

### Features

- $\varnothing$  4 mm total active area
- Segmented in 4 quadrants
- Slow multiplication curve
- QE > 80% @ 750 nm-910 nm
- Fast rise time, very low noise

### Description

Segmented quadrant avalanche photodiode with enhanced NIR responsivity in hermetic TO type metal can. Very low dark current due to guard ring diode.

### Application

- Pulsed 905nm laser detection
- Light source positioning
- Laser alignment

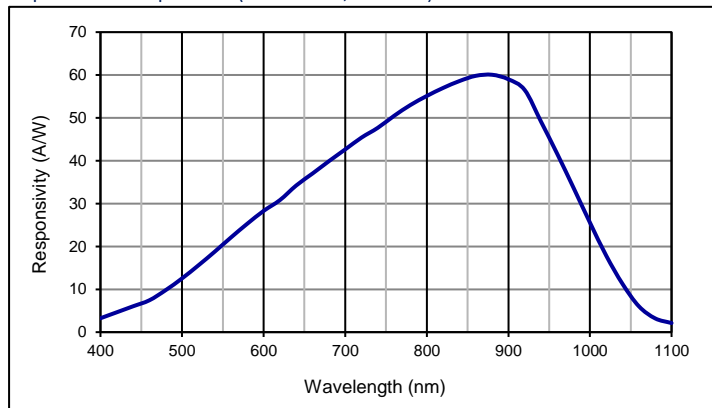
### RoHS

20011/65/EU

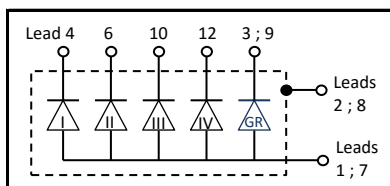
### Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
$T_{STG}$	Storage temp	-55	125	°C
$T_{OP}$	Operating temp	-40	100	°C
$M_{max}$	Gain ( $I_{PD} = 1$ nA)	200		
$I_{PEAK}$	Peak DC current		0.25	mA

### Spectral response ( $M = 100$ ; 23 °C)



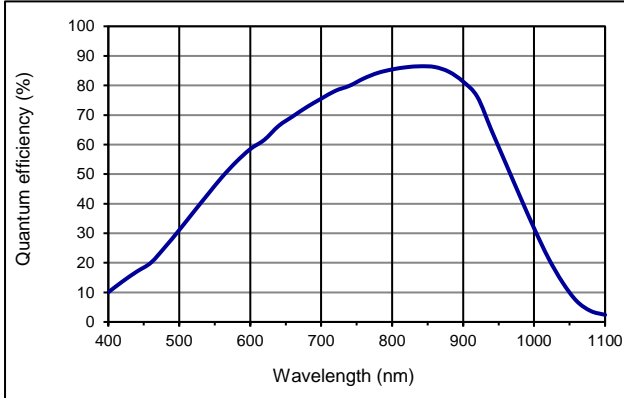
### Schematic



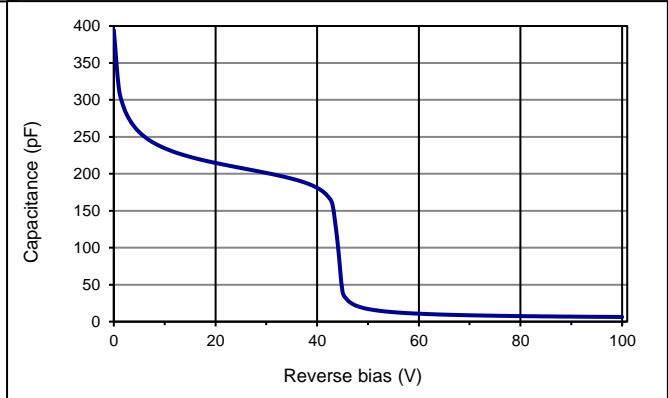
### Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	No of elements			4		
	Active area	segmented in 4 quadrants		$\varnothing$ 4000		$\mu$ m
	Gap			110		$\mu$ m
$I_D$	Dark current	$M = 100$ ; $\lambda = 905$ nm, per segment		4	30	nA
$C$	Capacitance	$M = 100$ , per segment		7		pF
	Responsivity	$M = 100$ ; $\lambda = 905$ nm	52	58	60	A/W
$t_R$	Rise time	$M = 100$ ; $\lambda = 905$ nm; $R_L = 50 \Omega$		2		ns
$V_{BR}$	Breakdown voltage	$I_R = 2 \mu$ A	160		240	V
	Temperature coefficient	Change of $V_{BR}$ with temperature	1.25		1.55	V/K
	Excess noise factor	$M = 100$		2.5		
	Photo current uniformity	$M = 100$		$\pm 5$		%
	Dark current uniformity	$M = 100$		$\pm 5$		%

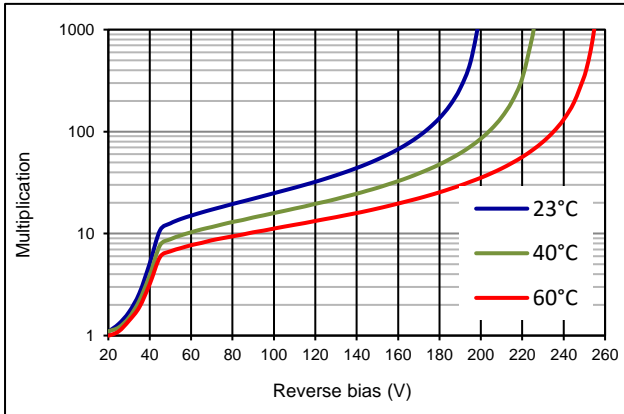
Quantum efficiency (23 °C)



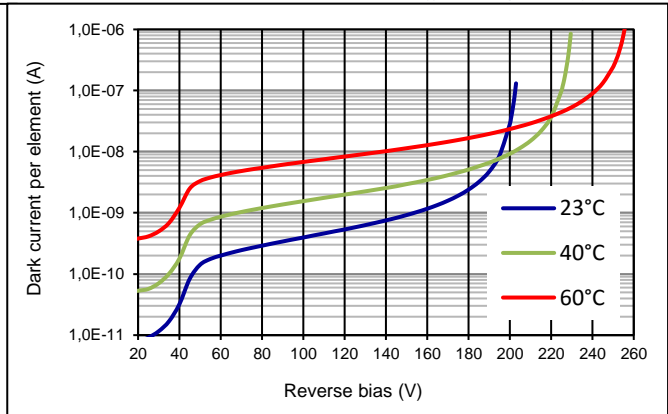
Capacitance as fct of reverse bias (23 °C, per segment)



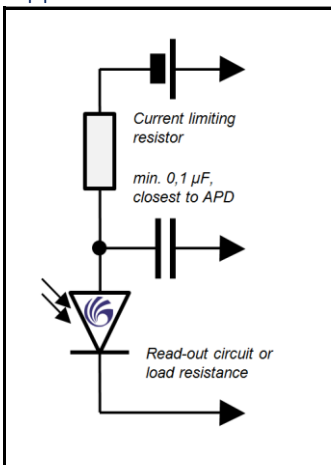
Multiplication as fct of reverse bias



Dark current as fct of reverse bias (per segment)

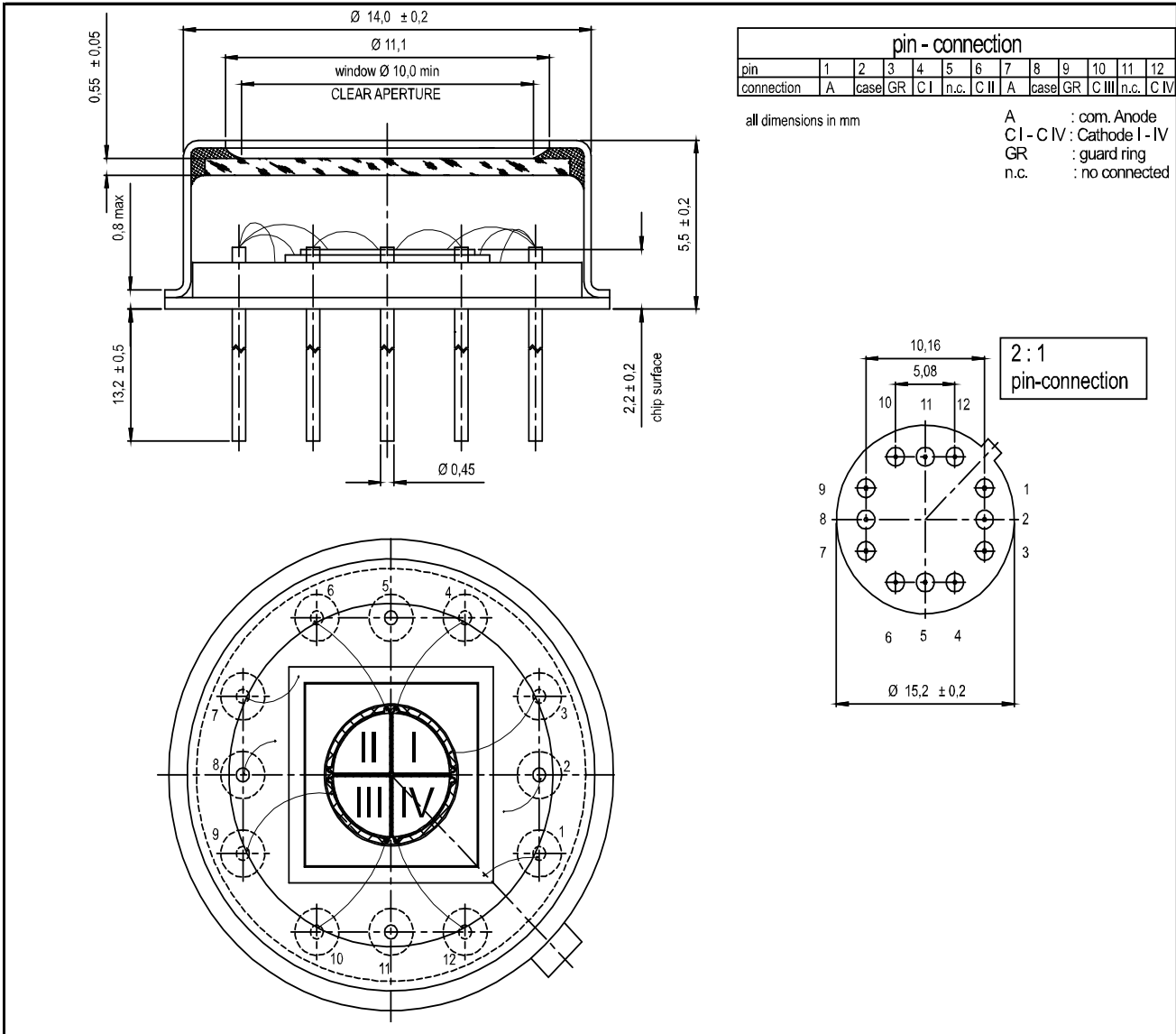


Application hints:



- 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: TO8Si



Package dimension

Small quantities: Chips on foam pad, boxed (12 cm x 16.5 cm)

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

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