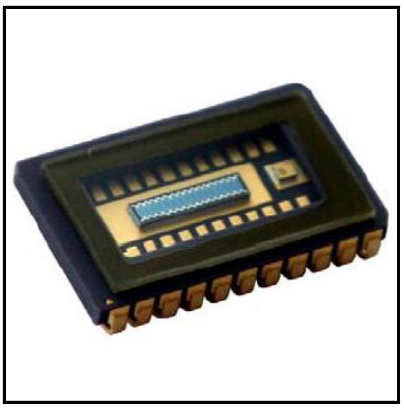
First Sensor

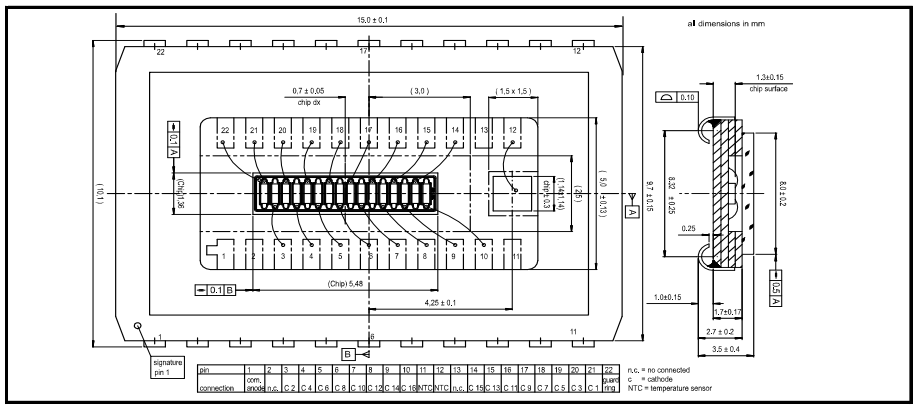
First Sensor APD Array Data Sheet

Part Description 16AA0.13-9 SMD

Order # 501098

Version 20-06-11





Features

- 16 element APD array with NTC
- High QE >80% for λ = 760-910 nm
- High speed, low noise
- High uniformity, low cross talk

Description

Matrix APD array for NIR detection. Hermetic ceramic SMD package with soldered glass lid and temperature control device (NTC).

Application

- LIDAR range finder
- Lidar ACC
- Laser scanner

RoHS

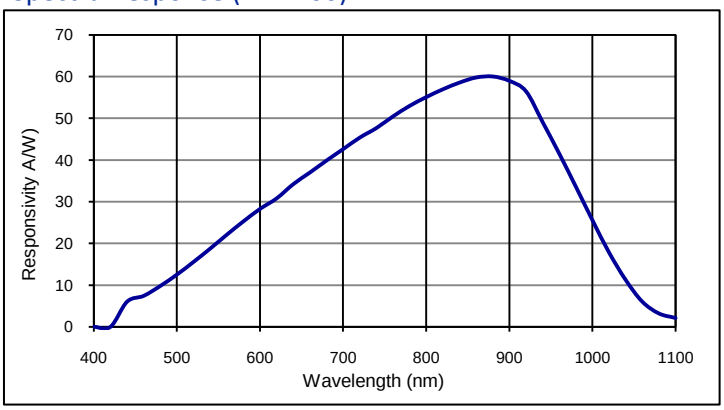
2002/95/EC

RoHS COMPLIANT

Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-60	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			16		
	Active area			648 x 208		µm
	Gap; Pitch			112 ; 320		µm
I_D	Dark current	M = 50; λ = 880 nm, per element		1.0		nA
C	Capacitance	M = 50, per element		0.5		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	100	300	400	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	%
	Resistance of NTC	T = 25 °C		10		kΩ
	Alpha value of NTC	T = 25 °C		-4.39		%/°C
	Beta value 25/85 of NTC	T = 25 °C		3976		K

European, International Sales:

First Sensor

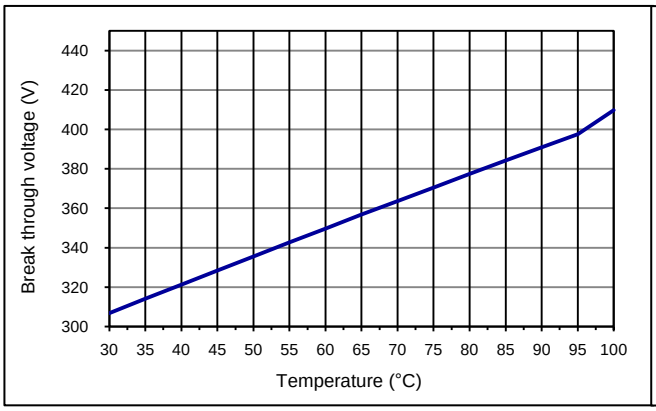
First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:

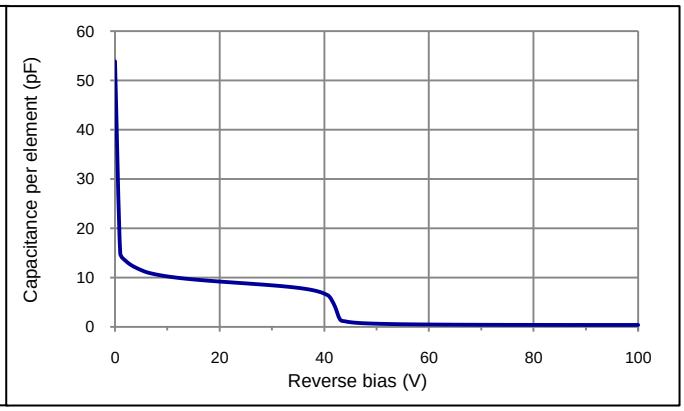
First Sensor

First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

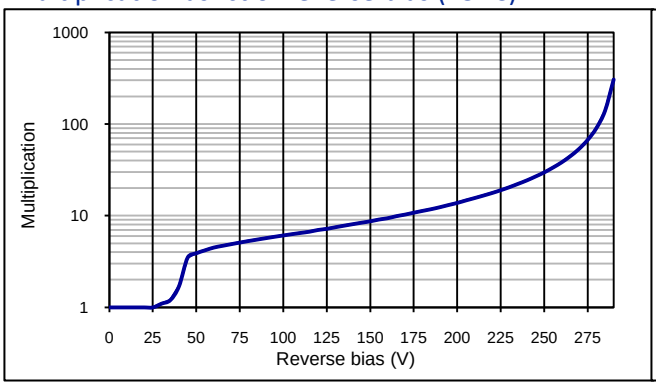
U_{br} as fct of temperature (23°C)



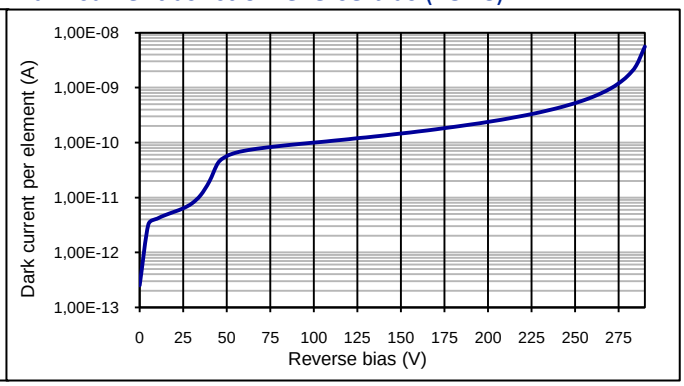
Capacitance as fct of reverse bias (23 °C)



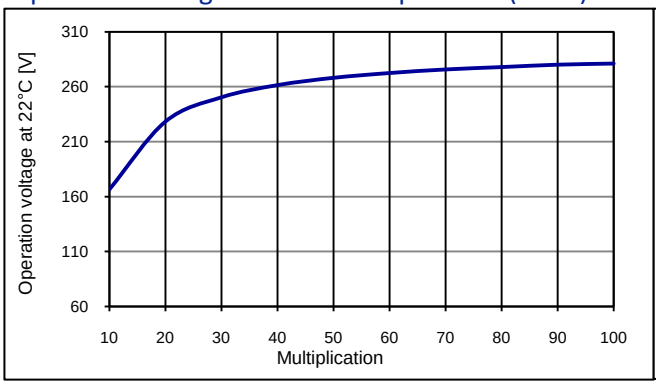
Multiplication as fct of reverse bias (23 °C)



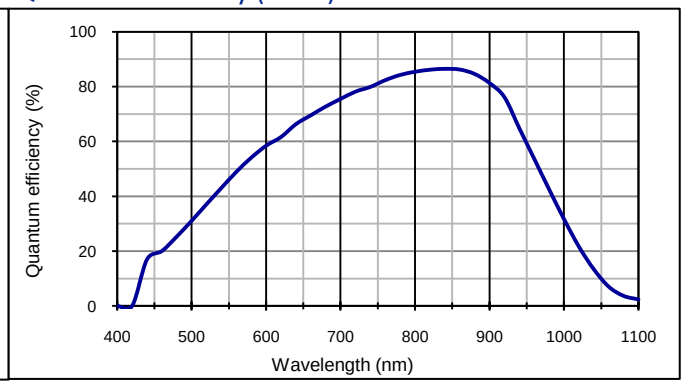
Dark current as fct of reverse bias (23 °C)



Operation voltage as fct of multiplication (23 °C)



Quantum efficiency (23 °C)

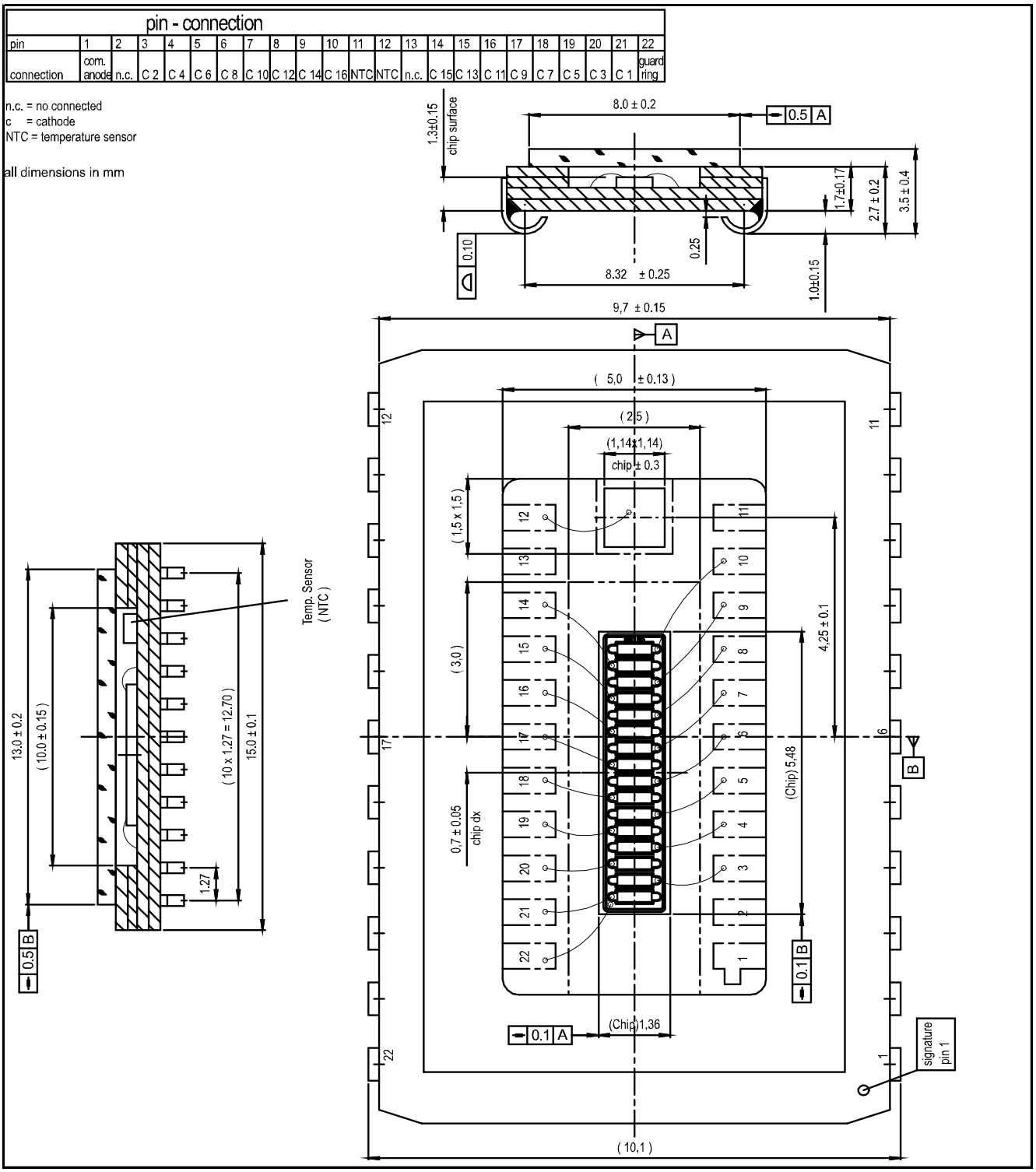


Handling: Please refer to document "Instructions for handling and processing"
Please consider ESD protection while handling.

European, International Sales:
First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:
First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

Technical Drawing, Package: SOJ22 with soldered glass lid



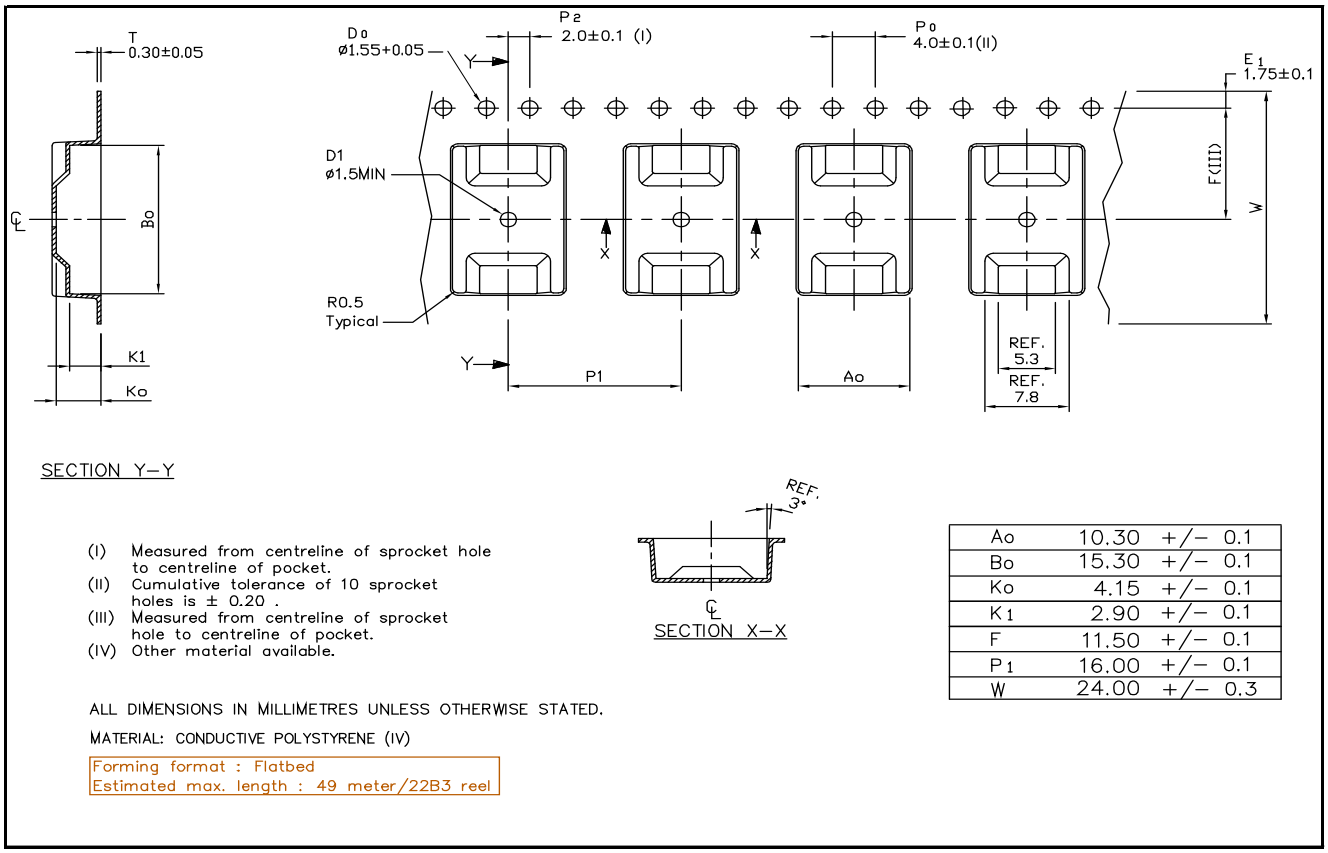
European, International Sales:

First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:

First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

Package dimension



(I) Measured from centreline of sprocket hole to centreline of pocket.
(II) Cumulative tolerance of 10 sprocket holes is ± 0.20 .
(III) Measured from centreline of sprocket hole to centreline of pocket.
(IV) Other material available.

Ao	10.30	+/– 0.1
Bo	15.30	+/– 0.1
Ko	4.15	+/– 0.1
K1	2.90	+/– 0.1
F	11.50	+/– 0.1
P1	16.00	+/– 0.1
W	24.00	+/– 0.3

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

MATERIAL: CONDUCTIVE POLYSTYRENE (IV)

Forming format : Flatbed
Estimated max. length : 49 meter/22B3 reel

For smaller quantities chip trays are available (16 pcs per tray)

European, International Sales:
First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:
First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com