

High Temp annealing of LGAD

- Isochronal annealing na visoki temperature 300 – 450 C
- LGAD 8e14, 3e15 in 6e15
- annealno v argonovi atmosferi na K9 (hvala dr. Marjeta Maček Kržmanc)
→ CV meritve je naredila in predstavila rezultate Brigita na enem od apriskih sestankov

- Jasno se vidi povečanje V_{gl}
- Narašča pa tudi V_{fd} (ni na sliki)
- po 450C samo ena diode merljiva

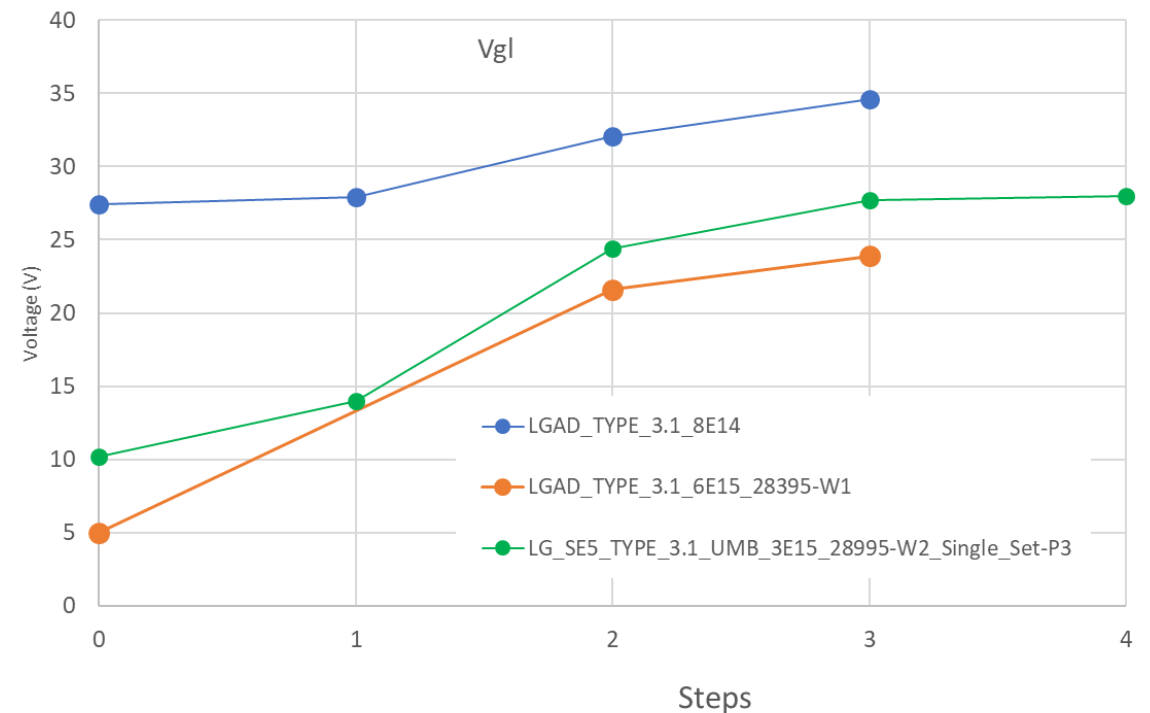
Vsak korak 30 minut:

Step 1: 300 C

Step 2: 350 C

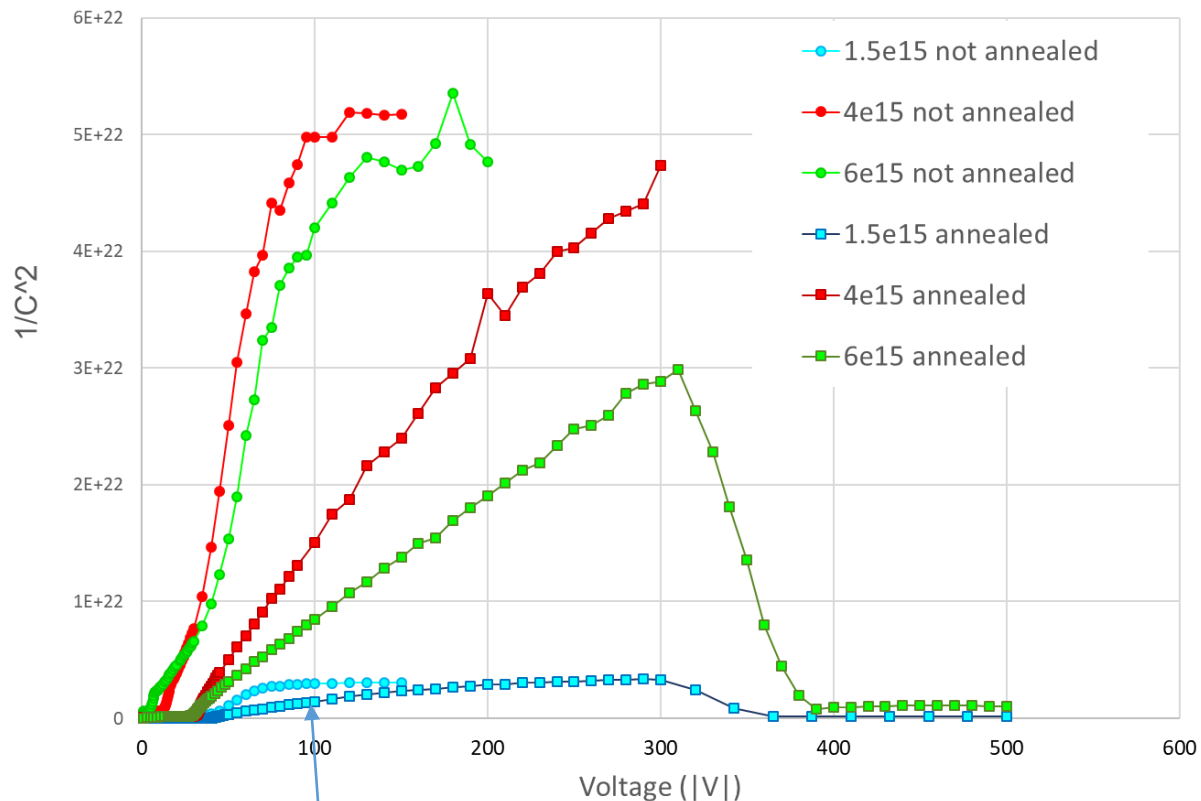
Step 3: 400 C

Step 4: 450 C

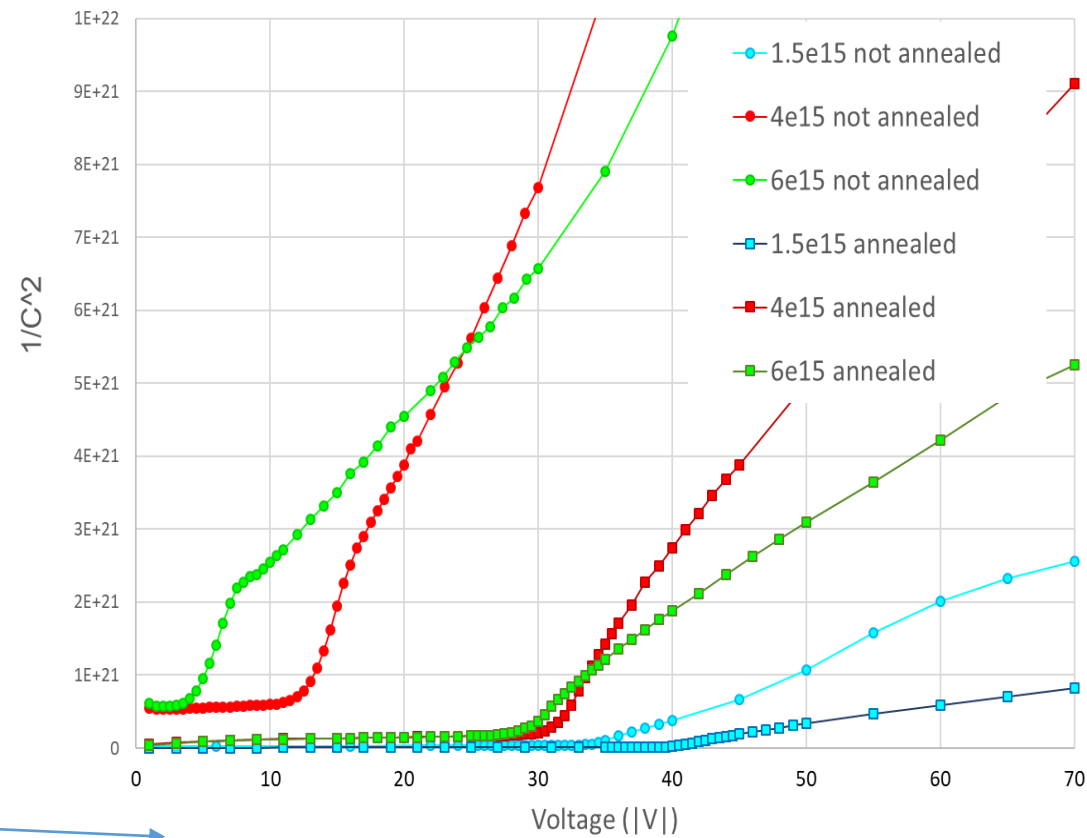


Nov eksperiment: annealing: 60 min @ 350 C

- HPK GAD 1.5e15, 4e15 in 6e15



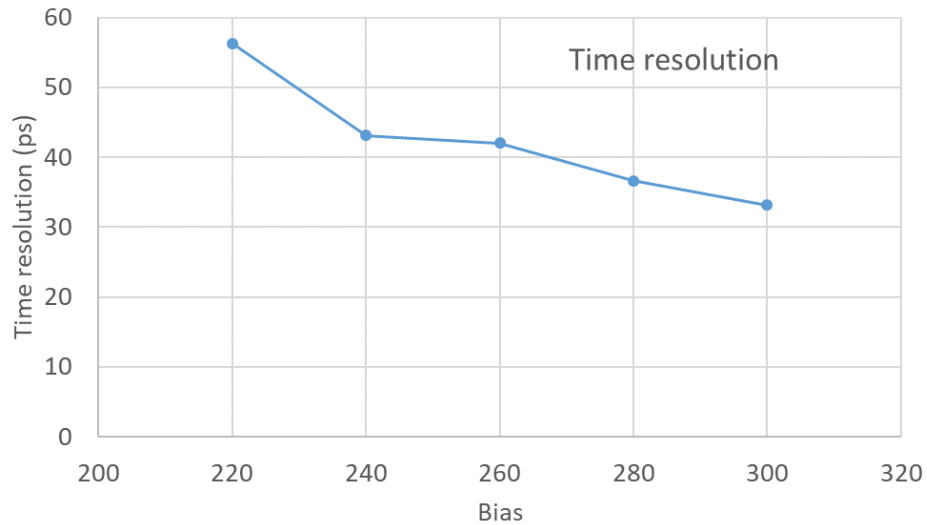
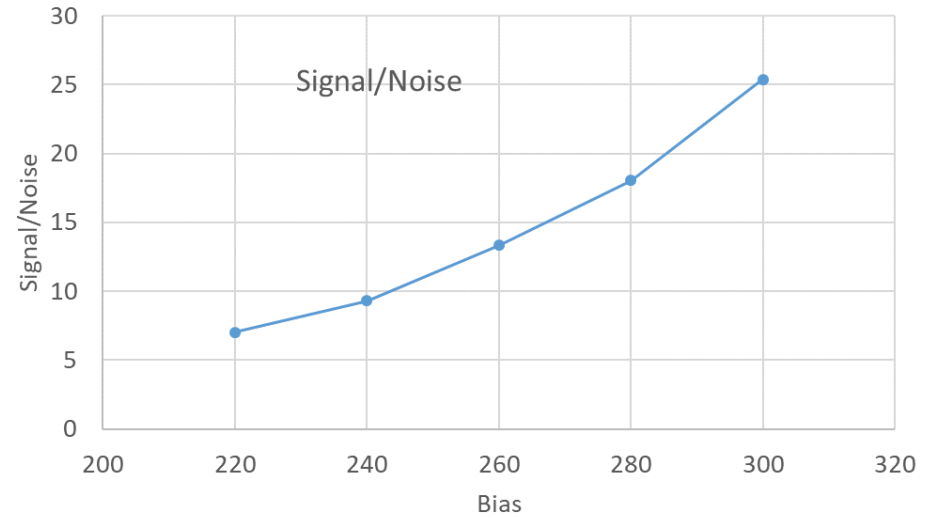
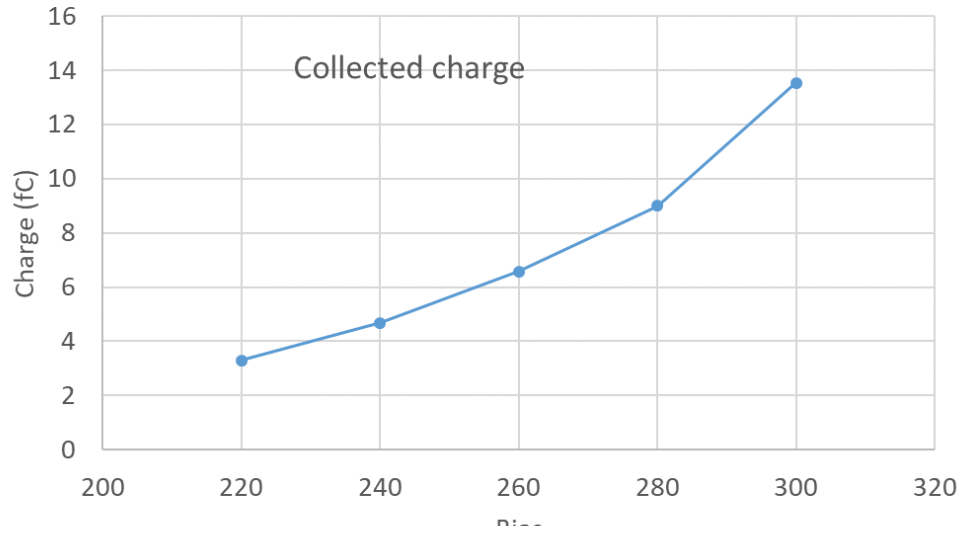
Array 4x4



Zoom to Vgl: veliko povečanje Vgl

HPK LGAD obsevan do $6e15$, annealing 60 min @ 350 C

- Izmerjen s Sr-90 na timing sistemu, T = -30 C (izmeril Žan)



- zaradi reverse annealing naraste V_{gl}
- poveča se tudi V_{fd} , ampak se vseeno izboljša delovanje ker se vrne gain

“Blue Sky” ideje:

- Burst annealing LGAD
- LGAD z vgrajenim mikro-grelcem, ki bi anealal samo gain layer → uporabljajo za annealing diodnih temperaturnih senzorjev: DOI: 10.1109/ANIMMA.2015.7465594

2. DESIGN

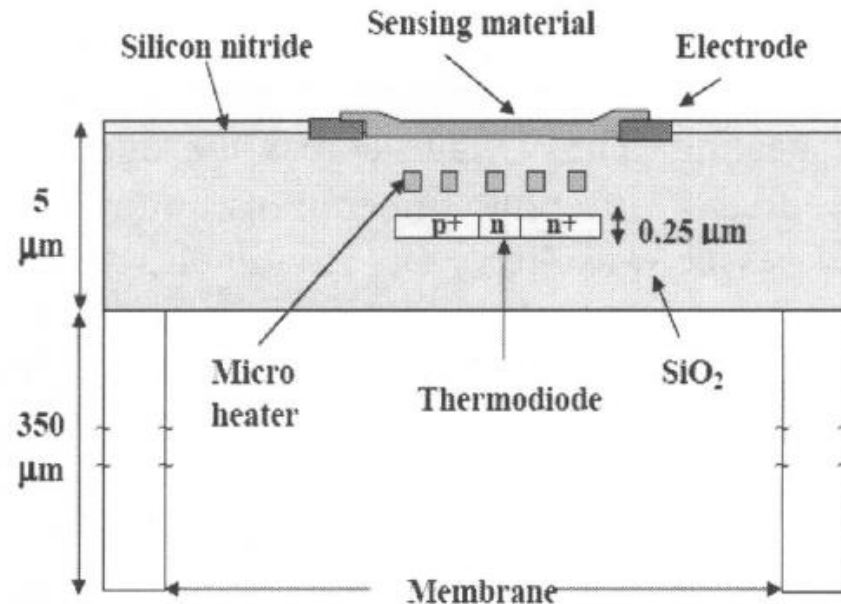


Fig. 1. Cross sectional view of micro hotplate (drawing not to scale).

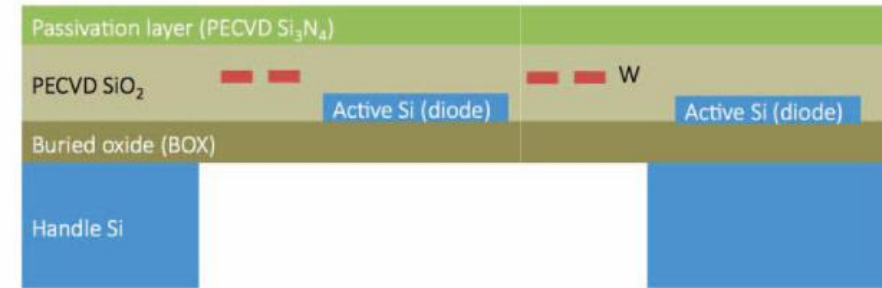


Fig. 1. Schematic (not to scale) cross-section of the microhotplate indicating the stack of layers (PECVD stands for plasma-enhanced vapor chemical deposition, the buried oxide is a thermal oxide).

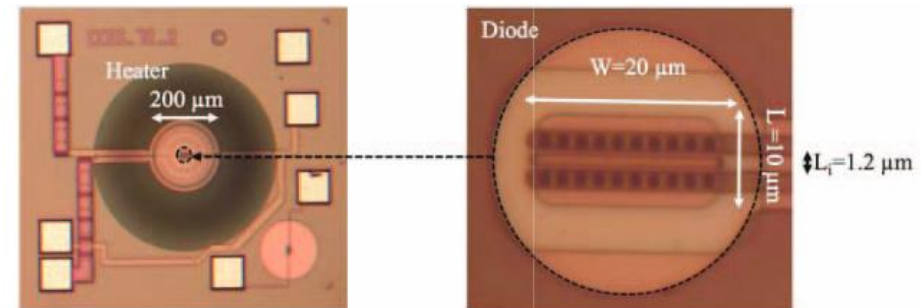


Fig. 2. (To the left) Top view micrograph of the SOI microhotplate showing the dimensions of the heated area, the positions of the membrane and the bulk thermodiodes. (To the right) Magnified view of the thermodiode. The membrane is circular with a diameter of 600 μm.

Po 30 min na 600 C, ne deluje več

