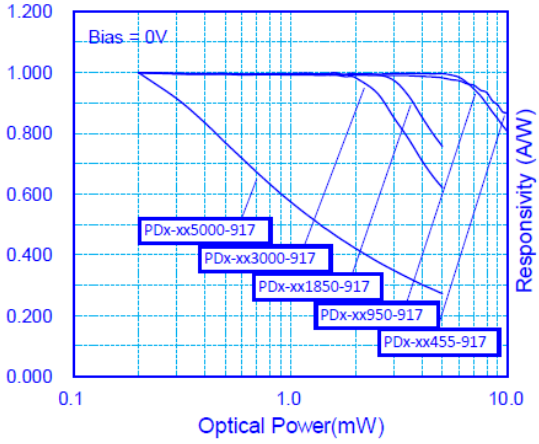
Dark Capacitance



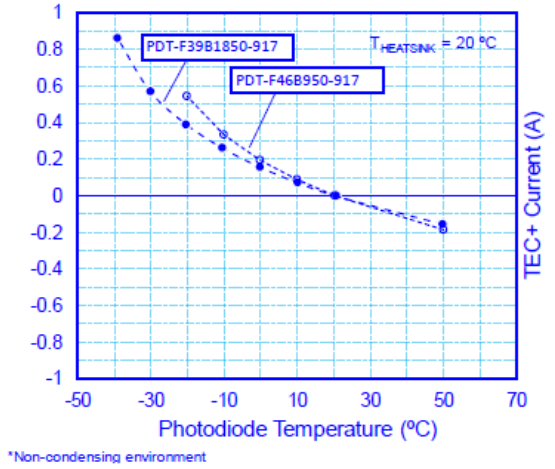
Responsivity Spectrum



Normalized Response Linearity



TEC Performance



*Non-condensing environment

Additional Notes

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