



## APD-F13A3

### 0.95-1.65um InGaAs Avalanche Photodiode (APD) in TO-46 Package, 3-pin

#### Overview

The Lasermate APD-F13A3 is a high-speed, large-area InGaAs avalanche photodiode (APD) in 3-pin TO-46 package that provides high responsivity in the spectral range between 950nm and 1650nm.

#### Features

- InGaAs Avalanche photodiode (APD) in TO-46 flat window package
- Highly reliable planar device
- High responsivity in 0.95-1.65um
- Low leakage current and noise
- $\geq 700\text{MHz}$  3dB bandwidth
- Low stray absorption

#### Applications

- Light detection and ranging (LIDAR)
- Fiber optic communication / testing
- Spectral analysis
- Optical coherence tomography
- Single-photodiode SWIR camera
- Covert IR sensing

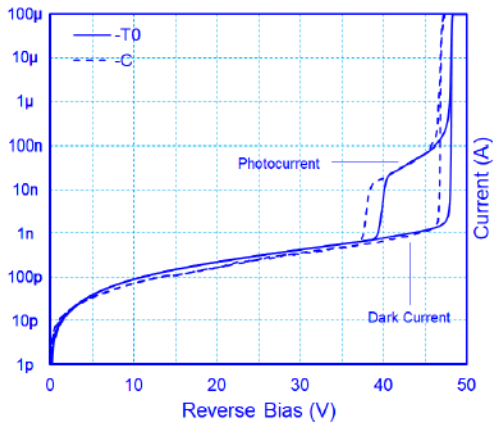
#### Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Reverse current	$I_R$	1	mA	
Forward current	$I_F$	5	um	
Operation temperature	$T_{op}$	-40 to 85	$^{\circ}\text{C}$	
Storage temperature	$T_{stg}$	-40 to 85	$^{\circ}\text{C}$	

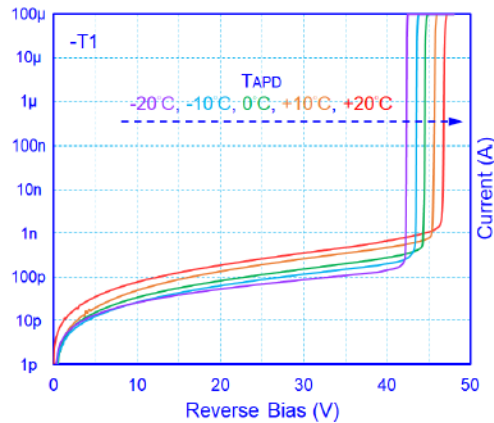
Electro-Optical Characteristics ( $T_a=23^{\circ}\text{C}$ )						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Wavelength spectral range	$\lambda$	0.95		1.65	um	
Aperture size			200		um	
Dark current	$I_D$		5	50	nA	M=10
Operating voltage	$V_{op}$	32		50	V	M=10
Breakdown voltage	$V_{BD}$	35		55	V	$I_{BD}=100\mu\text{A}$
Capacitance	$C_J$	-	2.5	3.0	pF	M=10, f=1MHz
Responsivity	$I_L$	8	9		A/W	M=10, $\lambda=1.55\mu\text{m}$
Useable gain		10	20	-		$\lambda=1.55\mu\text{m}$
3dB bandwidth ( $f_{3dB}$ )		0.8	1		GHz	M=10, $\lambda=1.55\mu\text{m}$
Spectral noise current		-	0.5	1.5	pA/ $\sqrt{\text{Hz}}$	M=10, $\Delta f=1\text{kHz}$
Temperature coefficient of $V_{BD}$		-	0.10	0.15	V/ $^{\circ}\text{C}$	

## Typical Characteristics

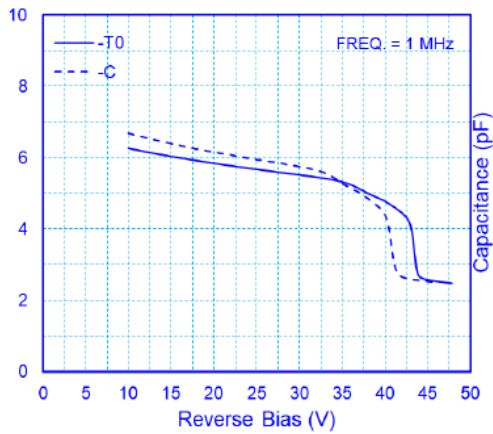
Dark - / Photo-Current



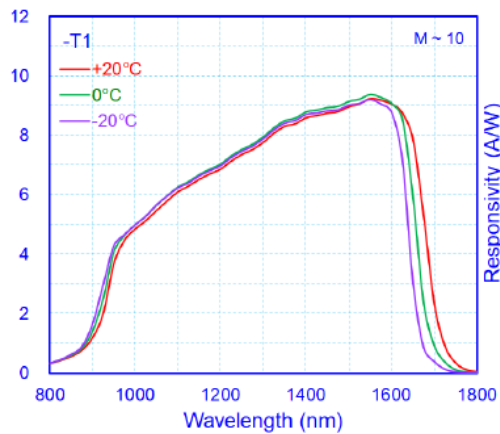
Dark Current



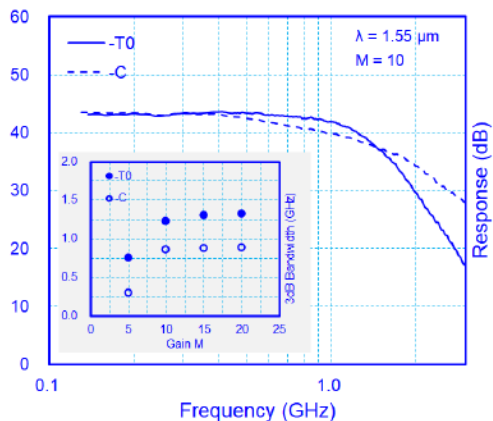
Dark Capacitance



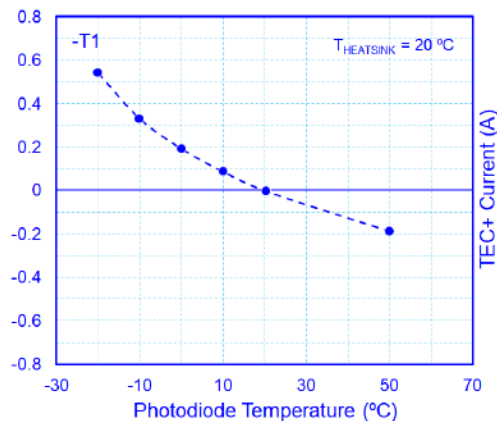
Responsivity Spectrum



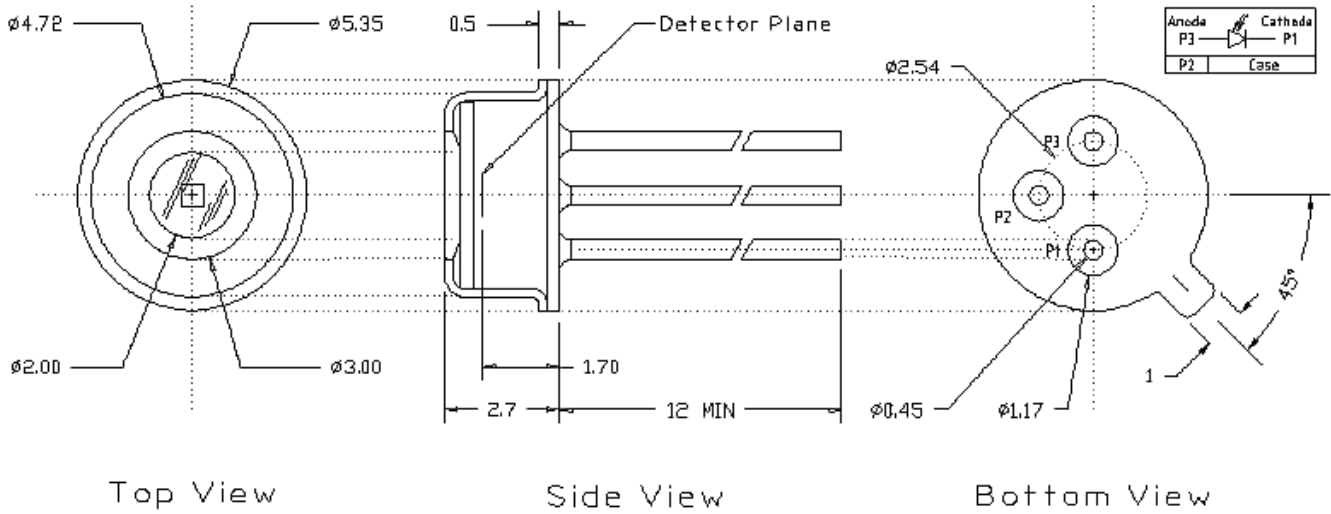
Frequency Response



TEC Performance



**Outline Dimensions (unit: mm)**



Note: Specifications are subject to change without notice.