

Features

- 64 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 and glass or band pass filter cover. Non hermetic, suitable for reflow

Application

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

RoHS

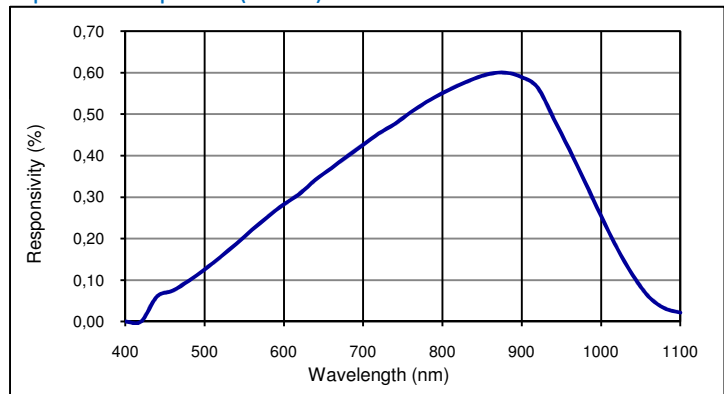
2002/95/EC



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)		100	
I_{PEAK}	Peak DC current		0.25	mA

Spectral response (M = 1)



Electro-optical characteristics @ 23°C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	No of elements			64		
	Active area			205 x 205		μm
	Gap; Pitch			115 ; 320		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	%
	PTC Resistivity			10		k Ω
	PTC Temperature coefficient		3000	3500	4000	ppm/K

European, International Sales:



SILICON SENSOR International AG

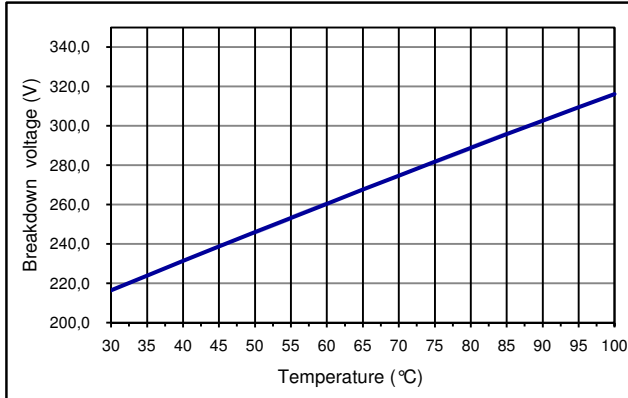
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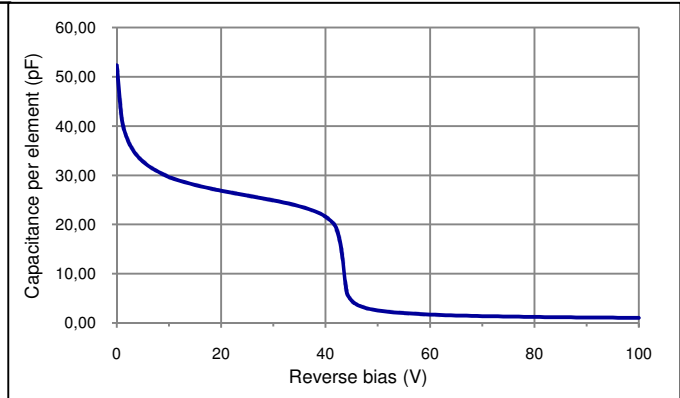


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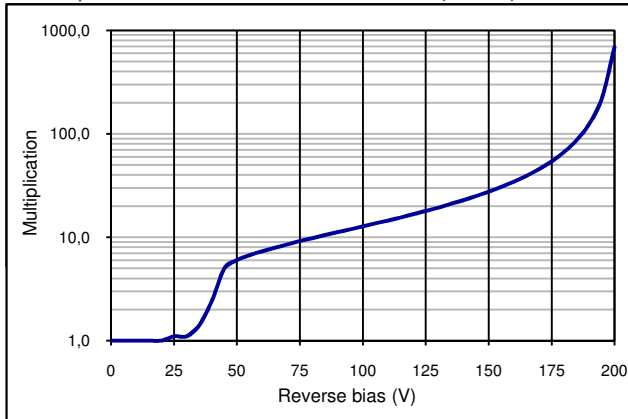
U_{br} as fct of temperature (23 °C)



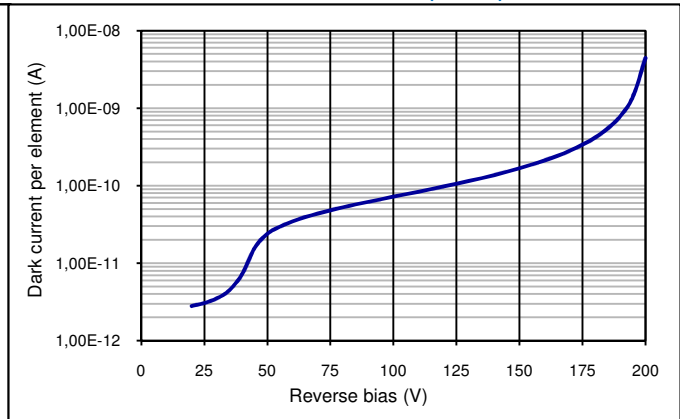
Capacitance as fct of reverse bias (23 °C)



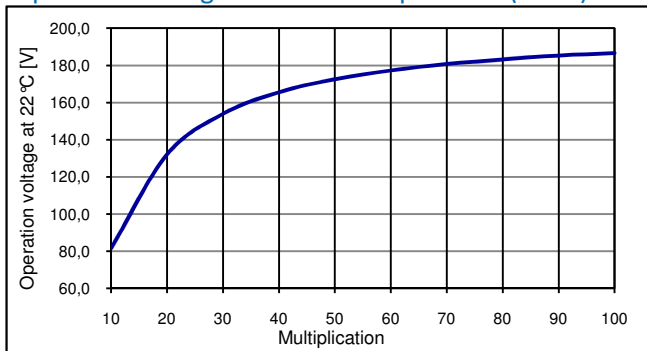
Multiplication as fct of reverse bias (23 °C)



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



Operation voltage as fct of multiplication (23 °C)



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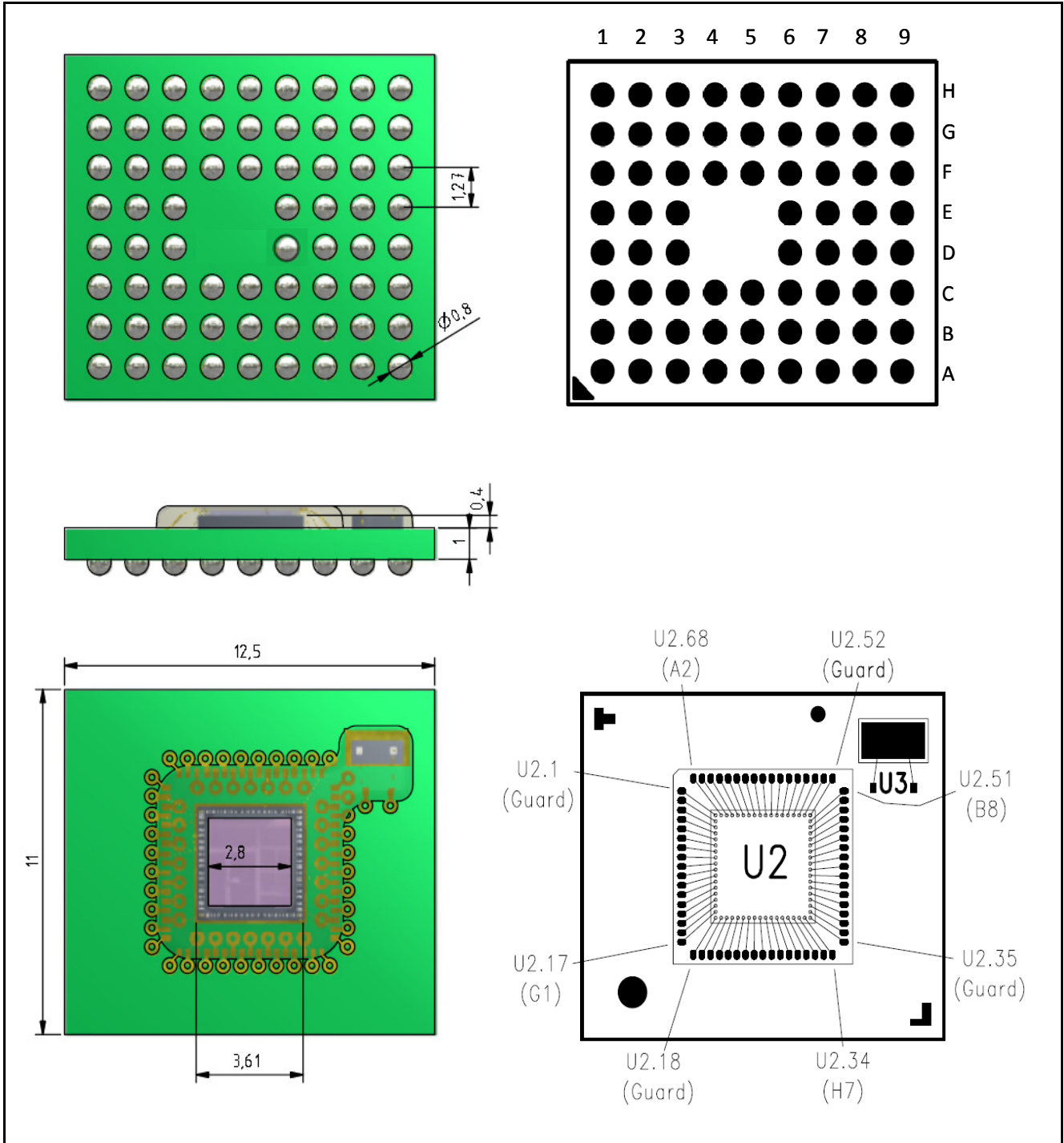
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Technical Drawing



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

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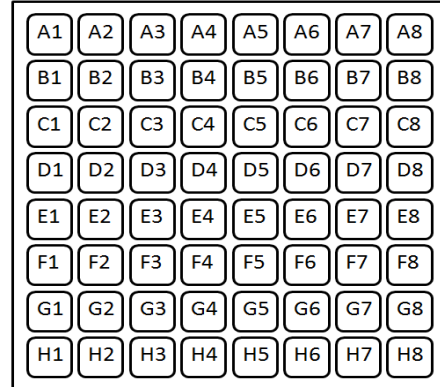
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Connection Table

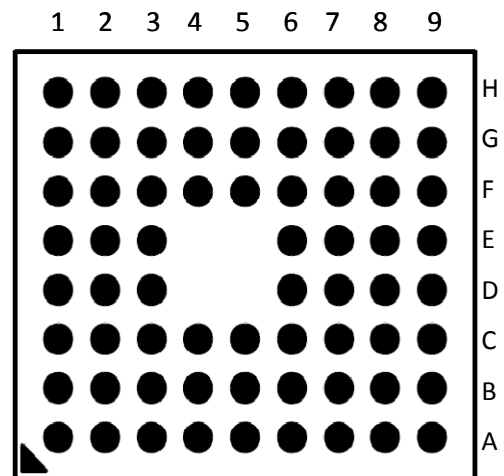
BGA	Contact	BGA	Contact
coordinate		coordinate	
A1	Guard Ring	E1	Cath_APD_E2
A2	Cath_APD_A2	E2	Cath_APD_E1
A3	Cath_APD_B3	E3	Cath_APD_E3
A4	Cath_APD_B4	E4	-
A5	Cath_APD_D5	E5	-
A6	Cath_APD_B5	E6	Cath_APD_E5
A7	Cath_APD_A7	E7	Cath_APD_E8
A8	Cath_APD_B7	E8	Cath_APD_D6
A9	Temp2	E9	Cath_APD_D8
B1	Cath_APD_B1	F1	Cath_APD_F2
B2	Cath_APD_A1	F2	Cath_APD_F1
B3	Cath_APD_D3	F3	Cath_APD_F3
B4	Cath_APD_C3	F4	Cath_APD_H2
B5	Cath_APD_C4	F5	Cath_APD_G4
B6	Cath_APD_A6	F6	Cath_APD_G5
B7	Cath_APD_B6	F7	Cath_APD_F7
B8	Cath_APD_A8	F8	Cath_APD_F8
B9	Temp1	F9	Cath_APD_E7
C1	Cath_APD_C1	G1	Cath_APD_F4
C2	Cath_APD_C2	G2	Cath_APD_G1
C3	Cath_APD_B2	G3	Cath_APD_G2
C4	Cath_APD_A3	G4	Cath_APD_H3
C5	Cath_APD_A4	G5	Cath_APD_F5
C6	Cath_APD_A5	G6	Cath_APD_F6
C7	Cath_APD_B8	G7	Cath_APD_G6
C8	Cath_APD_C7	G8	Cath_APD_G7
C9	Cath_APD_C5	G9	Cath_APD_G8
D1	Cath_APD_D4	H1	Cath_APD_H1
D2	Cath_APD_D1	H2	Cath_APD_G3
D3	Cath_APD_D2	H3	Cath_APD_H4
D4	-	H4	Cath_APD_E4
D5	-	H5	Cath_APD_H5
D6	Anode	H6	Cath_APD_H6
D7	Cath_APD_D7	H7	Cath_APD_E6
D8	Cath_APD_C6	H8	Cath_APD_H7
D9	Cath_APD_C8	H9	Cath_APD_H8

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

APD - Array (common anode):



Ball grid array (PCB):



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

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