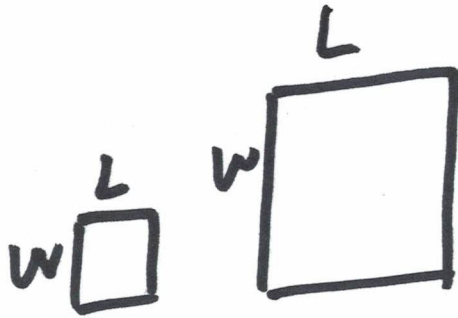


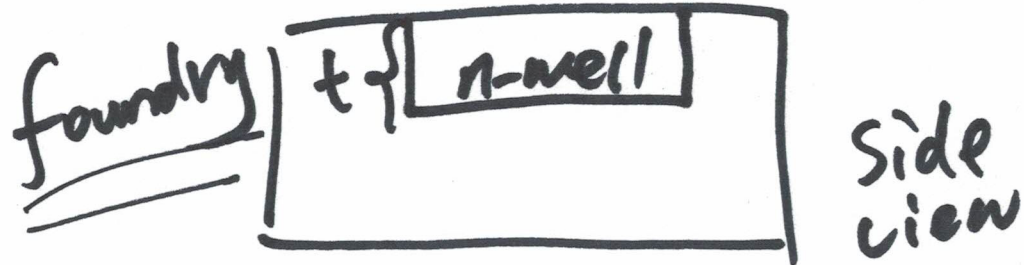
Sheet resistance

die



$$R = \rho \frac{L}{t \cdot w} \Omega$$

↑
resistivity



$$= \left(\frac{\rho}{t} \right) \times \frac{L}{w}$$

↑

Sheet
resistance
CS (500nm)

800 $\Omega/\square$

①



DIP-40

CS layers

Bonding Pads

15MS



3 metal layers

M3

M2

M1

insulator

(SiO₂)

poly-silicon (gates of MOSFETs)

Fox: Field oxide

via

P-sub

wafer

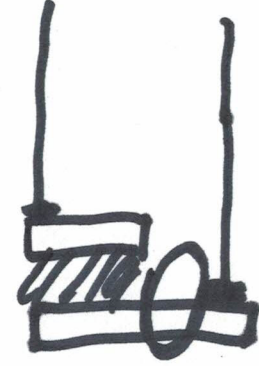
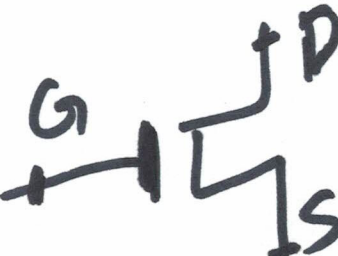
up
bottom

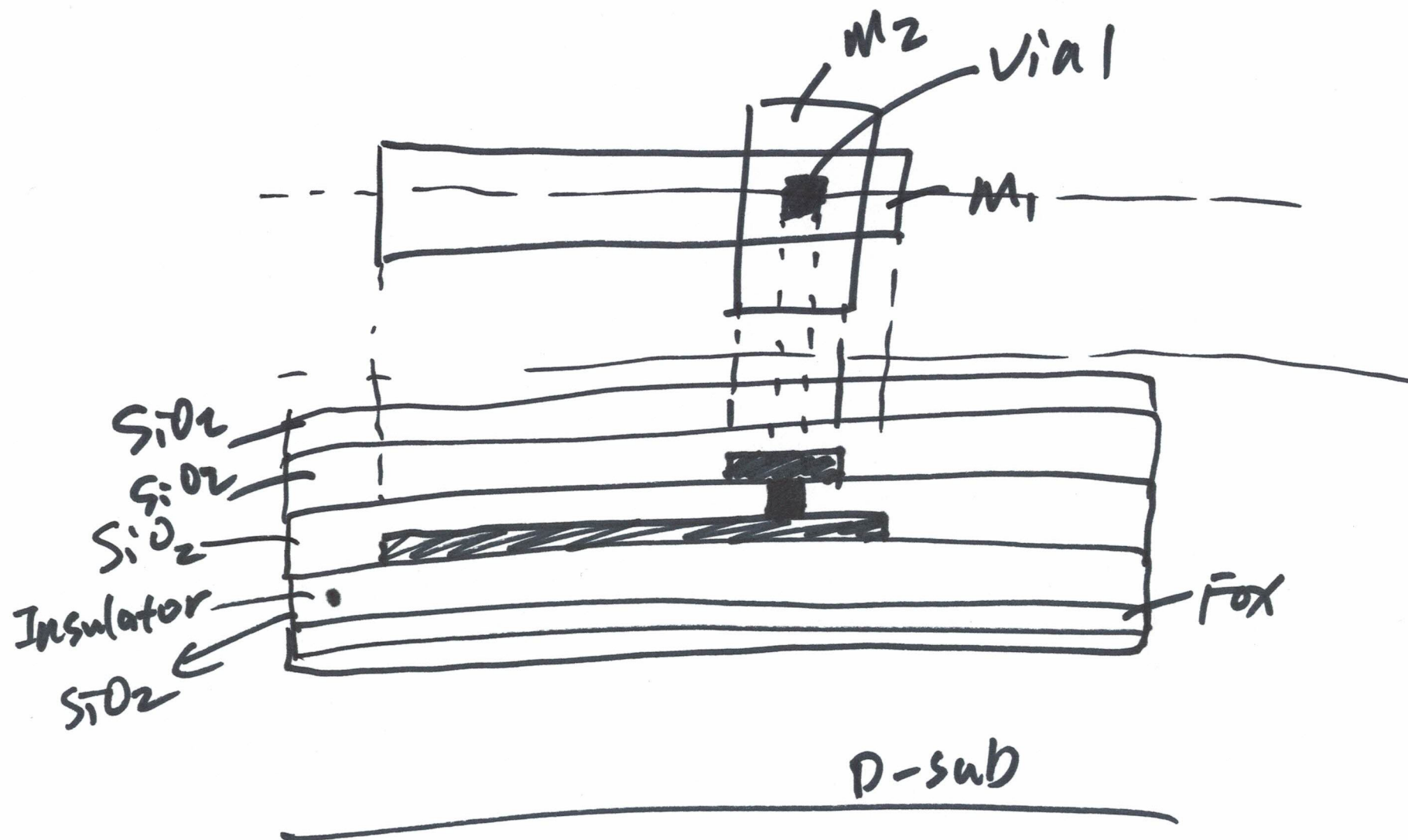
poly 1

poly 2

Masks

ENGR430





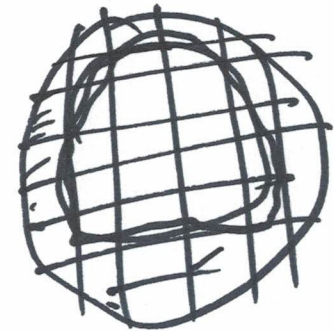
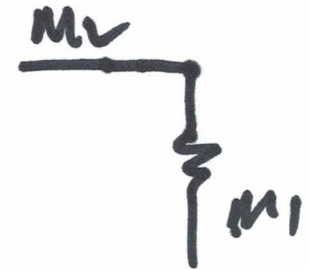
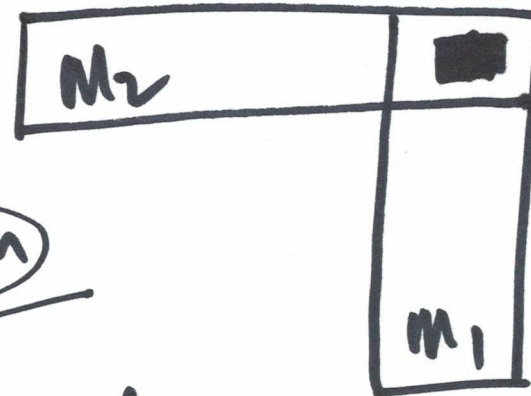
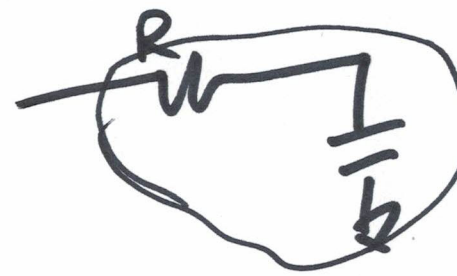
(3)

Design Rules

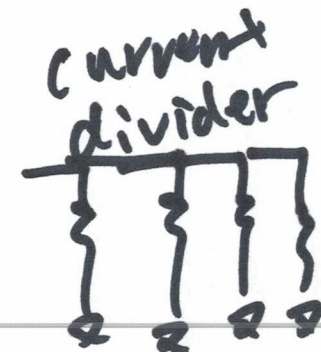
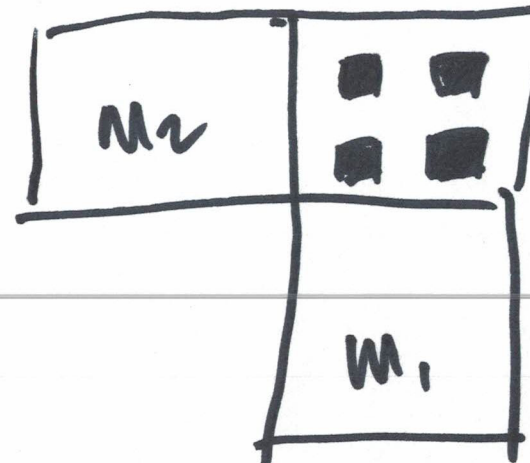
rule (300nm)



TSMT 130nm
98%
95% yield



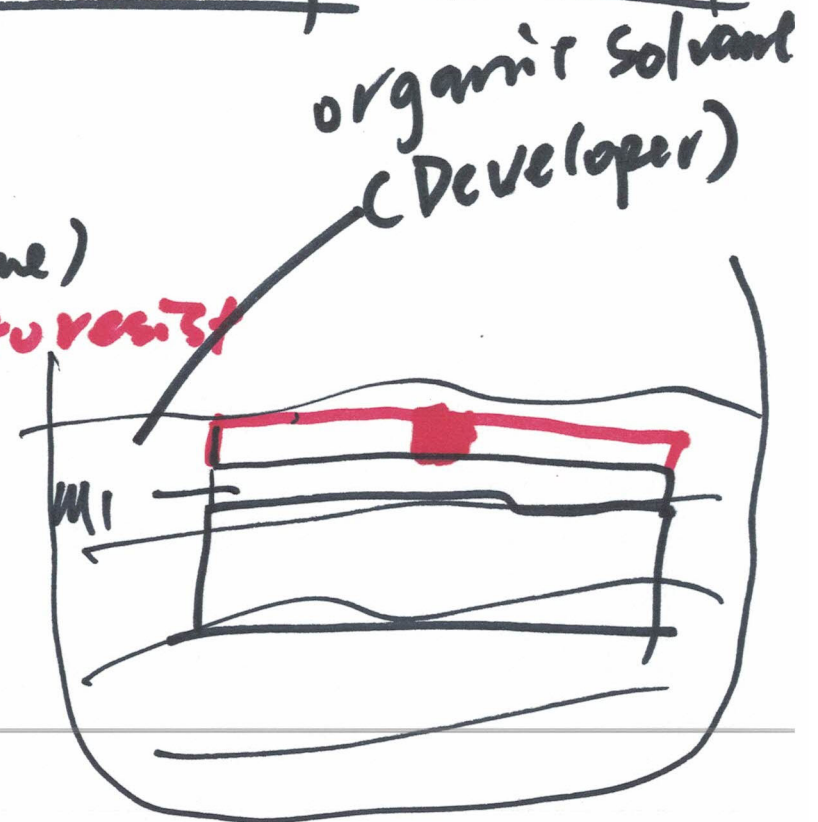
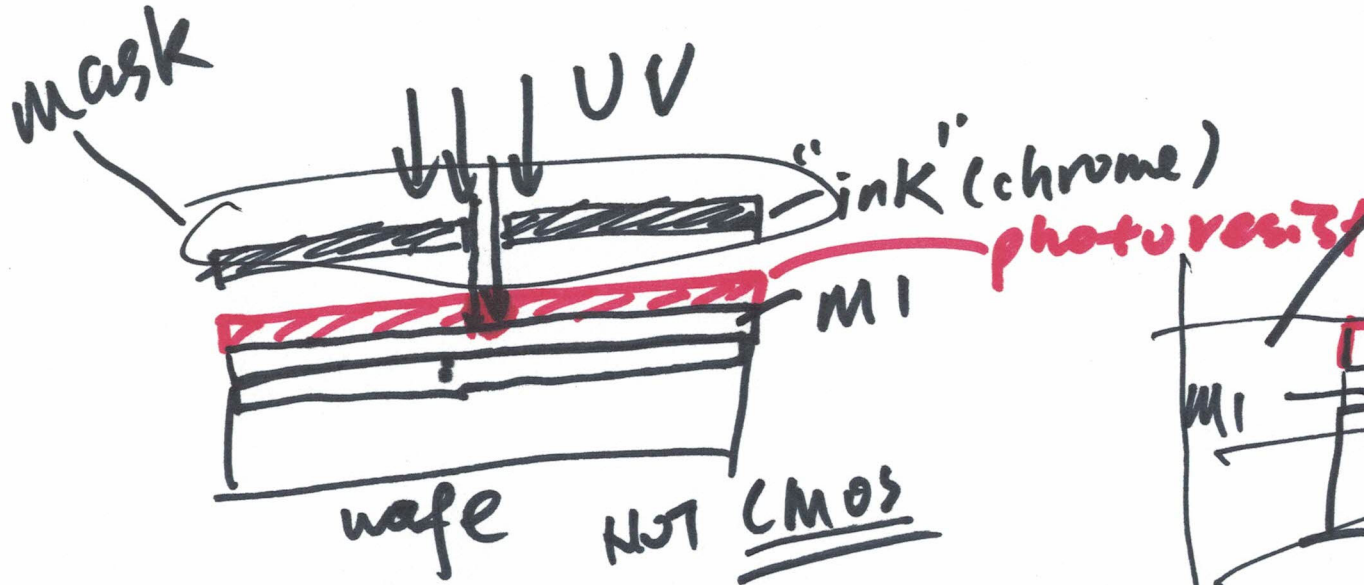
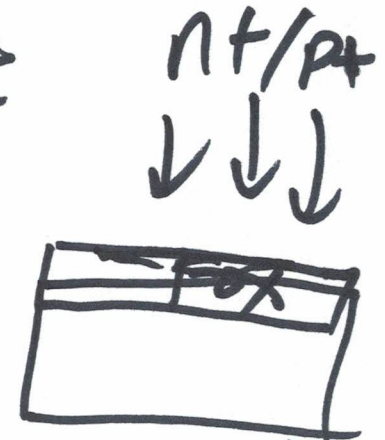
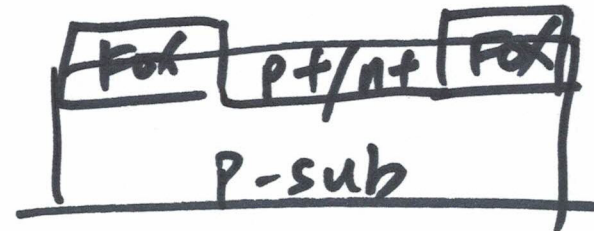
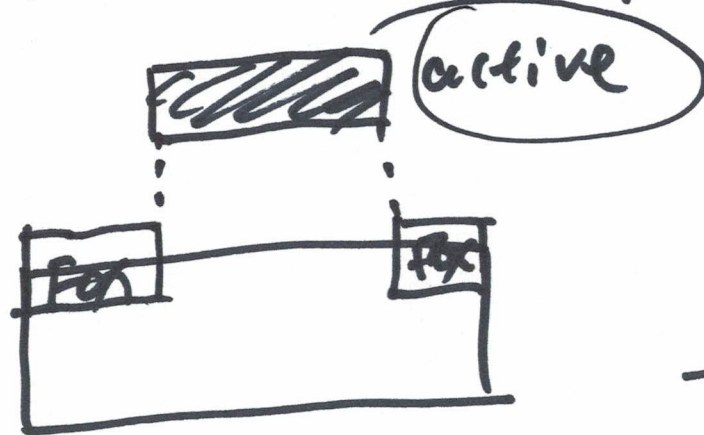
- ① lower the resistance
- ② lower the current for each via
- ③ Get some back up vias

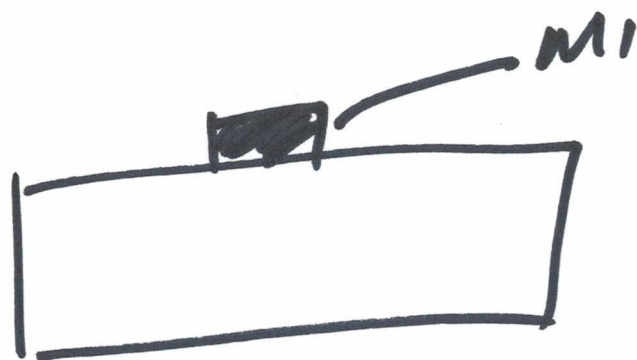
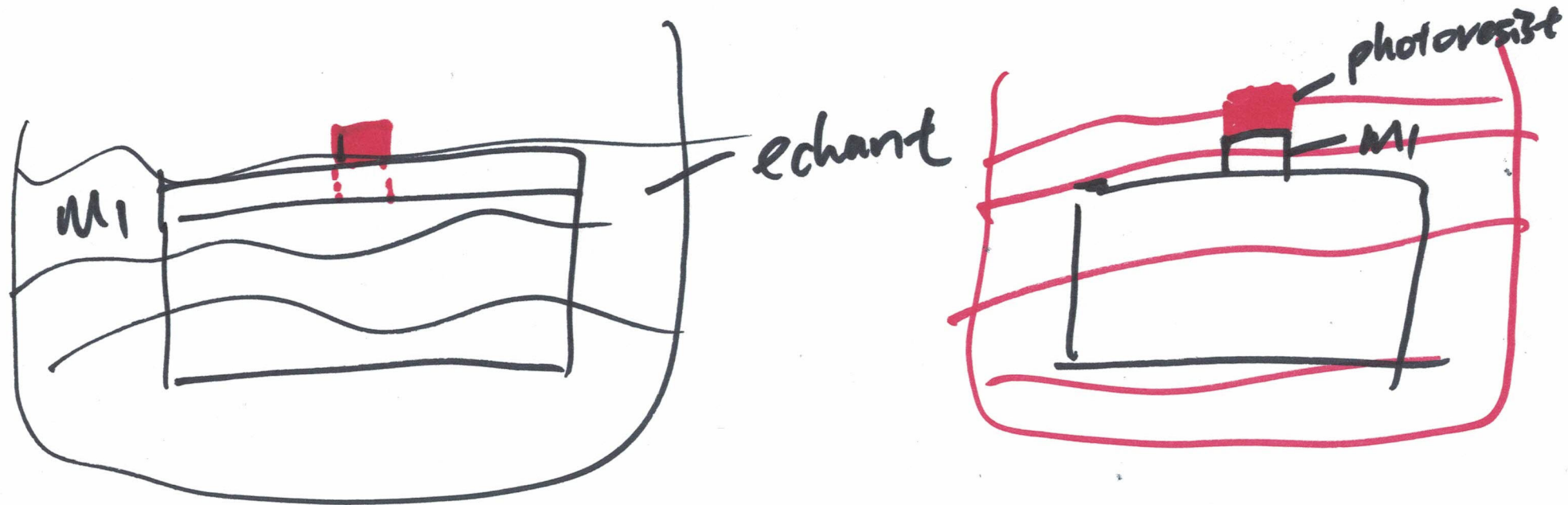


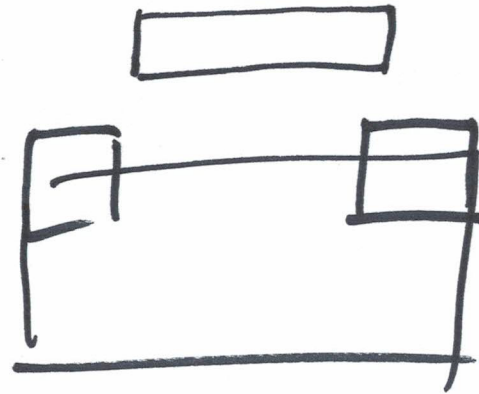
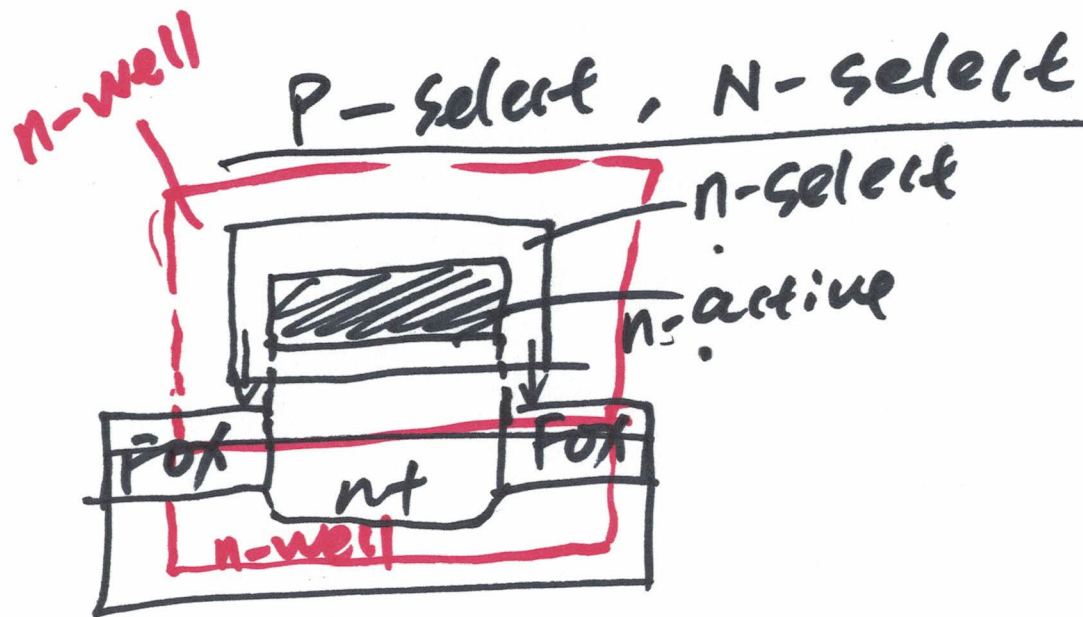
④

Active layer / Poly layers

△ The active layer opens up the Fox
n⁺/p⁺ dopant







poly-silicon

