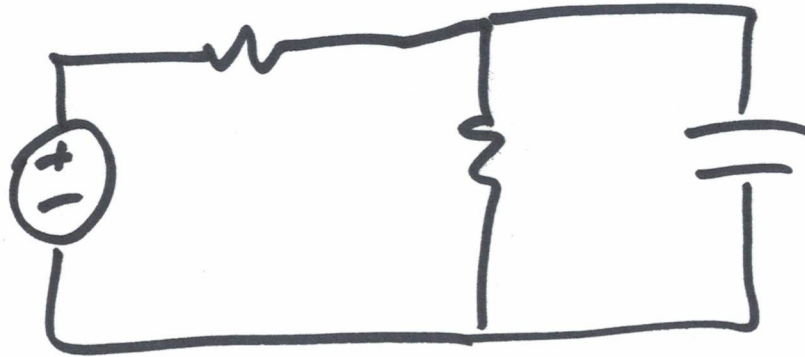


①

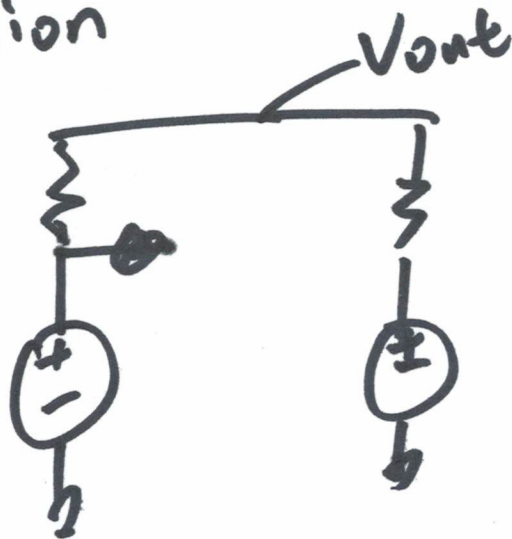
$V_{th} R_{th}$



$0.7RC$

5 min

② Superposition



5 min

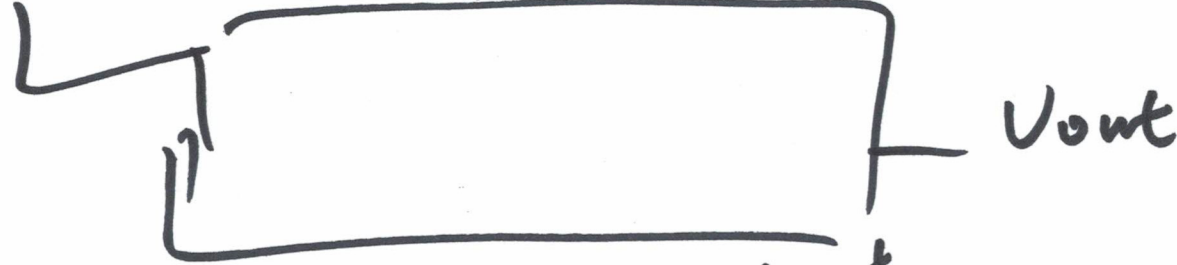
③

③

R-2R DAC

$V_{REF} = 10V$

D_2 D_1 D_0



Full-scale output

$$\frac{10V}{2^3} (2^3 - 1)$$

5 min

④



10 bit ADC.

Smallest 2^{10}

$$\frac{5V}{2^{10}} \text{ LSB } \checkmark$$

$$\frac{10mV}{2^{10}}$$

$$\frac{1mV}{2^{10}}$$

②

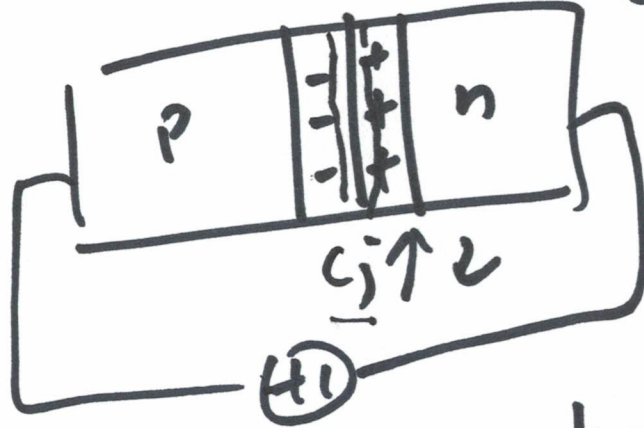
5. SAR Diagram.

3-5 min



6. pn junctions

3 min



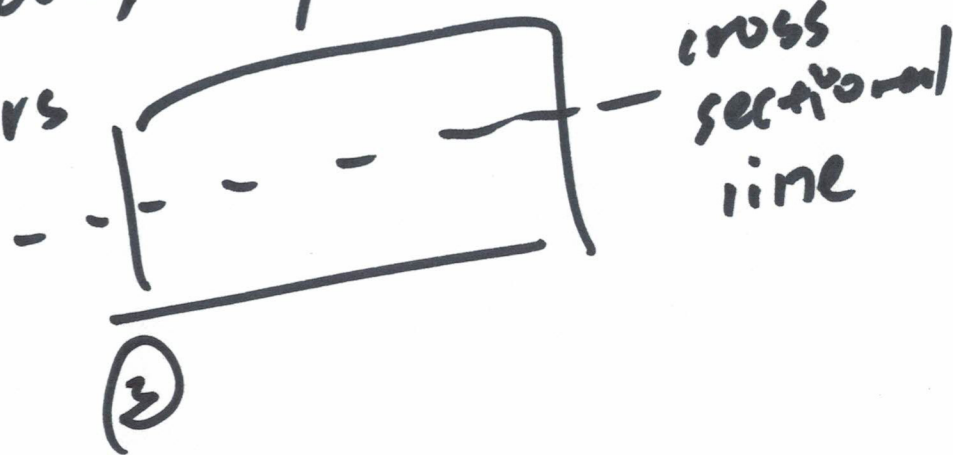
$$C = \epsilon \frac{A}{d} \uparrow$$

ϵ permittivity

Body effect, why?

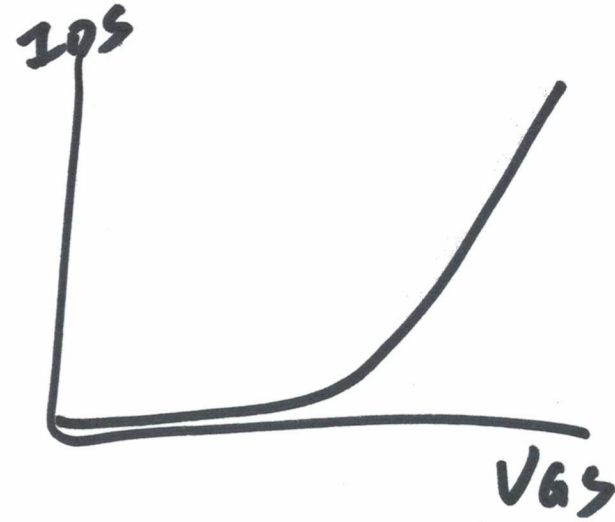
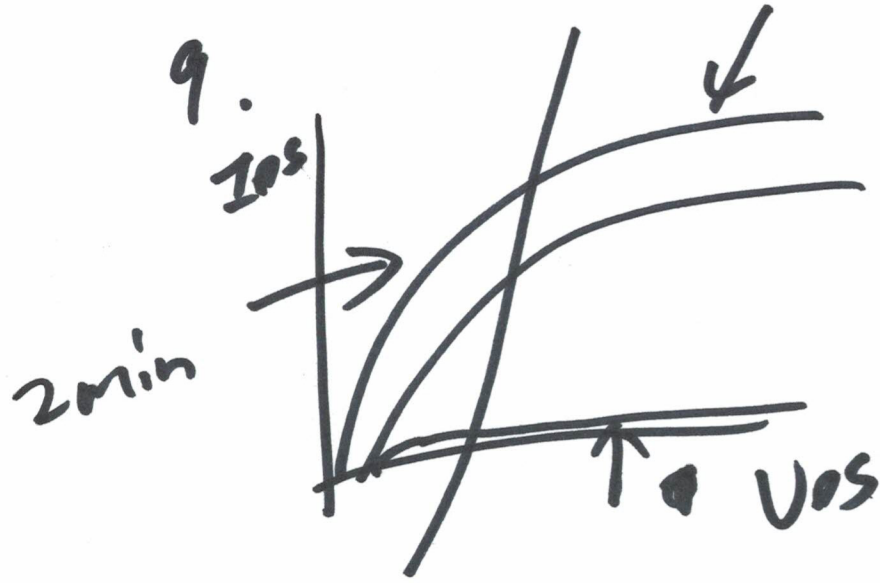
1. CS layers

5 min



5 min 8. N-well resistors.
design a resistor

$\Omega/\square$ * sheet
resistance



5 min 10. Vsp

7 min 11. A022

Stick Diagram (logic simplification)

3 min 12. Adder Diagram (mux) (level triggered)

($S = A \oplus B$)

($C = (A+B) \wedge A$)



(4)

Voltage Doublers

