APDE-x46A500-SI-x
1064nm 500um Enhanced Silicon Avalanche Photodiode in TO-46 Package

Description

The Lasermate APDE-x46A500-SI-x is a high reliability, low dark current, 500um dia. active area enhanced Silicon avalanche photodiode (APD) with high sensitivity from 400nm to 1100nm. The detector is housed in TO-46 package and with high gain up to M=400.

Features

- High reliability, low dark current
- Top illumination planar APD
- High Gain up to M=400
- Dia. 500um Active area
- Spectral range 400nm to 1100nm
- 1064nm responsivity 0.37 A/W
- Hermetic TO-46 can package

Applications

- Ultra-weak pulse optical detection
- Laser lidar, laser range finder
- Optical fiber sensor, OTDR
- High resolution optical coherence tomography
- Scientific analysis and experiment

Product Overview

The following table lists the available part numbers, as well as the package type and breakdown voltage of each of the part numbers.

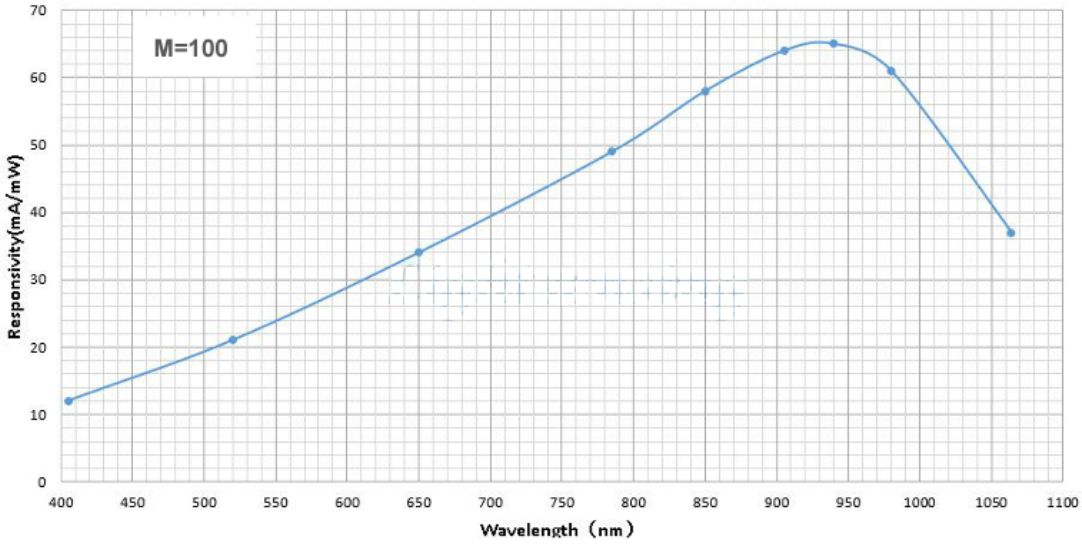
Part Number	Package	Breakdown Voltage
APDE-B46A500-SI-1	TO-46 Can with Ball Lens Cap	220-300V
APDE-B46A500-SI-2	TO-46 Can with Ball Lens Cap	301-580V
APDE-SF46A500-SI-1	TO-46 Can with 2mm Flat Window Cap	220-300V
APDE-SF46A500-SI-2	TO-46 Can with 2mm Flat Window Cap	301-580V
APDE-LF46A500-SI-1	TO-46 Can with 3mm Flat Window Cap	220-300V
APDE-LF46A500-SI-2	TO-46 Can with 3mm Flat Window Cap	301-580V

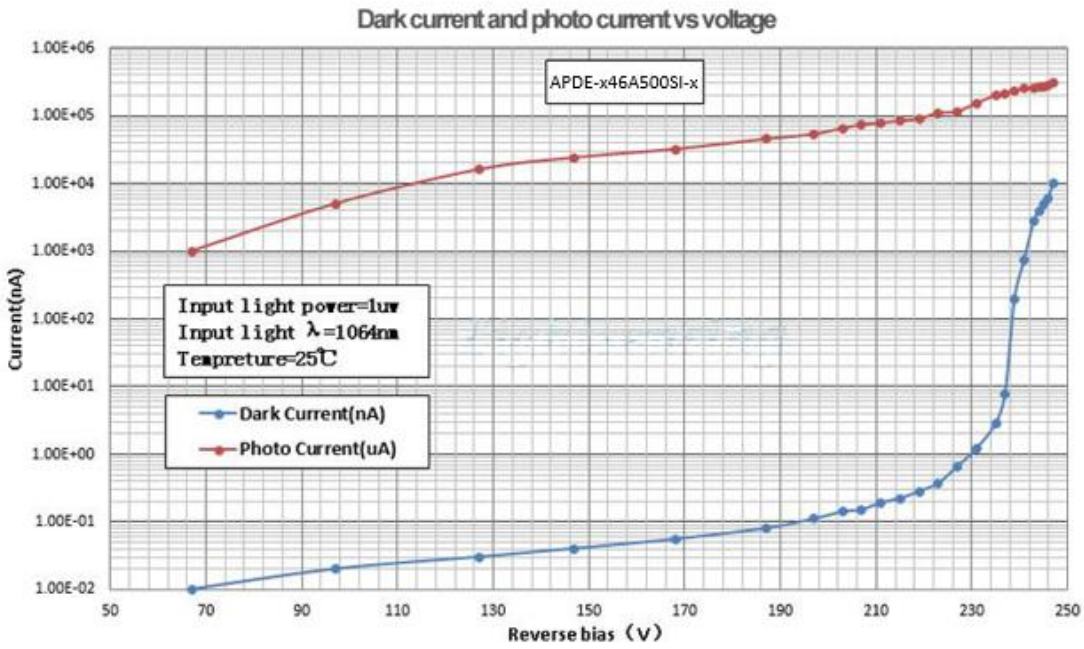
Specifications

Absolute Maximum Ratings				
Parameters	**Symbol**	**Value**	**Unit**	**Conditions**
Operating voltage	V_{op}	$0.9xV_{BR}$	V	
Forward current	I_F	1	mA	
Operating temperature	T_{op}	-45 to 85	°C	
Storage temperature	T_{stg}	-45 to 125	°C	
Power dissipation		1	mW	
Soldering temperature	T_{sol}	260	°C	10 seconds

Electro-Optical Characteristics (Top=22+/-3°C)						
Parameters	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Response spectrum	λ	400		1100	nm	
Active diameter	⌀		500		um	
Responsivity	R_e		0.65		A/W	λ=905nm, 1uw, M=1
			0.37			λ=1064nm, 1uw, M=1
Multiplication gain	M		100			λ=1064nm, 1uw, $0.8V_{BR}$
			200			λ=1064nm, 1uw, $0.85V_{BR}$
Response time	Tr		2.5		ns	M=100, RL=50Ω, λ=1064nm
Dark current	Id		1.2	20	nA	M=100
Total capacitance	C_{tot}		1.2		pF	M=100, f=1MHz
Reverse breakdown voltage	V_{BR}	220	280	580	V	I_R=10uA
Maximum instantaneous input power	P			0.4	mW	M=100, 1064nm, 10ns, 10KHz
Operating voltage temperature coefficient	δ		3		V/°C	T_c=-40 to 85°C
Package		Hermetic TO-46 can				

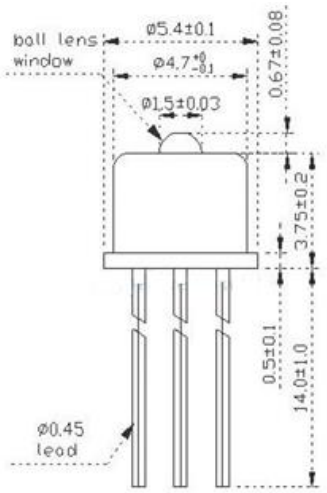
Typical Characteristics





Outline Dimensions (unit: mm)

APDE-B46A500-SI-x:



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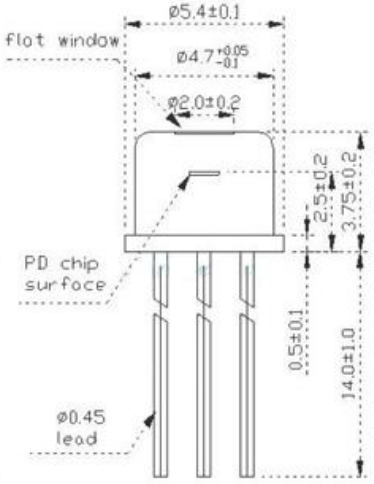
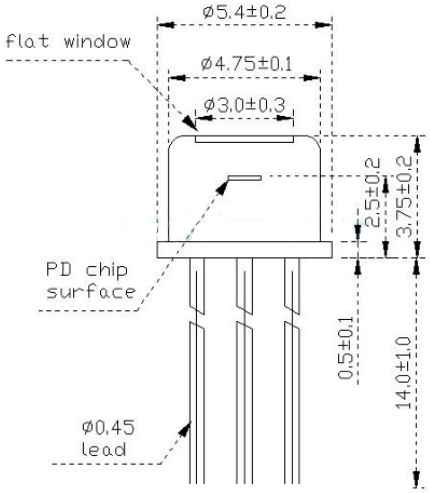
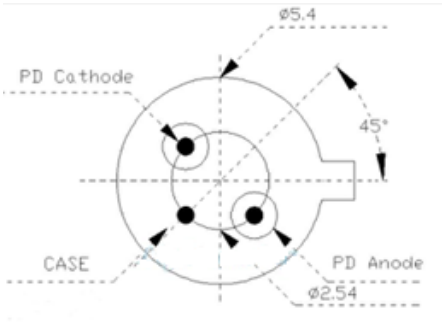


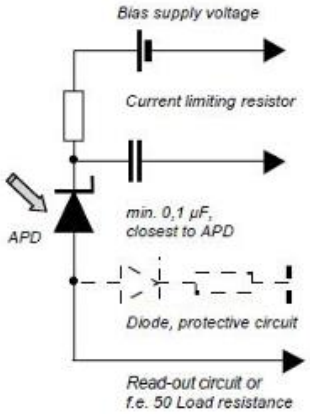
APDE-LF46A500-SI-x:



Pin Configuration



Application Circuit



Notes:

1. The suitable ESD protecting measures are recommended in storage, transportation, and usage.
2. Specifications are subject to change without notice.