
**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**

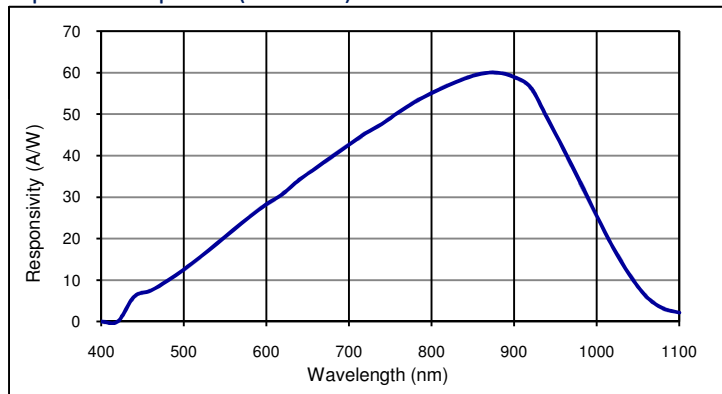
- LIDAR applications
- Shape recognition
- Collision warning
- Focal plane array

**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**

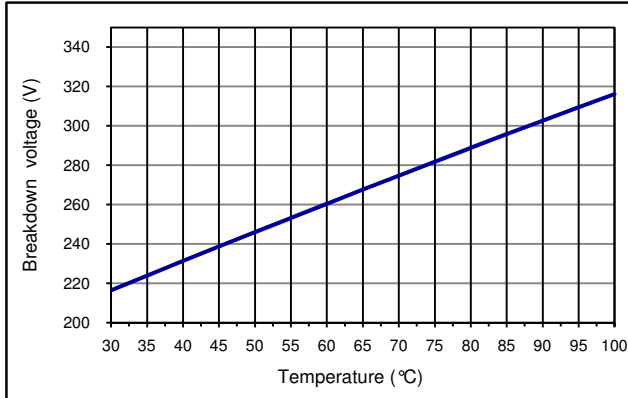
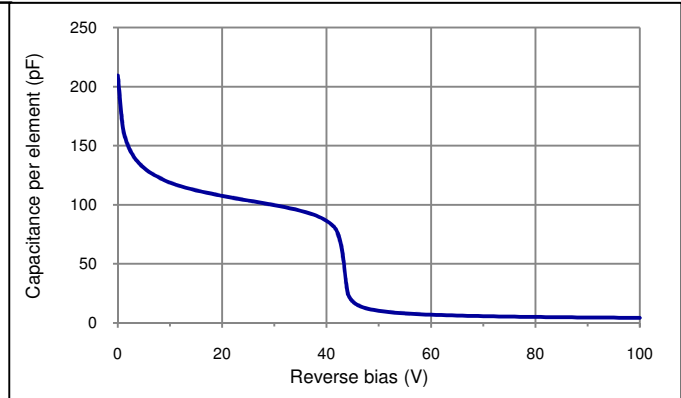
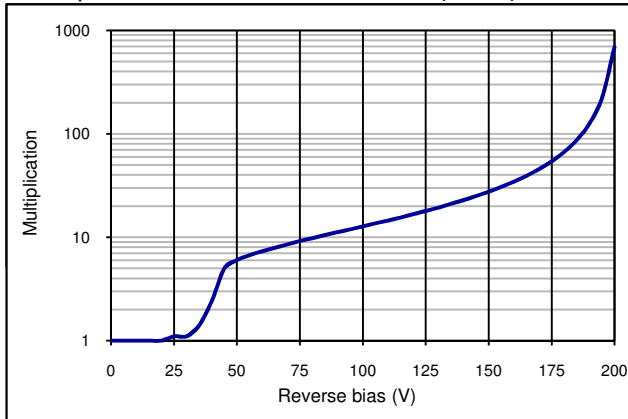
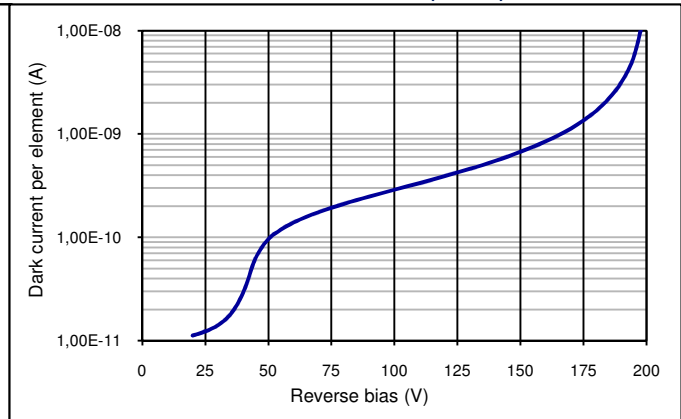
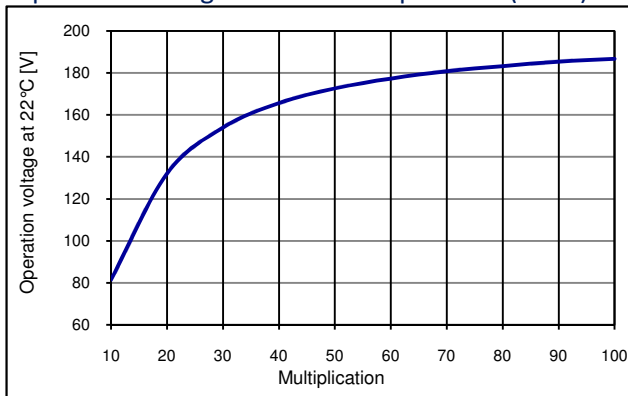
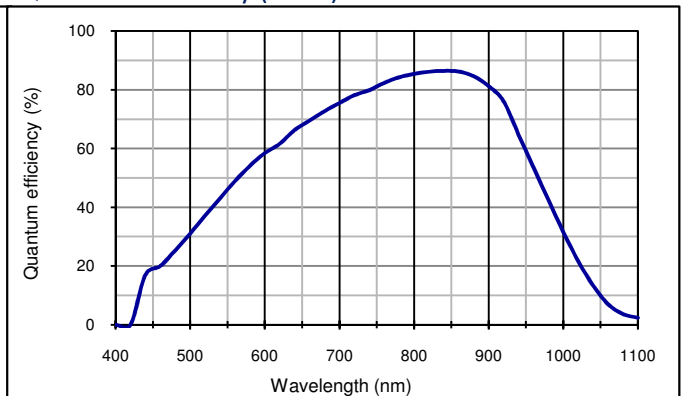
Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	No of elements		25			
	Active area		405 x 405			$\mu\text{m}$
	Gap; Pitch		95 ; 500			$\mu\text{m}$
$I_D$	Dark current	$M = 100; \lambda = 880$ nm, per element		1.2		nA
C	Capacitance	$M = 100$ , per element		4		pF
	Responsivity	$M = 100; \lambda = 905$ nm	55	60		A/W
$t_R$	Rise time	$V_R = 10$ V; $\lambda = 905$ nm; $R_L = 50$ $\Omega$		4		ns
$V_{BR}$	Breakdown voltage	$I_R = 2$ $\mu\text{A}$		200		V
	Temperature coefficient			1.45		V/K
	Cross talk	$\lambda = 905$ nm		50		dB
	Photo current uniformity	$M = 50$		$\pm 5$	$\pm 20$	%
	Dark current uniformity	$M = 50$		$\pm 5$	$\pm 20$	%

**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:**

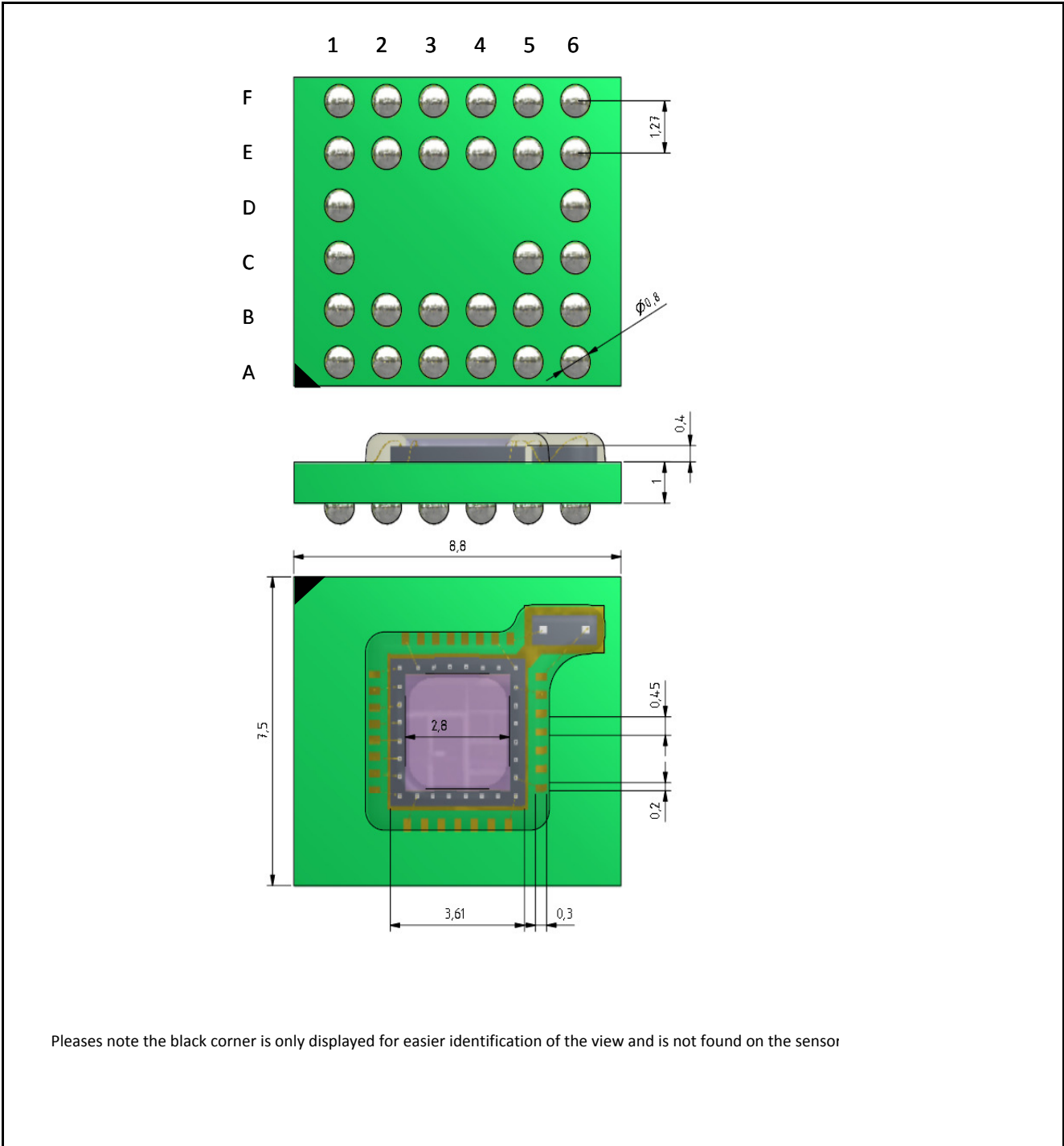

Pacific Silicon Sensor, Inc.  
 5700 Corsa Avenue #105  
 Westlake Village  
 CA 91362 USA  
 Phone: +1-818-706-3400  
 Fax: +1-818-889-7053  
 E-Mail: sales@pacific-sensor.com

**$U_{br}$  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)**

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**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.

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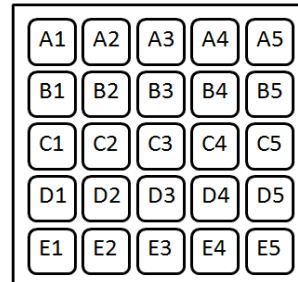
**Connection Table**

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

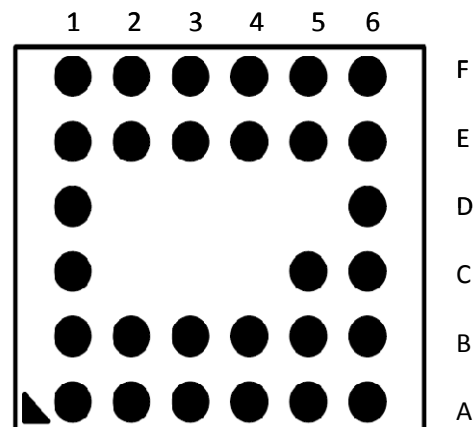
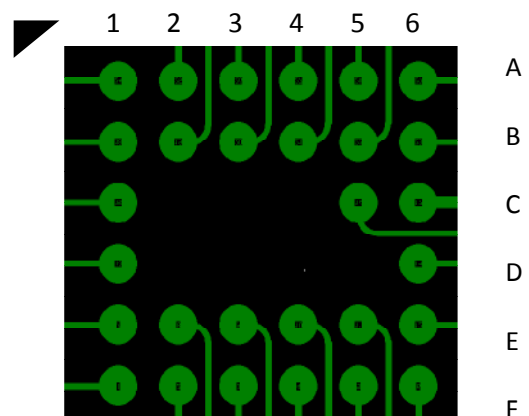
Cath...Cathode  
Temp...10 kOhm PTC Temperature sensor

**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.

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