
Features

- 25 element APD array
- High QE >80% for $\lambda = 760-910$ nm
- High speed, low noise
- High uniformity, low cross talk

Description

Matrix APD array for NIR detection. PCB based BGA package with temperature sensor with glass or band pass filter. Non hermetic, suitable for reflow soldering.

Application

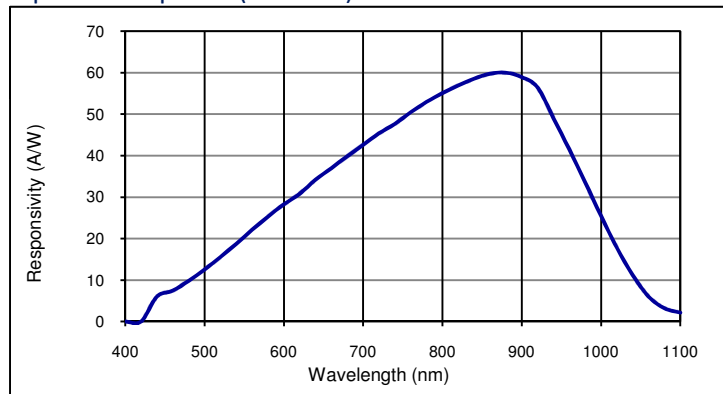
- LIDAR applications
- Shape recognition
- Collision warning
- Focal plane array

RoHS

2002/95/EC


Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-40	100	°C
T_{OP}	Operating temp	-20	70	°C
M_{max}	Gain ($I_{PO} = 1$ nA)	200		
I_{PEAK}	Peak DC current		0.25	mA

Spectral response (M = 100)

Electro-optical characteristics @ 23°C

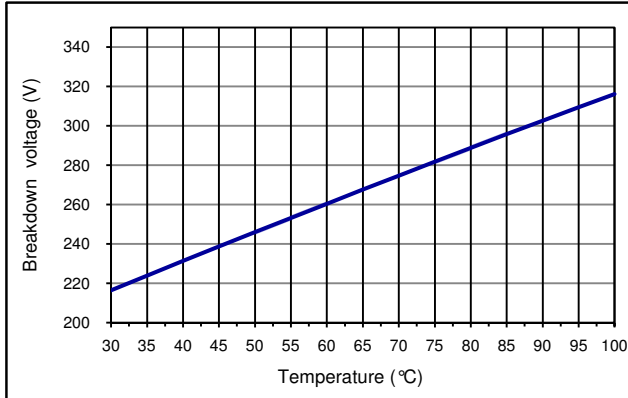
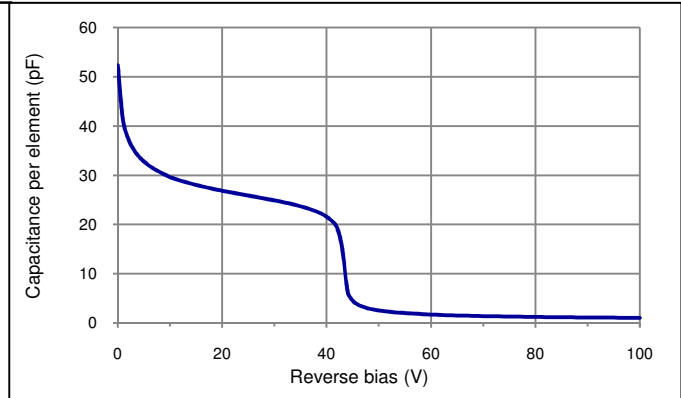
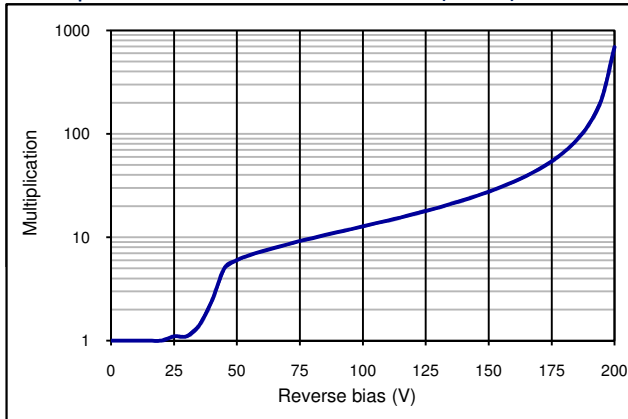
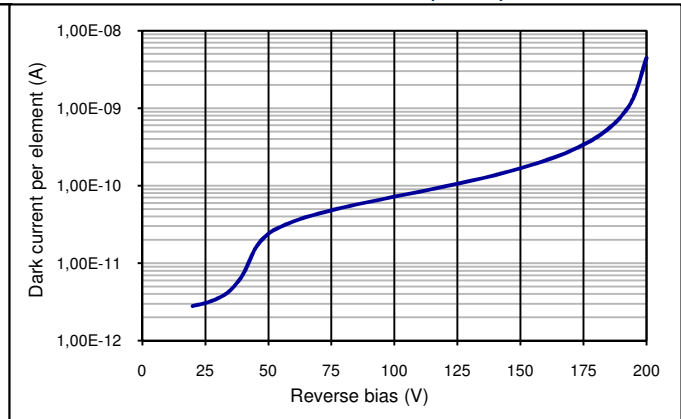
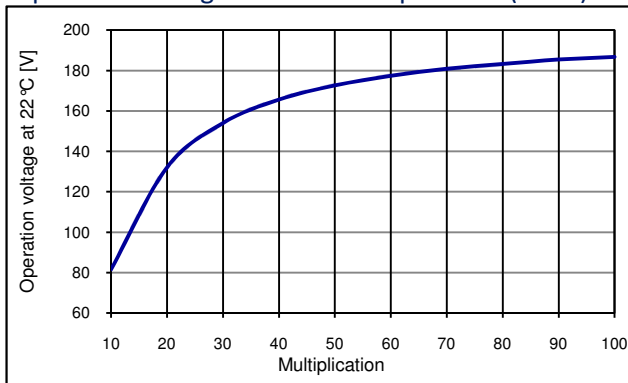
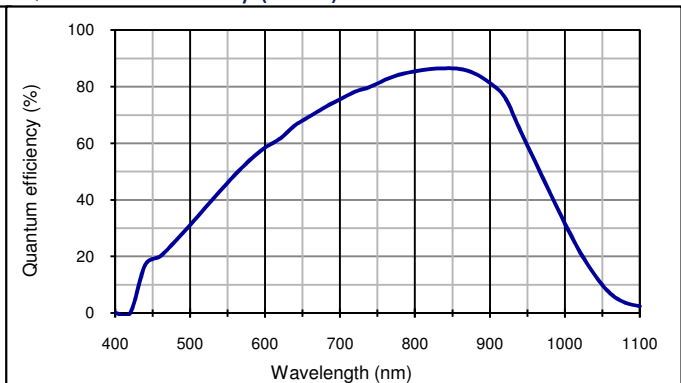
Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	No of elements		25			
	Active area		205 x 205			μm
	Gap; Pitch		95 ; 300			μm
I_D	Dark current	$M = 100; \lambda = 880$ nm, per element		0.3		nA
C	Capacitance	$M = 100$, per element		1		pF
	Responsivity	$M = 100; \lambda = 905$ nm	55	60		A/W
t_R	Rise time	$V_R = 10$ V; $\lambda = 905$ nm; $R_L = 50$ Ω		2		ns
V_{BR}	Breakdown voltage	$I_R = 2$ μA		200		V
	Temperature coefficient			1.45		V/K
	Cross talk	$\lambda = 905$ nm		50		dB
	Photo current uniformity	$M = 50$		± 5	± 20	%
	Dark current uniformity	$M = 50$		± 5	± 20	%

European, International Sales:


First Sensor AG
 Peter-Behrens-Strasse 15
 12459 Berlin
 Germany
 Phone: +49-30-6399-2399
 Fax: +49-30-6399-23752
 E-Mail: sales.opto@first-sensor.com

USA:

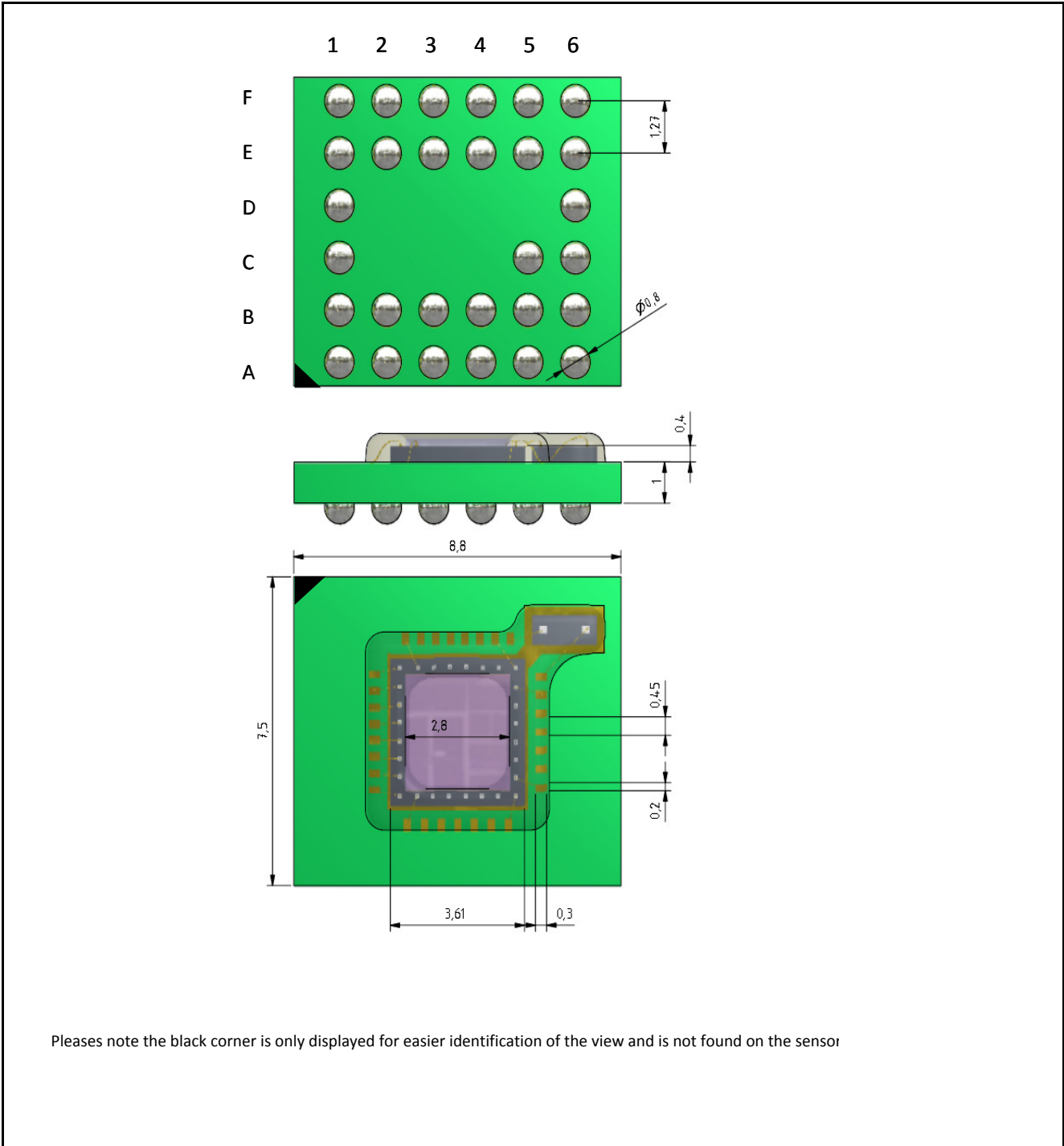

Pacific Silicon Sensor, Inc.
 5700 Corsa Avenue #105
 Westlake Village
 CA 91362 USA
 Phone: +1-818-706-3400
 Fax: +1-818-889-7053
 E-Mail: sales@pacific-sensor.com

U_{br} as fct of temperature (23 °C)

Capacitance as fct of reverse bias (23 °C)

Multiplication as fct of reverse bias (23 °C)

Dark current as fct of reverse bias (23 °C)

Operation voltage as fct of multiplication (23 °C)

Quantum efficiency (23 °C)

European, International Sales:


First Sensor AG
 Peter-Behrens-Strasse 15
 12459 Berlin
 Germany
 Phone: +49-30-6399-2399
 Fax: +49-30-6399-23752
 E-Mail: sales.opto@first-sensor.com

USA:


Pacific Silicon Sensor, Inc.
 5700 Corsa Avenue #105
 Westlake Village
 CA 91362 USA
 Phone: +1-818-706-3400
 Fax: +1-818-889-7053
 E-Mail: sales@pacific-sensor.com

Technical Drawing (not landing pattern)


Handling: Please refer to document "Instructions for handling and processing", suitable for reflow soldering
Please consider ESD protection while handling.

European, International Sales:


First Sensor AG
 Peter-Behrens-Strasse 15
 12459 Berlin
 Germany
 Phone: +49-30-6399-2399
 Fax: +49-30-6399-23752
 E-Mail: sales.opto@first-sensor.com

USA:


Pacific Silicon Sensor, Inc.
 5700 Corsa Avenue #105
 Westlake Village
 CA 91362 USA
 Phone: +1-818-706-3400
 Fax: +1-818-889-7053
 E-Mail: sales@pacific-sensor.com

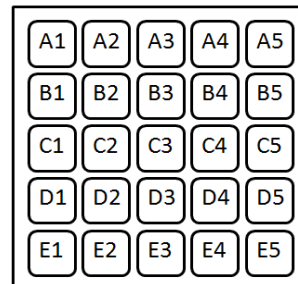
Connection Table

BGA	Contact
coordinate	
A1	Cath_APD_A2
A2	Cath_APD_B3
A3	Cath_APD_A3
A4	Cath_APD_B4
A5	Temp1
A6	Temp2
B1	Cath_APD_B2
B2	Cath_APD_A1
B3	Cath_APD_A4
B4	Cath_APD_A5
B5	Cath_APD_B5
B6	Cath_APD_C4
C1	Cath_APD_B1
C2	-
C3	-
C4	-
C5	Cath_APD_C5
C6	Anode
D1	Guard Ring
D2	-
D3	-
D4	-
D5	-
D6	Cath_APD_D5
E1	Cath_APD_C2
E2	Cath_APD_C1
E3	Cath_APD_D2
E4	Cath_APD_C3
E5	Cath_APD_D3
E6	Cath_APD_D4
F1	Cath_APD_D1
F2	Cath_APD_E1
F3	Cath_APD_E2
F4	Cath_APD_E3
F5	Cath_APD_E4
F6	Cath_APD_E5

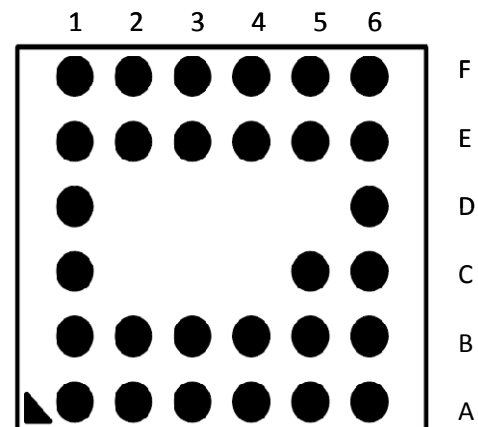
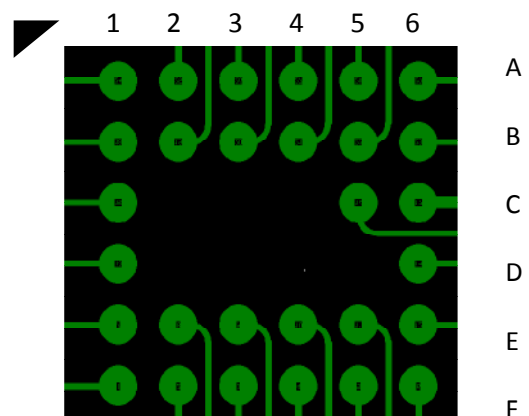
Cath...Cathode
Temp...10 kOhm PTC Temperature sensor

APD - Array (common anode):

View on APD chip from above


Ball grid array (on sensor):

View on ball grid array from below, flipped as in technical drawing


Recommended landing pattern:


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

European, International Sales:


First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
Phone: +49-30-6399-2399
Fax: +49-30-6399-23752
E-Mail: sales.opto@first-sensor.com

USA:


Pacific Silicon Sensor, Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
Phone: +1-818-706-3400
Fax: +1-818-889-7053
E-Mail: sales@pacific-sensor.com