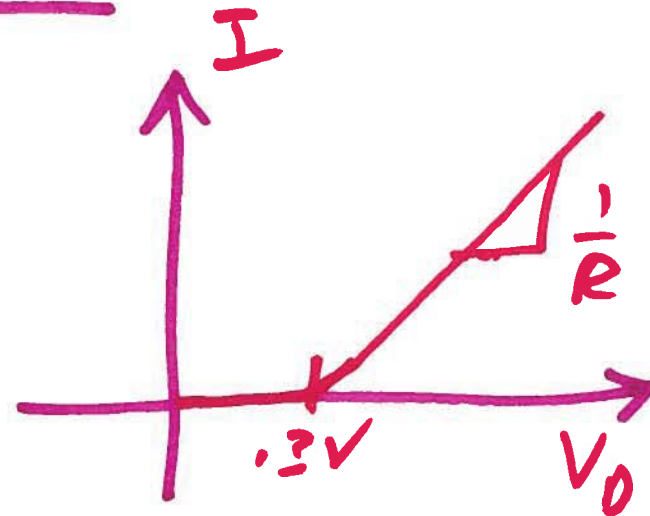
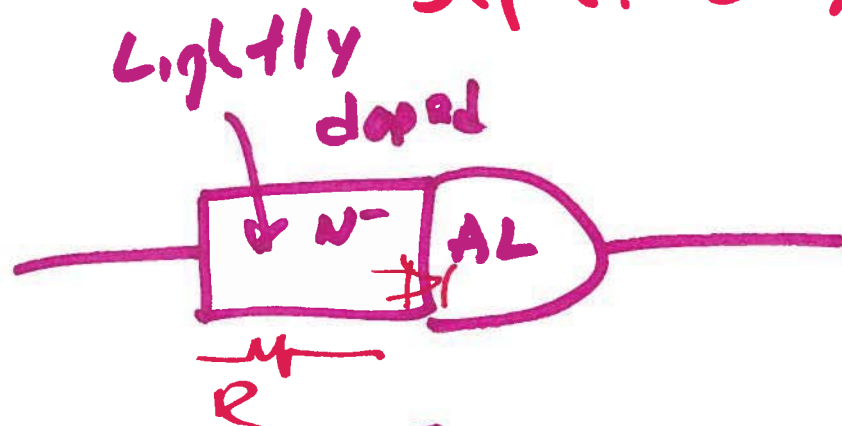


EE 421/ELG 621

Digital IC Design

Sept. 25, 2017

Lecture 8



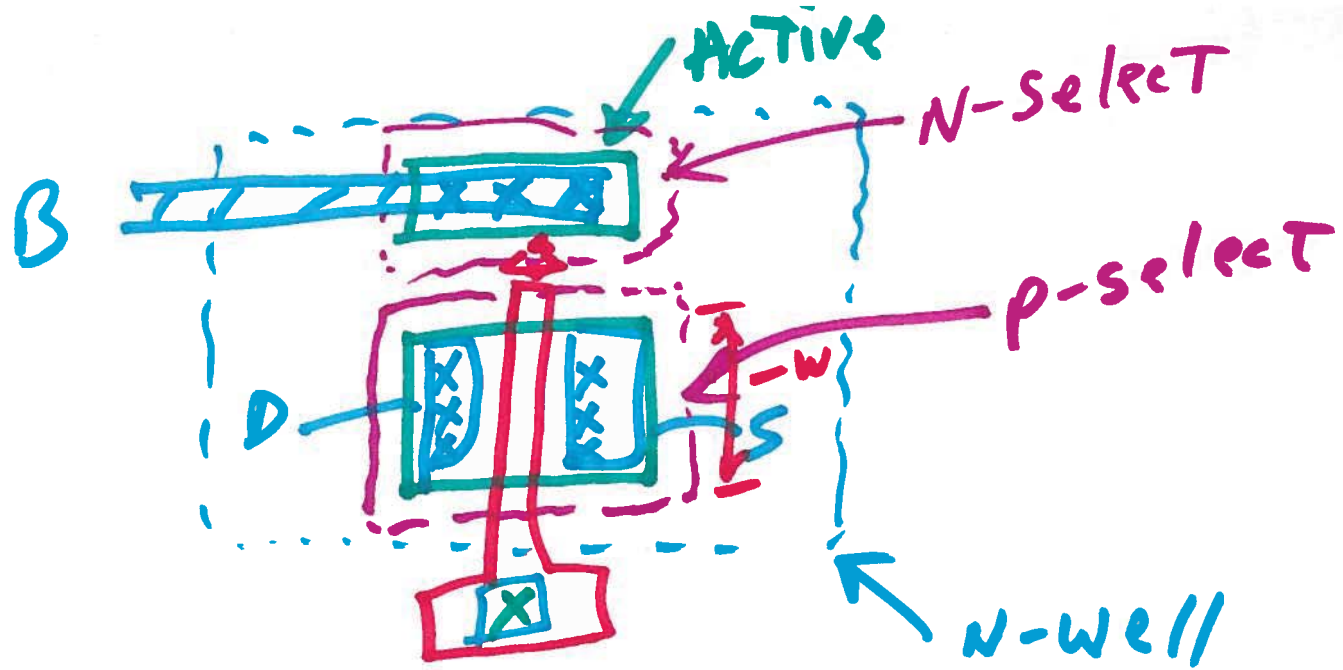
ohmic 

rectify...



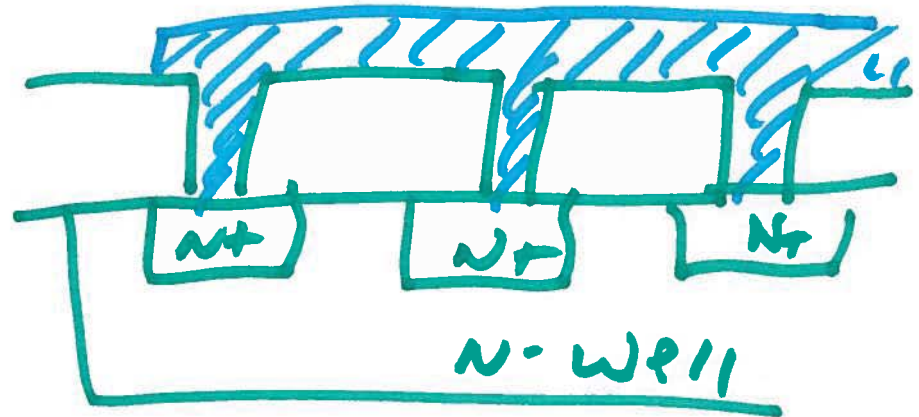
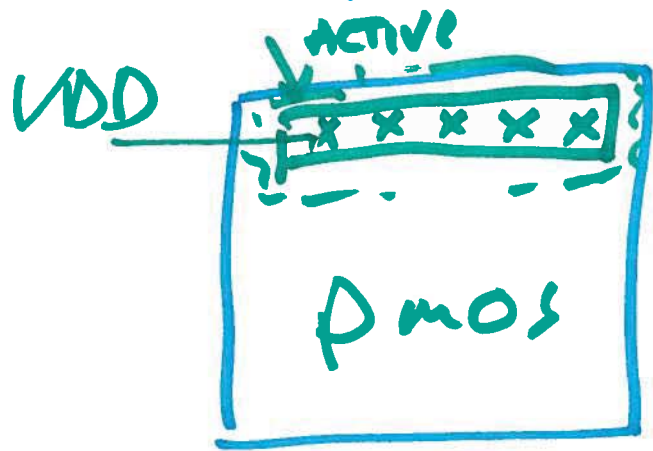
← Schottky diode

1)

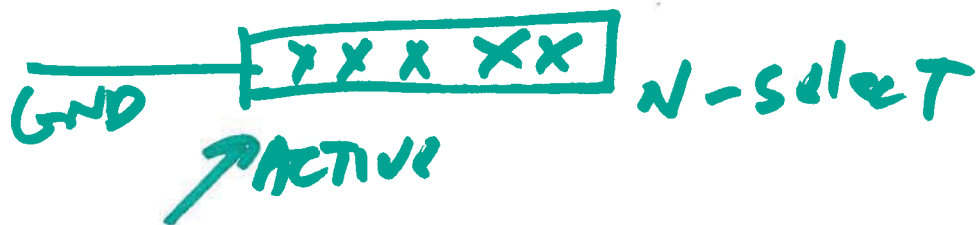


2)

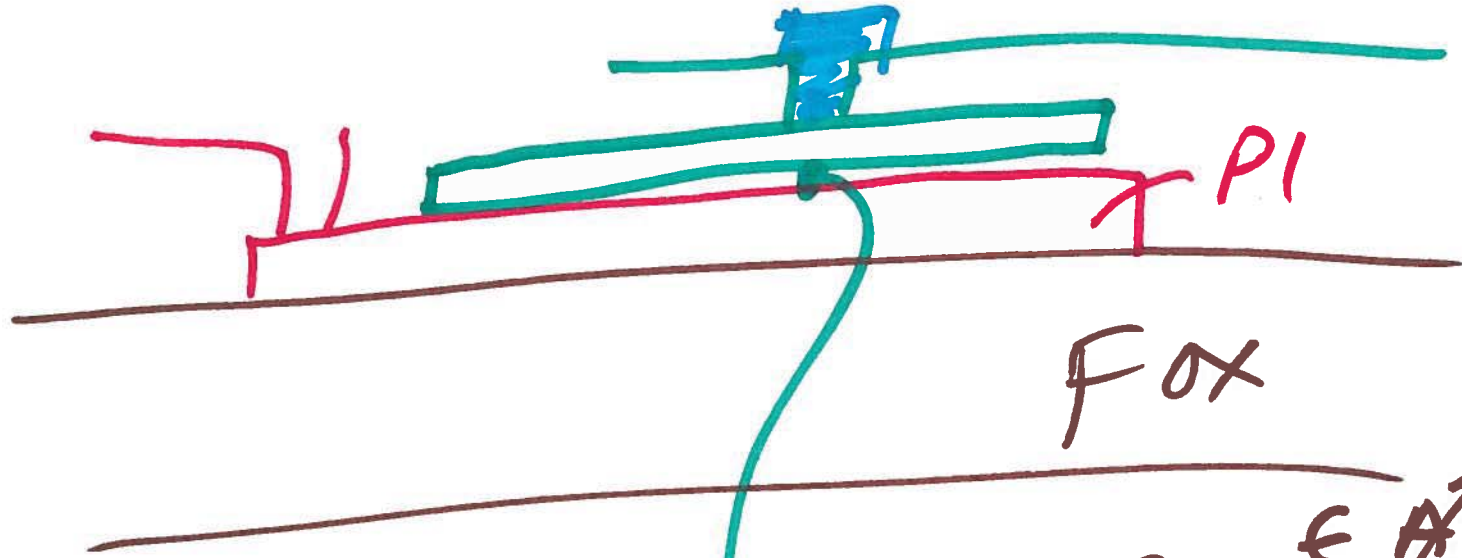
STANDARD cell



NMOS



$$140\text{Å} = 140 \cdot 10^{-10} = 14 \cdot \text{nm} = 0.014 \mu\text{m}$$



$$1PF = \frac{2.5 \text{ fF}}{\mu\text{m}^2} \cdot L \cdot W_{\text{tox}}$$

$$L = W$$

$$L^2 = \frac{1P}{.0025P}$$

$$= 400 \mu\text{m} \cdot \mu\text{m}^2$$

$$20 \mu\text{m}$$

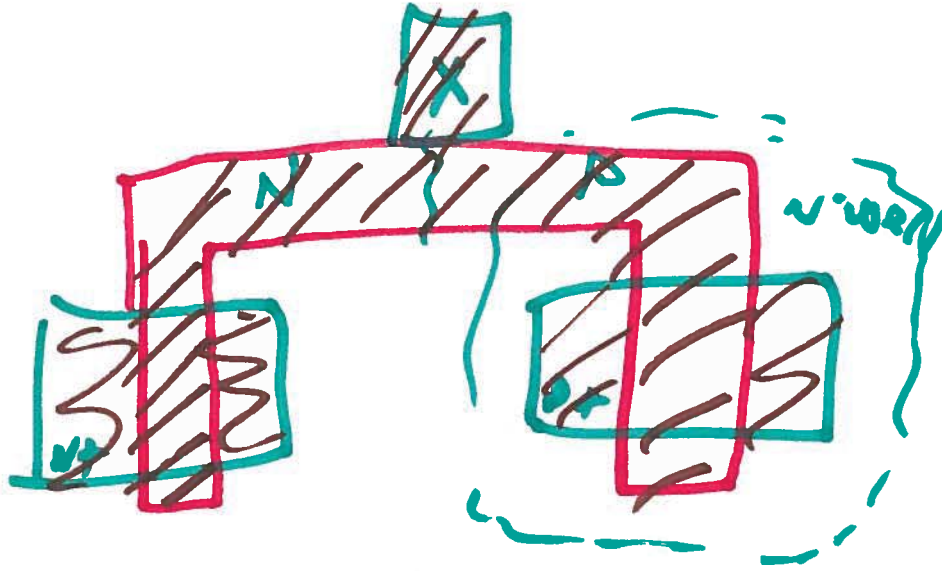
$$C = \epsilon \frac{A}{d} \quad \frac{2.5 \text{ fF}}{\mu\text{m}^2}$$

$$= \frac{\epsilon}{t} \cdot A$$

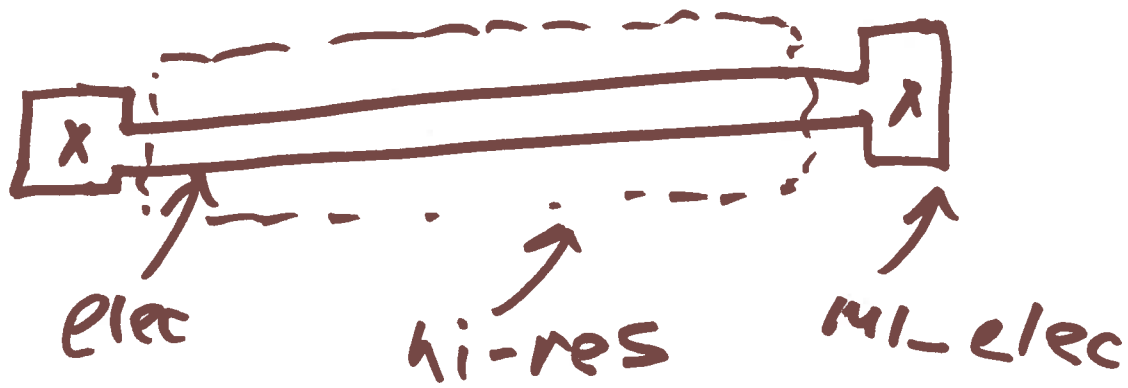
$$= \frac{3.9 \cdot 8.85 \times 10^{-18} \text{ F}}{0.014 \mu\text{m}} \cdot \mu\text{m}^2$$

Silicide → Si

↓
refractory
W, Ni



In-situ



6)