

EPIGAP Optronic GmbH

Koepenicker Str. 325b
 D-12555 Berlin
 Fon: +49 (0)30 657637 60
 Fax: +49 (0)30 657637 70
 sales@epigap-optronic.de

Distributor



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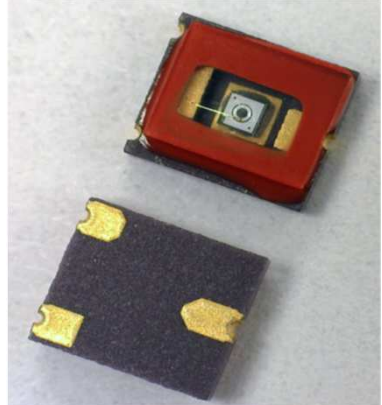
Data Sheet

Si Avalanche Photodiode

EOAPD-905-1-09

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Spectral range	Type	Case
visible-near IR	Si	LCC3 SMD

<p>Circular ($\varnothing 230 \mu\text{m}$) 0.04 mm^2 active area avalanche photodiode optimized sensitivity at 905 nm, housed in a LCC3 SMD package. It is well suited for applications requiring high speed and low noise in visible-near IR applications.</p> <p>Features:</p> <ul style="list-style-type: none"> > Fast Rise Time > Ultra Low Noise > Low Capacitance > High Gain > Optimum Gain M100 <p>Applications:</p> <ul style="list-style-type: none"> > Optical rangefinders > High speed optical communications > Medical Equipment > Bar Code Readers 	
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Absolute maximum ratings

Parameters	Symbol	Rating	Unit
Operating temperature range	T_{OPR}	-20...+85	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55...+125	$^{\circ}\text{C}$
Power dissipation	P_D	1	mW
Storage temperature range	I_F	1	mA
Operating voltage	V_{OP}	$0.95 \times V_{BR}$	V
Lead soldering temperature*	T_{LS}	260	$^{\circ}\text{C}$

*Time 10 sec max



Electro-optical characteristics:

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameters	Symbol	Min	Typ	Max	Unit	Test conditions
Sensitivity range	λ	400		1100	nm	
Active area	I_{PH}		$\varnothing 500$		μm	
Responsivity	S_{λ}	50	55		A/W	$\Phi_e = 1 \mu\text{W}$, M=100, $\lambda = 905 \text{ nm}$
Rise time	t_R		0.6		ns	f=1 MHz, $R_L = 50 \Omega$, $\lambda = 905 \text{ nm}$
Dark current	I_D	0.1	0.2	1	nA	M=100
Capacitance	C_j		1		pF	M=100, 1 MHz
Optimal gain	M		100			
Breakdown voltage	V_{BR}	120		160	V	$I_R = 2 \mu\text{A}$
Temperature coefficient	TKV		0.9		V/K	$T = -40 \dots +85$

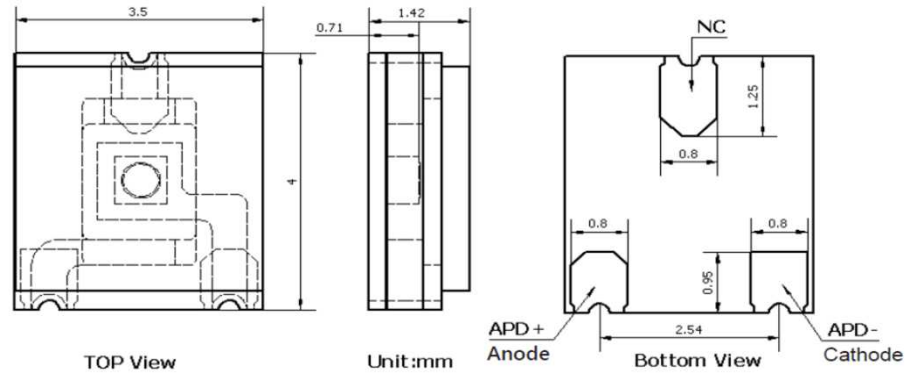
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Unit: mm, Tolerance: ±0.2

Package dimensions in mm

Fig 1 Responsivity, Vr=0V

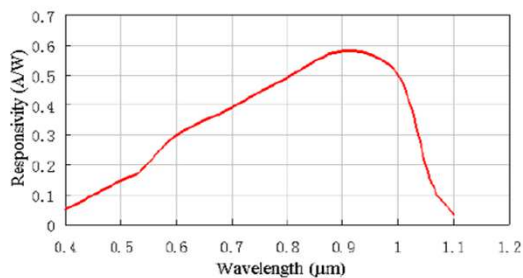


Fig 2 Dark Current

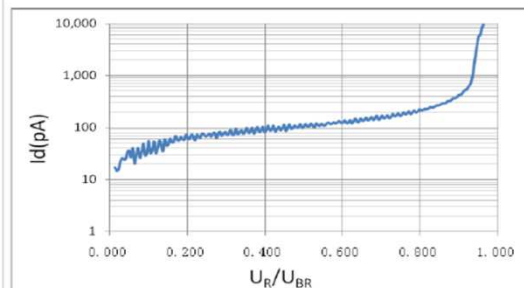


Fig 3 Multiplication

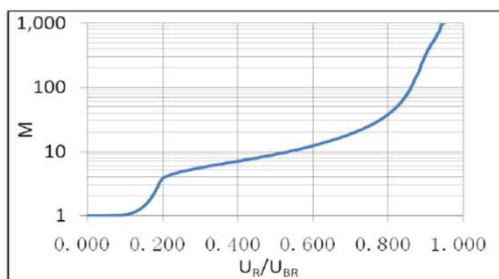
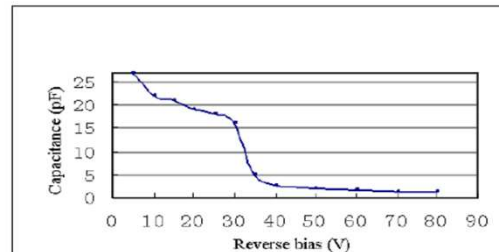


Fig 4 Capacitance



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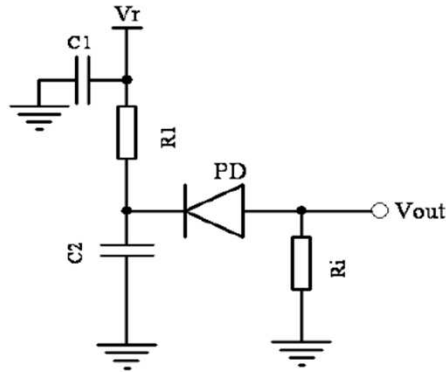
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Applications Diagram



Notes: C1 - Filter capacitor, filter noise from V_r .

C2 - bypass capacitor, the loop to ground for AC signal.

R1 - current-limiting resistor, protect APD from higher voltage.

R_i - sampling resistor, convert the current signal into a voltage signal.

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