

Features

- \varnothing 4 mm total active area
- Segmented in 4 quadrants
- High QE for $\lambda = 850\text{-}1064$ nm
- Low slope multiplication curve

Description

Segmented quadrant avalanche photodiode chip with enhanced IR responsivity.

Application

- Pulsed 1064 nm laser detection
- Light source positioning
- Laser alignment

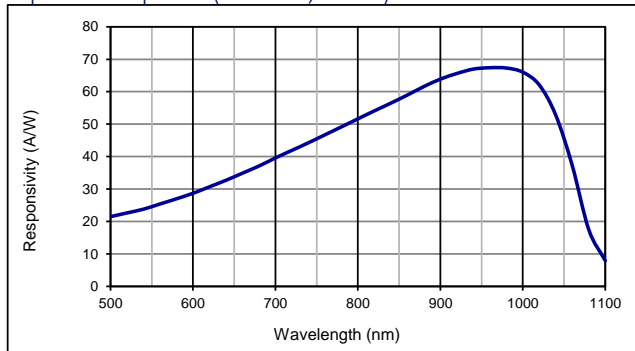
RoHS

2011/65/EU

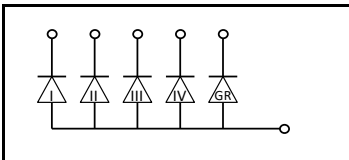
Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-55	125	$^{\circ}\text{C}$
T_{OP}	Operating temp	-40*	100	$^{\circ}\text{C}$
M_{max}	Gain ($I_{P0} = 1$ nA)	1000		
I_{PEAK}	Peak DC current		0.25	mA

Spectral response ($M = 100$; 23°C)



Schematic

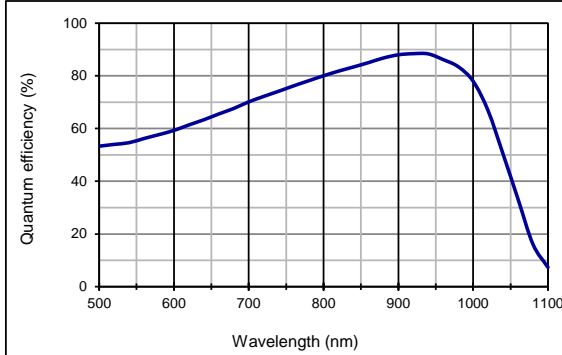


Electro-optical characteristics @ 23°C

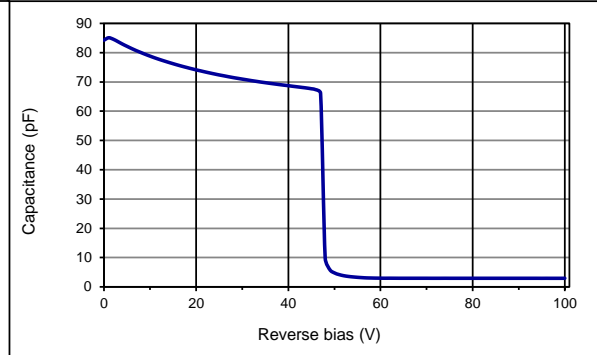
Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Chip size		5920 x 5920			μm
	Number of elements		4			
	Active area	segmented in 4 quadrants	\varnothing 4000			μm
	Gap		110			μm
I_D	Dark current	$M = 100$; $\lambda = 905$ nm, per segment		7	75	nA
C	Capacitance	$M = 100$, per segment		4		pF
	Responsivity	$M = 100$; $\lambda = 1064$ nm		36		A/W
t_R	Rise time	$M = 100$; $\lambda = 905$ nm; $R_L = 50 \Omega$		5		ns
V_{BR}	Breakdown voltage	$I_R = 2 \mu\text{A}$	320	400	500	V
	Temperature coefficient			3.3		V/K
	Photo current uniformity	$M = 50$		± 5	± 10	%

* please note that depending on operation voltage APD operation at temperatures below -15°C may require sophisticated control circuit.

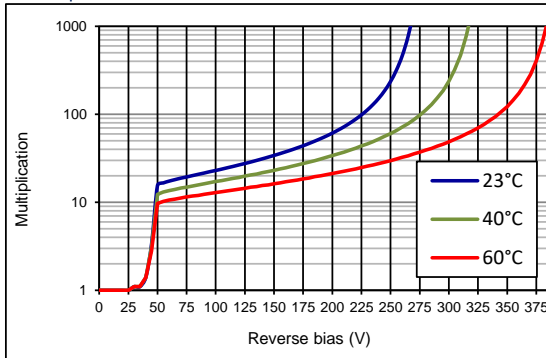
Quantum efficiency (23 °C)



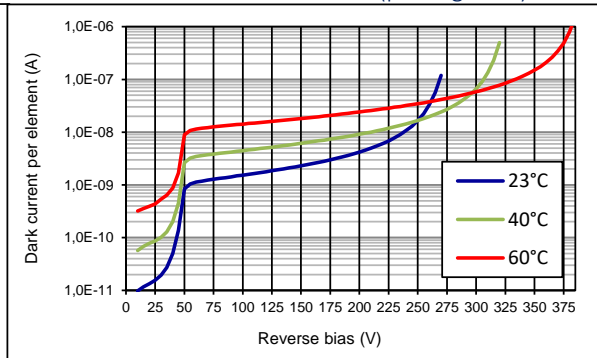
Capacitance as fct of reverse bias (23 °C, per segment)



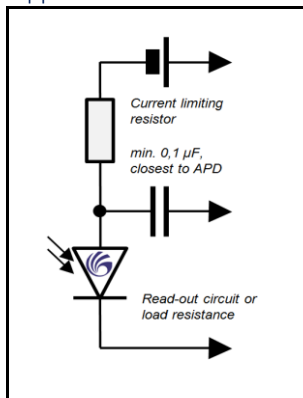
Multiplication as fct of reverse bias



Dark current as fct of reverse bias (per segment)

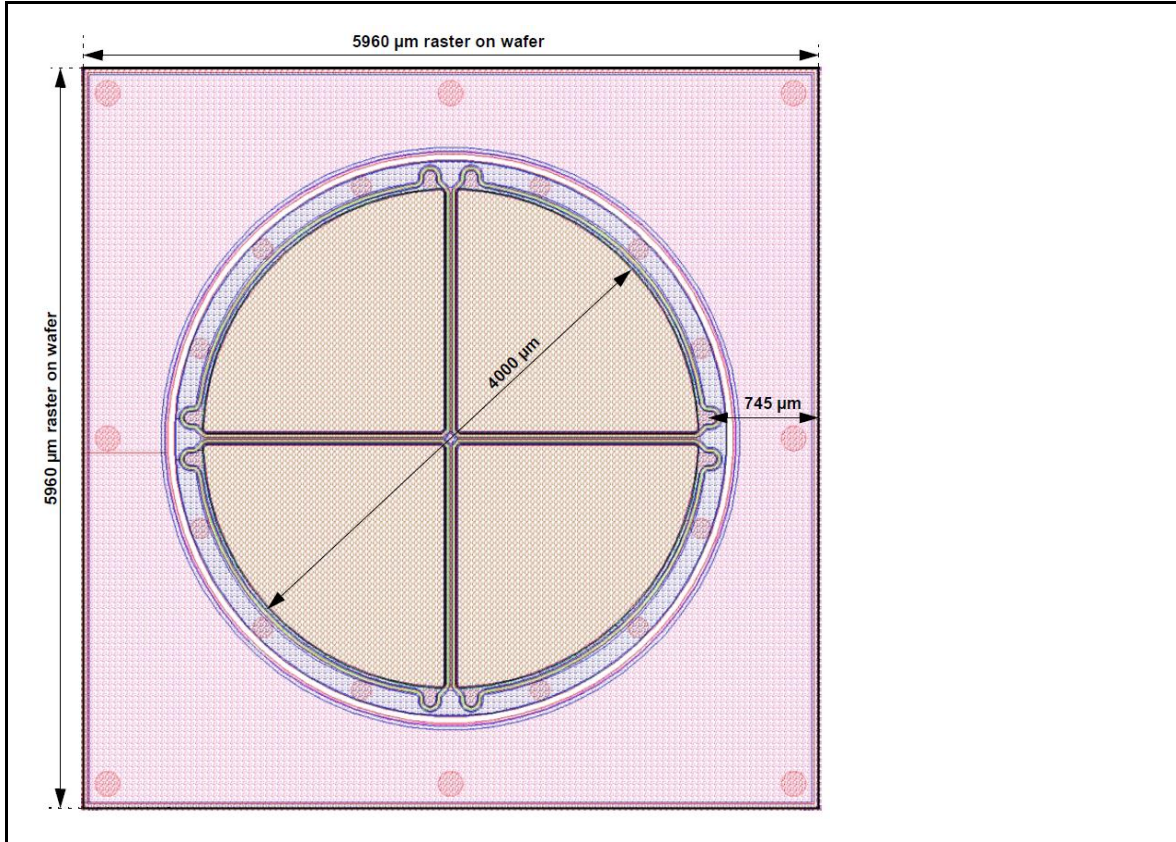


Application hints



- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- Guard ring should be connected to ground
- For low light level applications blocking of ambient light should be used
- For high gain applications bias voltage should be temperature compensated
- Please consider basic ESD protection while handling
- Use low noise read-out - IC
- For further questions please refer to document "Instructions for handling and processing" and application notes for APDs and APD-Arrays

Technical Drawing



Package dimension

Chips to be delivered in waffle pack.

Disclaimer: Due to our strive for continuous improvement, specifications are subject to change within our PCN policy according to JESD46C.