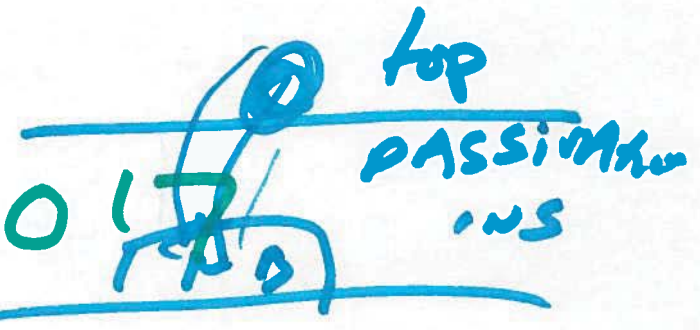


EE 421/ECE 621

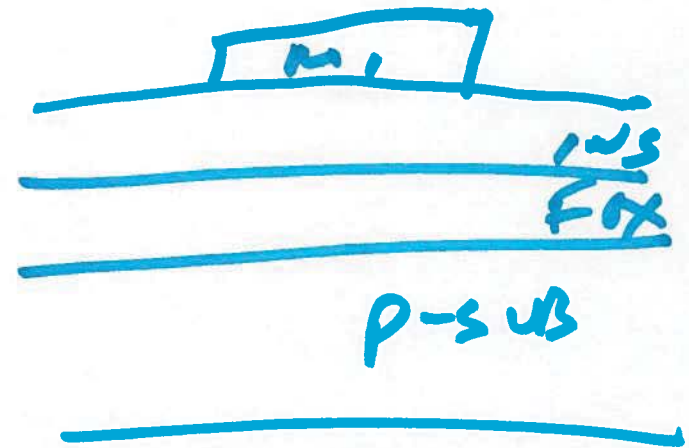
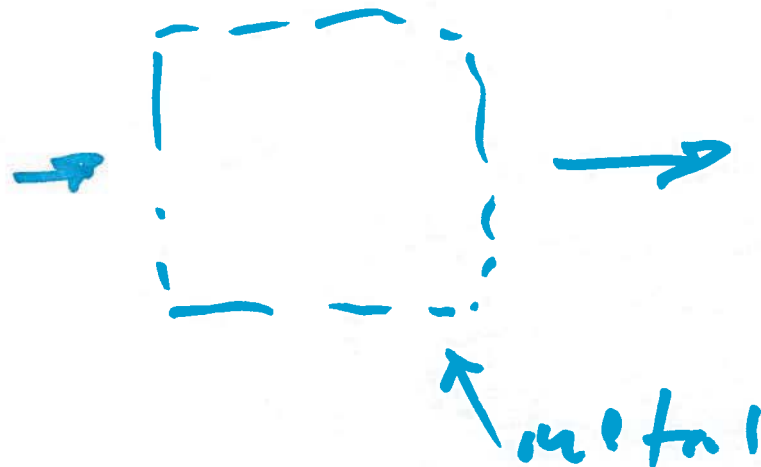
CMOS Digital IC Design

Lecture 5

Sept. 13, 2017




metal 1 100ns

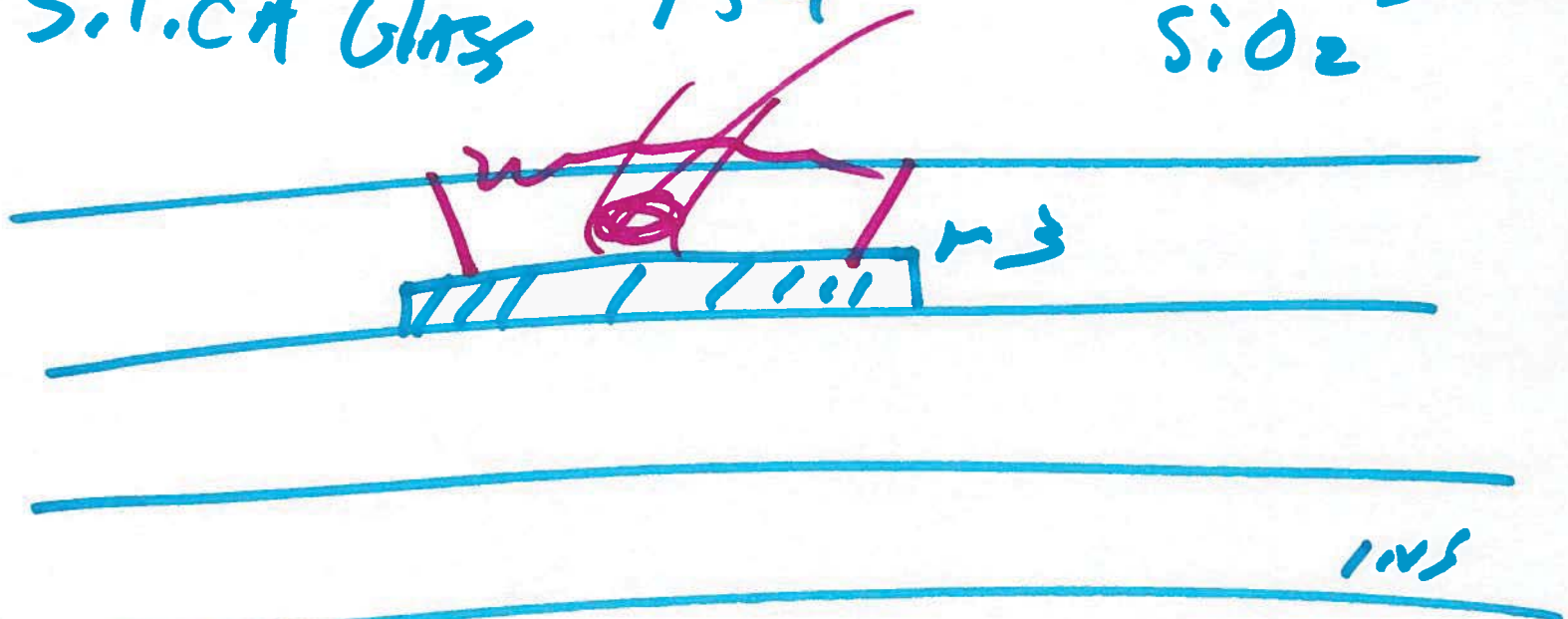
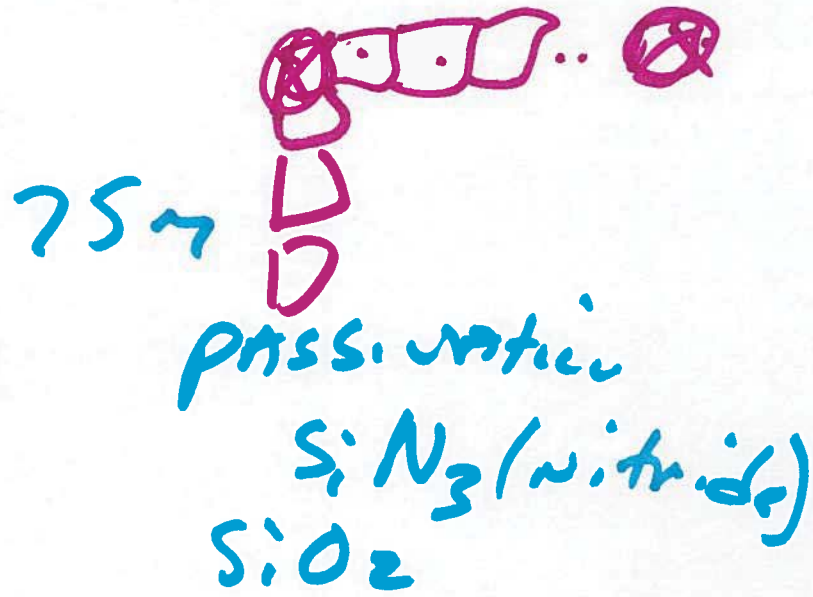
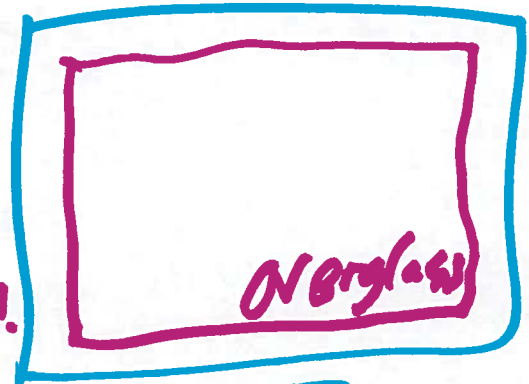


1)

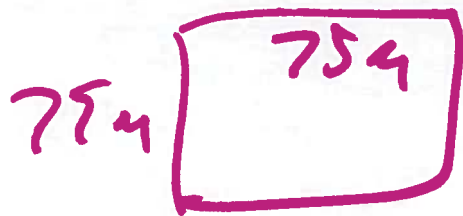
Bonding

75 μ m x 75 μ m 

Glass =
passivation =
OVL (over glass)
= opening
SL = ⁱ passm.
Silica Glass 75 μ m

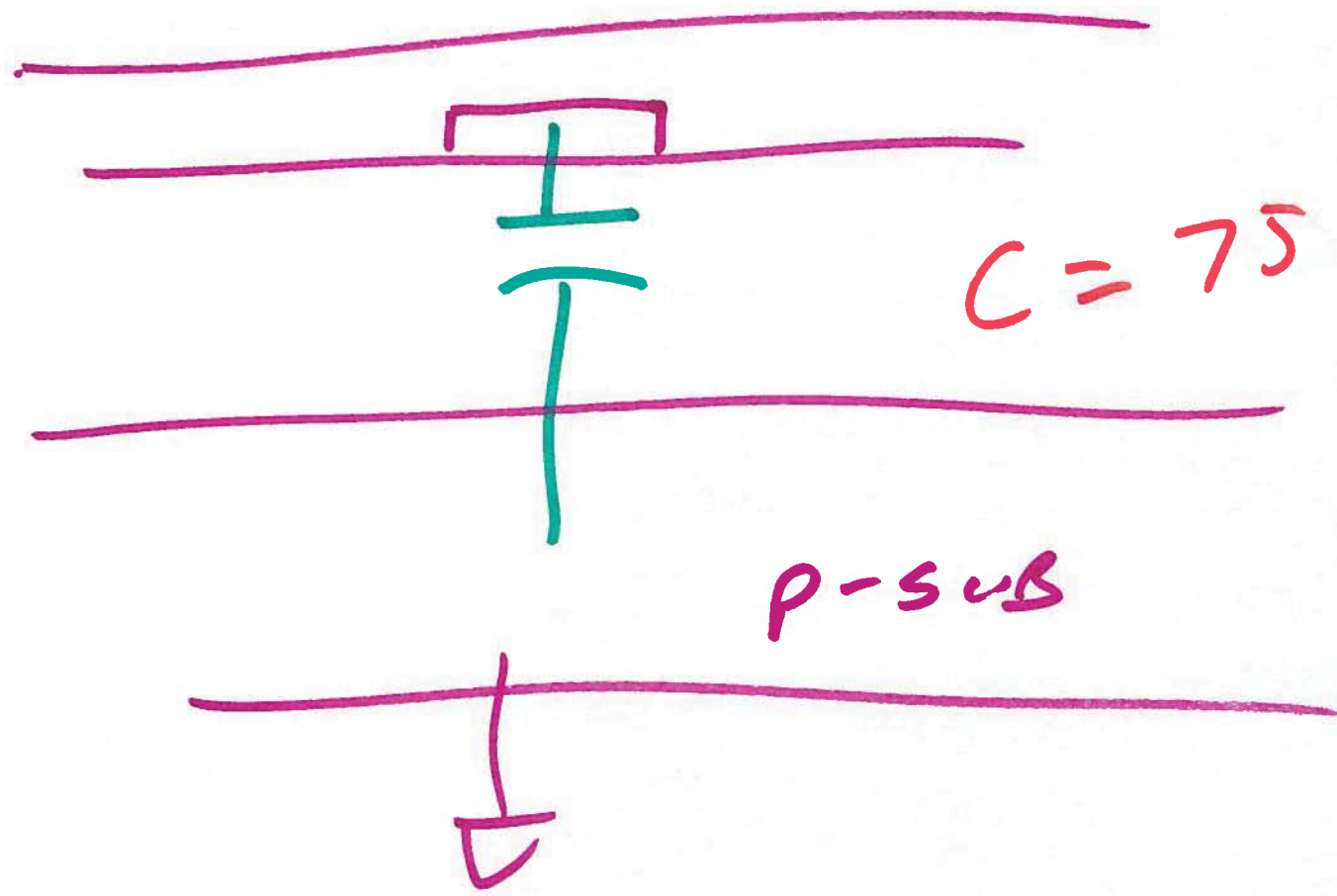


2)



$$A = 75\mu \times 75\mu$$

$$P = 300\mu$$



50 fF

$$C = 75 \cdot 75 \cdot 10 \text{ aF}$$

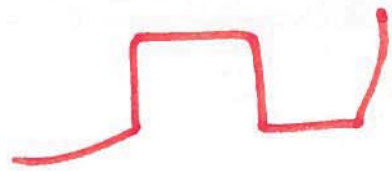
$$+ 300 \cdot 50 \text{ aF}$$

$$15 \text{ fF}$$

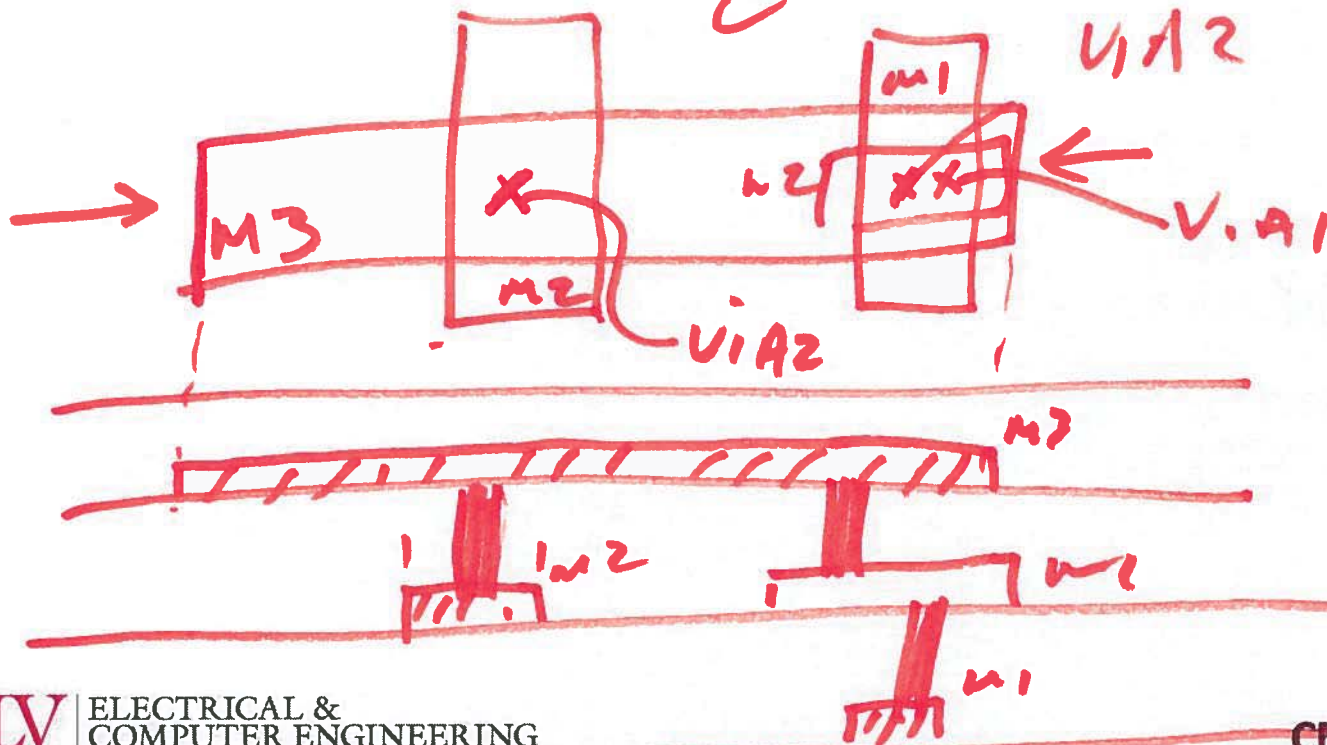
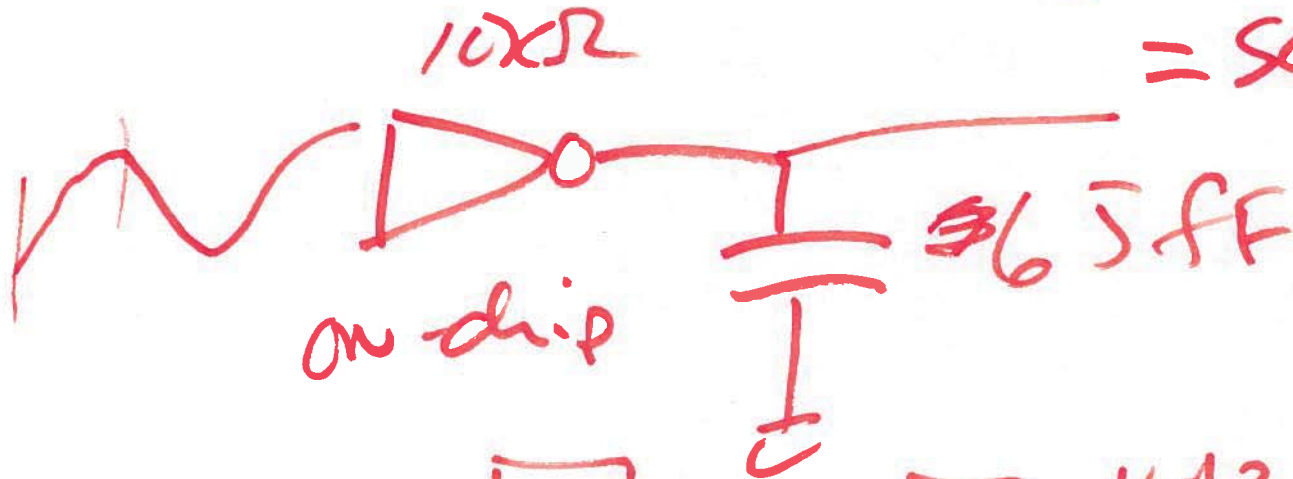
p-sub

65 fF

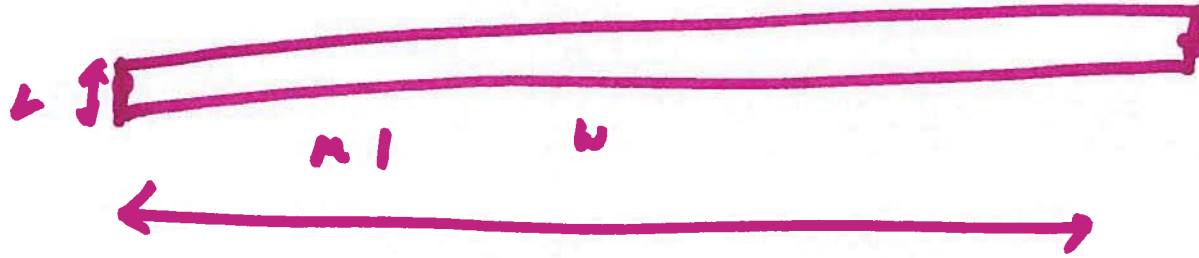
3)



$$t_d = 0.7 \cdot 10k \cdot 65fF = 500ps$$



4)



$$R = R_{\text{sheet}} \cdot \frac{L}{w}$$

