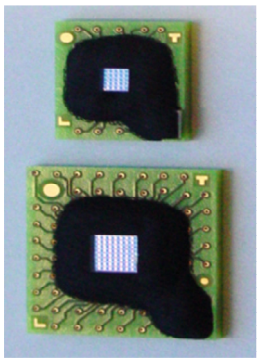
First Sensor

First Sensor APD Array Data Sheet

Part Description 25AA0.04-9 SMD

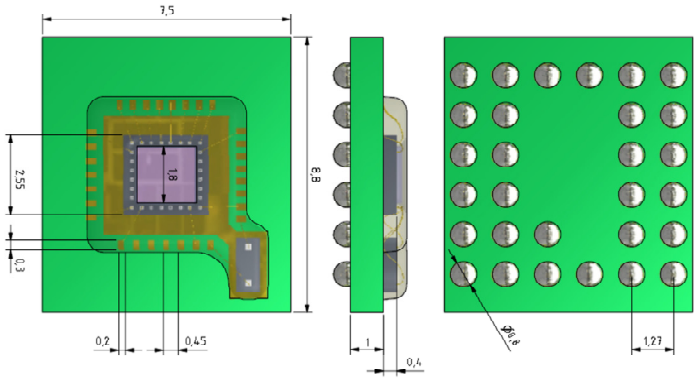
Order # 50130802

Version 18-02-14



25AA

64AA



Features

- 25 element APD array
- High QE >80% for λ = 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

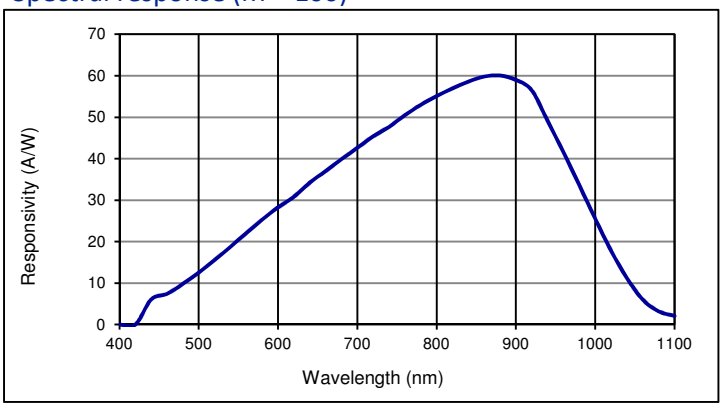
2002/95/EC

RoHS COMPLIANT

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_{P0} = 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; λ = 880 nm, per element		0.3		nA
C	Capacitance	M = 100, per element		1		pF
	Responsivity	M = 100; λ = 905 nm	55	60		A/W
t_R	Rise time	M = 100; λ = 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	λ = 905 nm		50		dB
	Photo current uniformity	M = 50		± 5	± 20	%
	Dark current uniformity	M = 50		± 5	± 20	%

European, International Sales:

First Sensor

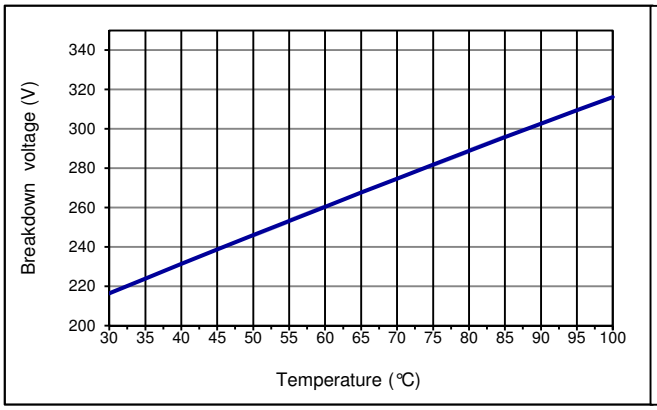
First Sensor AG
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sales.opto@first-sensor.com

USA:

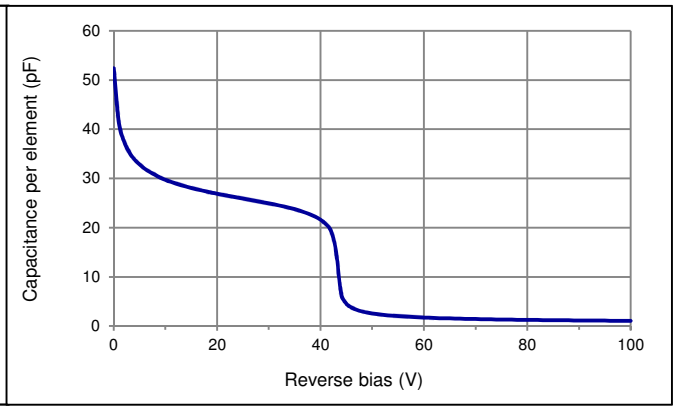
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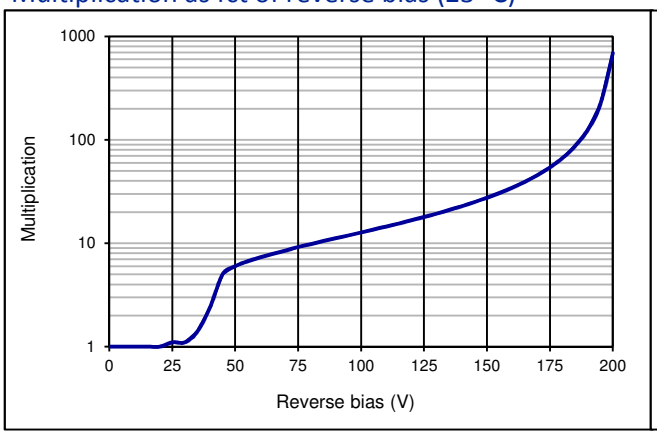
U_{br} as fct of temperature (23 °C)



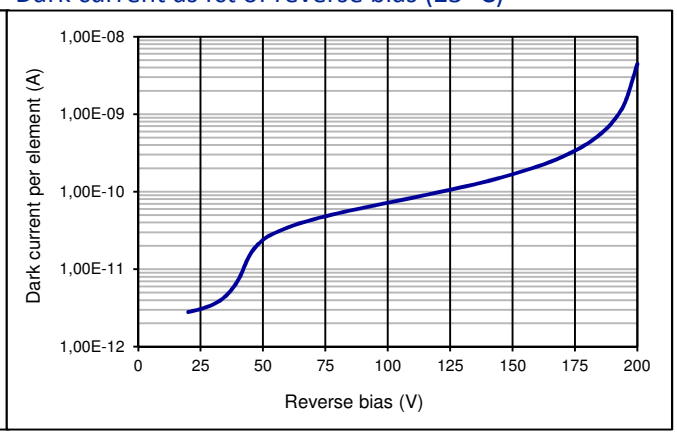
Capacitance as fct of reverse bias (23 °C)



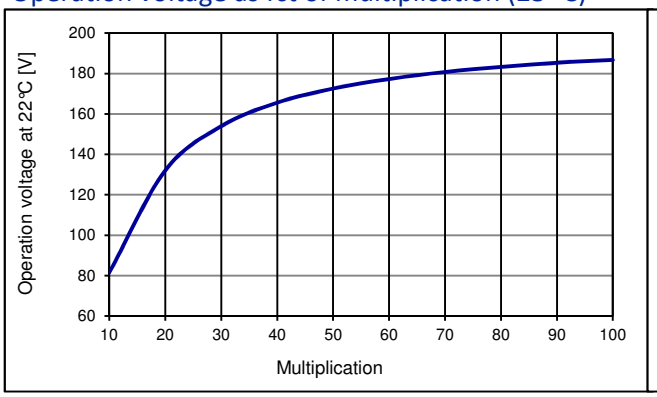
Multiplication as fct of reverse bias (23 °C)



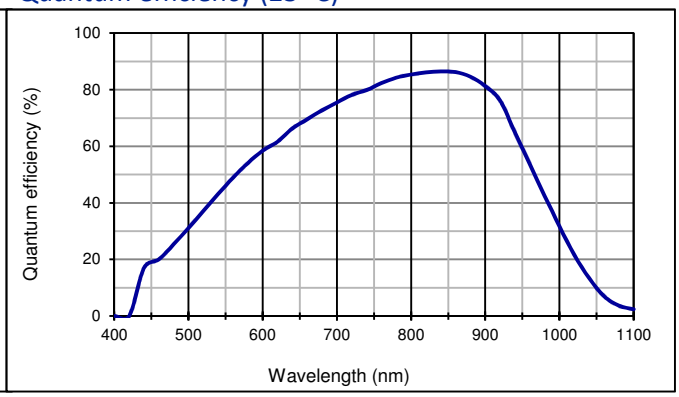
Dark current as fct of reverse bias (23 °C)



Operation voltage as fct of multiplication (23 °C)



Quantum efficiency (23 °C)



European, International Sales:

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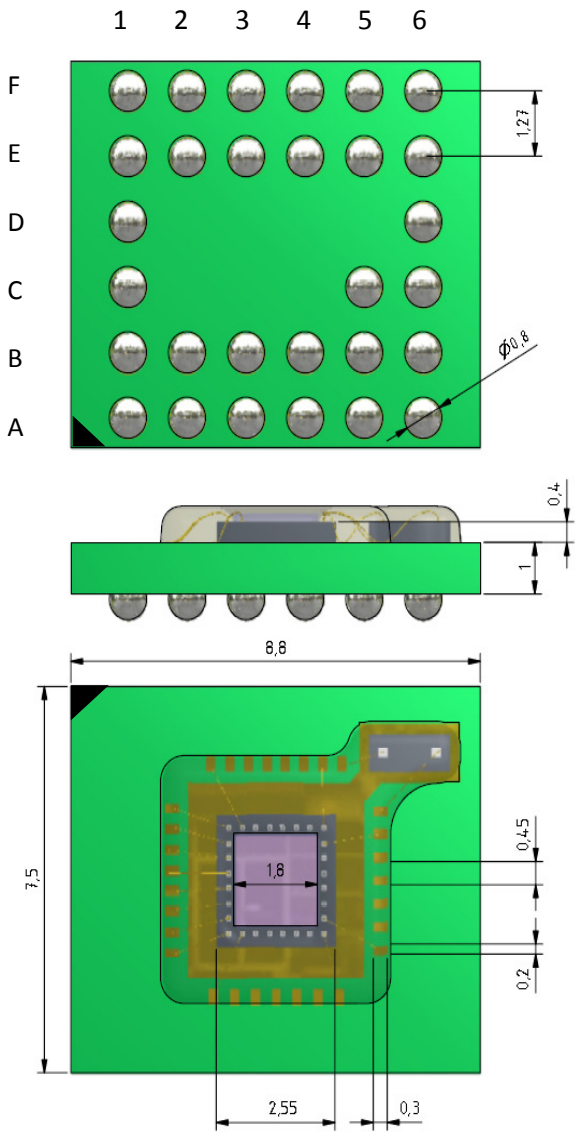
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Technical Drawing (not landing pattern)



Pleases note the black corner is only displayed for easier identification of the view and is not found on the sensor

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

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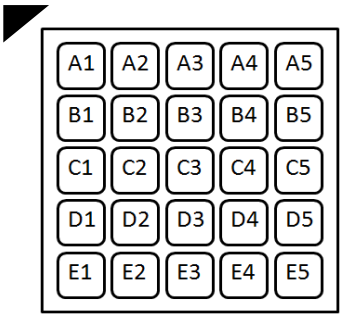
Connection Table

BGA coordinate	Contact
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

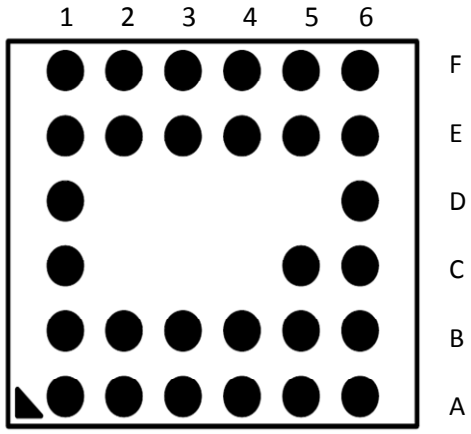
APD - Array (common anode):

View on APD chip from above

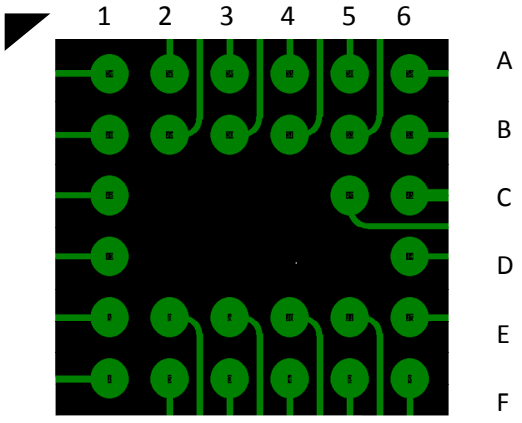


Ball grid array (on sensor):

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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