Prague activity

CMB design is continuing

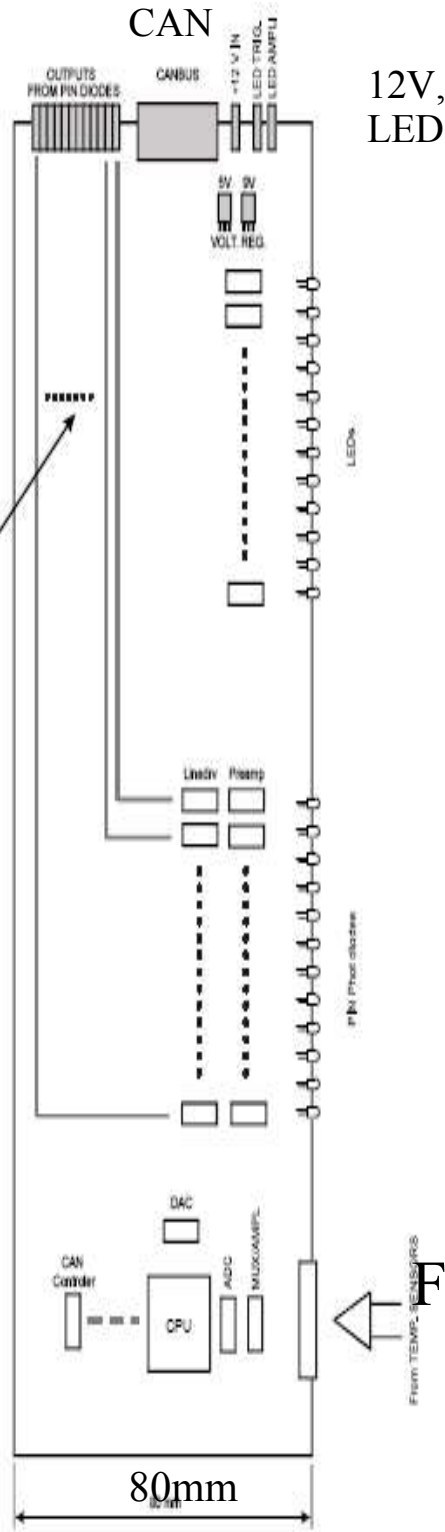
4 channel board is forseen for march

New APD 1.1mm chip in focus

PIN diode outs

CAN

12V, LED trigger,
LEDamplitude



50Ohm bus

LEDs

PIN diodes

From Temp. sensors

Calibration
Monitoring
Board

Board is still under design

LED, PIN position is not fixed yet,
local experts meeting could help to solve it

Data sheet

AD-1100-8-TO5i

Avalanche Photodiode, NIR enhanced

Special characteristics:

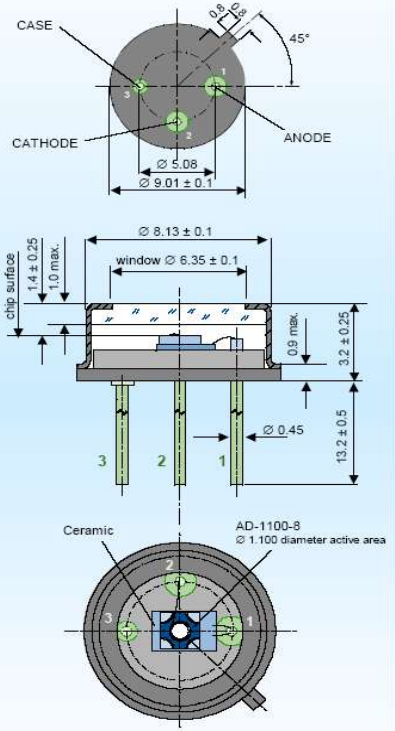
high gain at low bias voltage
fast rise time
1130 µm diameter active area
low capacitance

neu

Parameters:	AD-1100-8-TO5i
Active Area	1.0 mm² Ø 1130 µm
Dark Current [1] (M = 100)	max. 10 nA typ. 4 … 6 nA
Total Capacitance [1] (M = 100)	typ. 8 pF
Breakdown Voltage U_{BR} (at I_D = 2 µA)	90 … 240 V typ. 120 … 190 V
Temperature Coefficient of U_{BR}	typ. 0.45 V/K
Spectral Responsivity [1] (at 800 nm, M = 100)	min. 45 A/W typ. 50 A/W
Cut-off Frequency (-3dB)	typ. 0.35 GHz
Rise Time at 905 nm, 50 Ω	typ. 1.0 ns
Optimum Gain	40 - 60
Max. Gain	> 200
"Excess Noise" factor (M = 100)	typ. 2.2
"Excess Noise" index (M = 100)	typ. 0.2
N.E.P. (M = 100, 800 nm)	typ. 8* 10^{-14} W/Hz$^{1/2}$
Operating Temperature	-20 … +70°C
Storage Temperature	-60 … +100°C

1) measurement conditions:
Setup of photo current 10 nA at M = 1 and irradiation by a LED (680 nm, 60 nm bandwith).
Increase the photo current up to 1 µA, (M = 100) by internal multiplication due to an increasing bias voltage

Package 3 (TO5i):



www.silicon-sensor.com

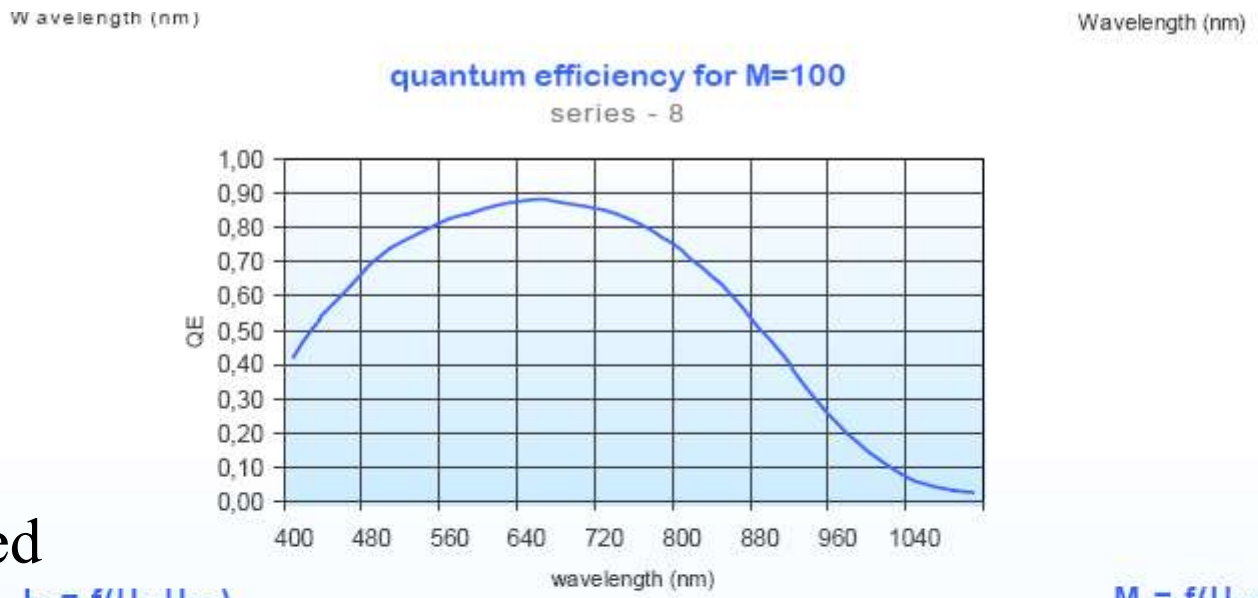
www.pacific-sensor.com

Version: 02-11-04

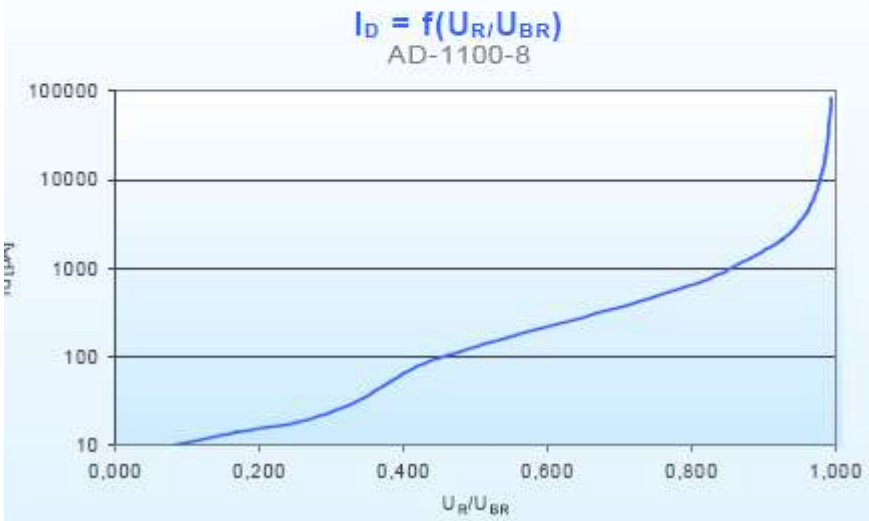
We have 10 pcs, but chips.

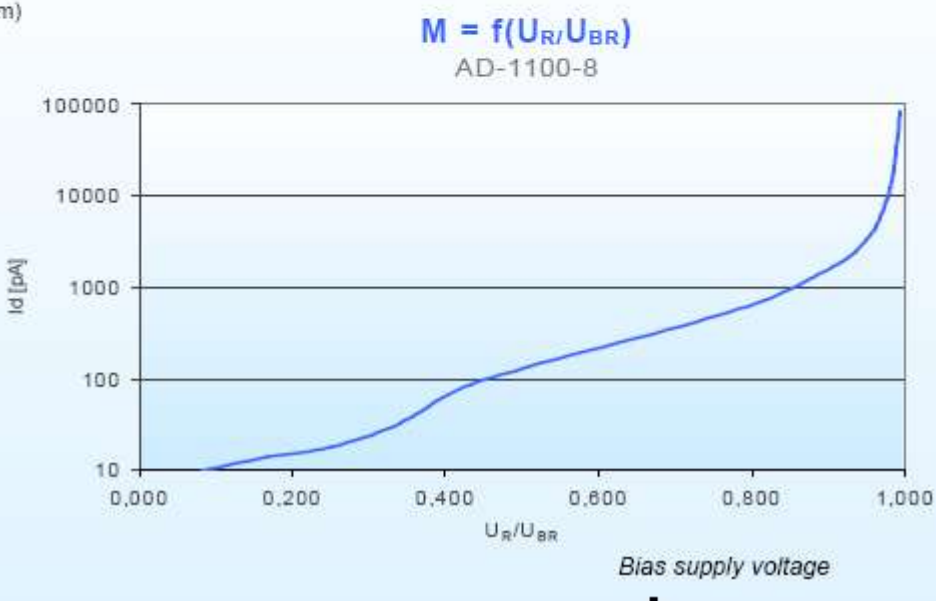
the package TO5 is too big for our tile 5mm thick

APD AD1100 zoom from datasheet



V-A char. tested



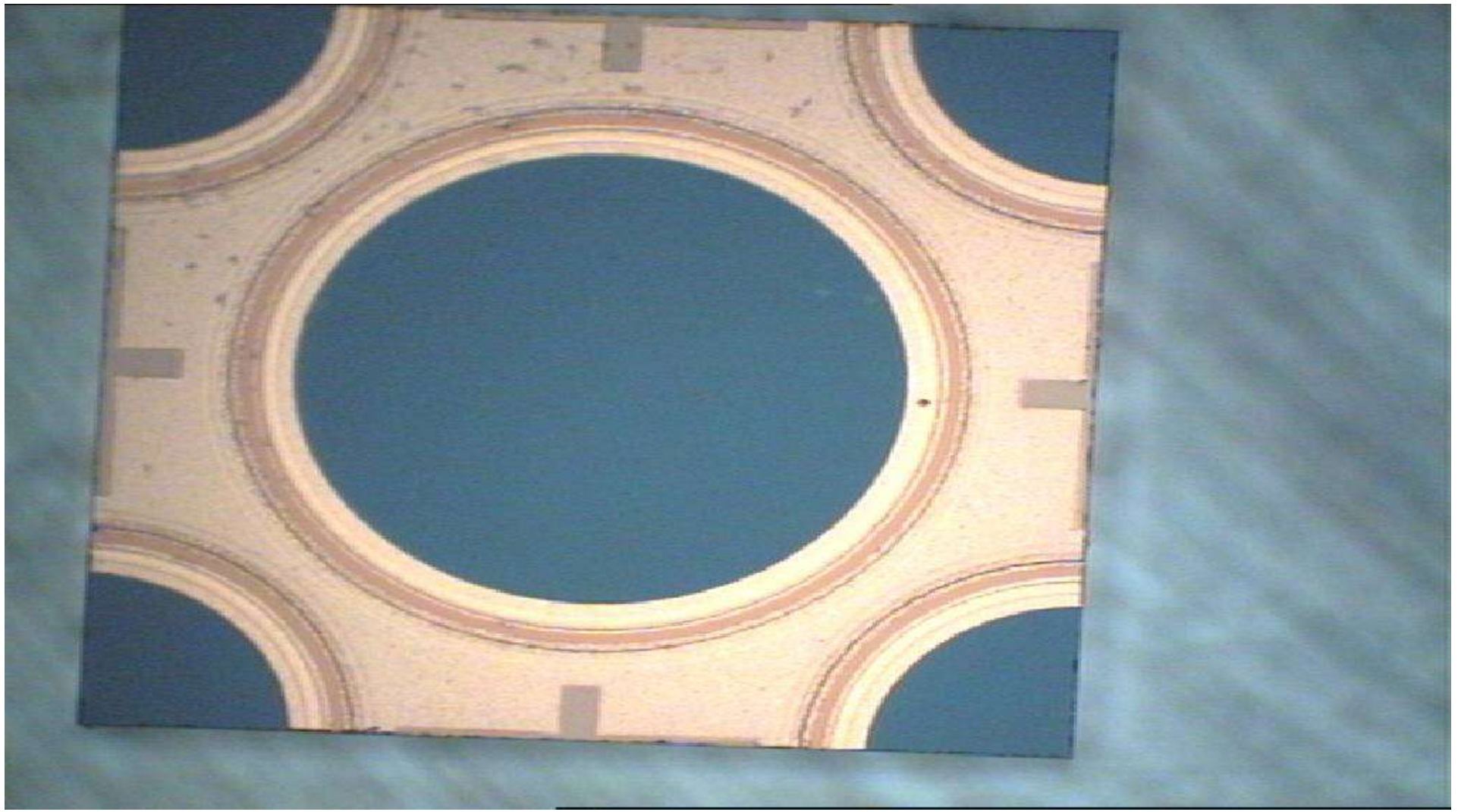


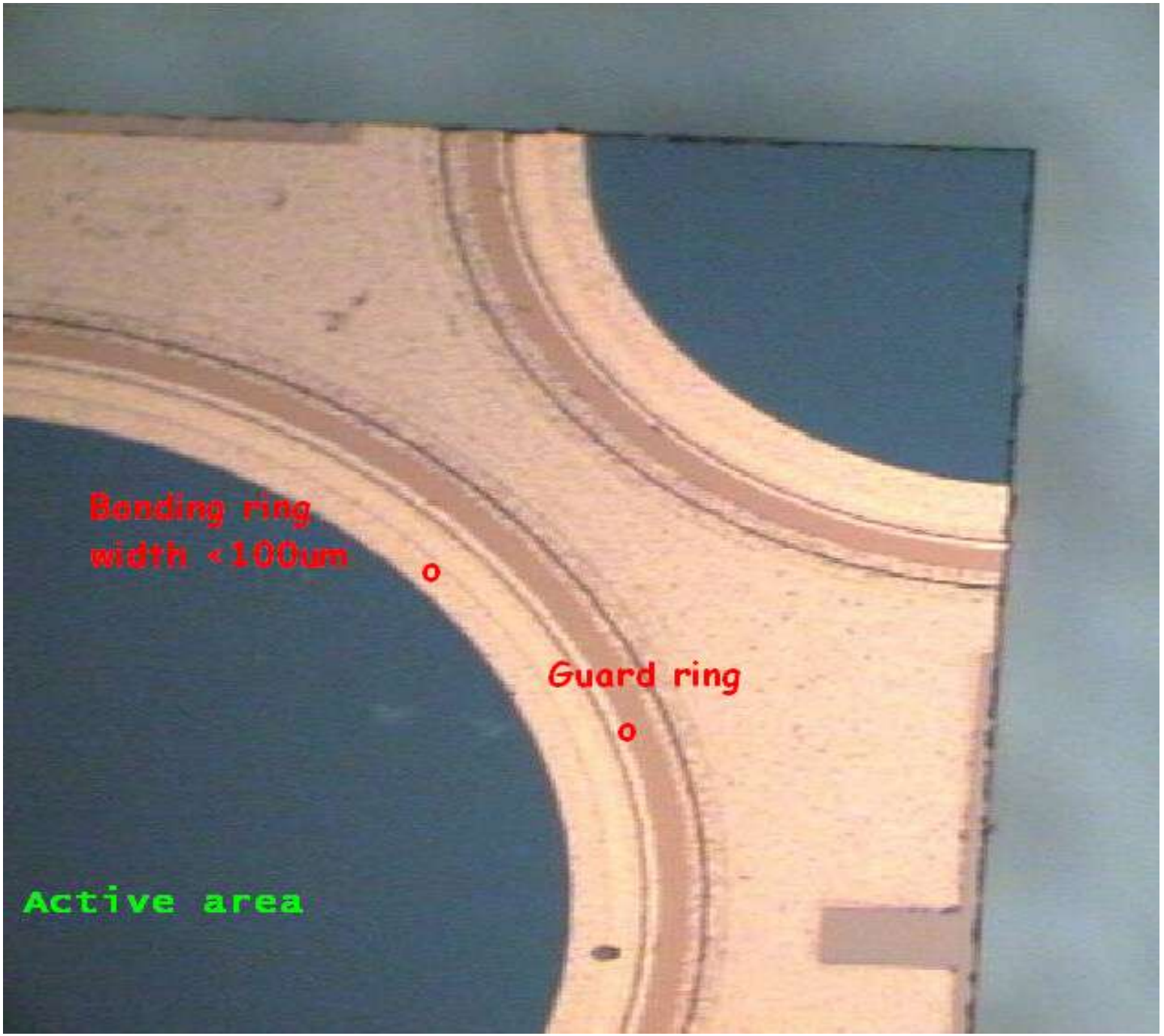
Operational Bias ~160V

Big zoom of AD1100 from datasheet

where`s going upper bonding wire?

APD AD1100, 1.1mm dia of active area





APD zoom

AD1100

Tasks for next days:

- Fix LED and PIN diode position

- fix optical connection CMB/LED (PIN)/fibers

- fix LED trigger, amplitude signal connection

Tasks for next month:

- continue with CMB and debugging with CANbus

- 1.1mm APD chip prepare to test operation with tile