E151 Lecture 5
Intro to BJTs

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ENGR151

Disclaimer

These are notes for Prof. Spencer to give the lecture, they were not intended as a reference for students. Students asked anyway, so I'm putting them up as a courtesy. Remember that they are not intended as a substitute for attending lecture.

What is a Transistor?

- Transistor – from transfer varistor
  - causes i-v changes in a "distant" terminal

- Many types: MOSFET, JFET, BJT

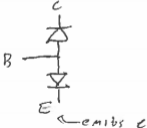- Focusing on BJT because they are good to learn with

- MOSFET most popular

What is a BJT

- Two types: NPN, PNP
- Focus on NPN for now.
- Get the room to the naïve model (above), why is it not like a diode?
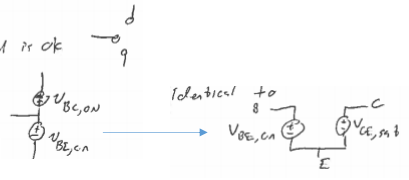- Naïve model works OK for some conditions (below)
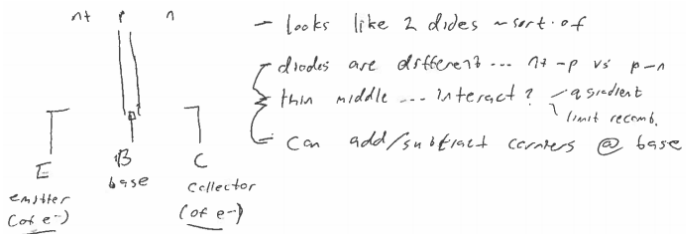
Doesn't Act Like a Diode if 1 Fwd / 1 Rev Bias

- Ebers-Moll: good in all 4 bias regions. Used in computers
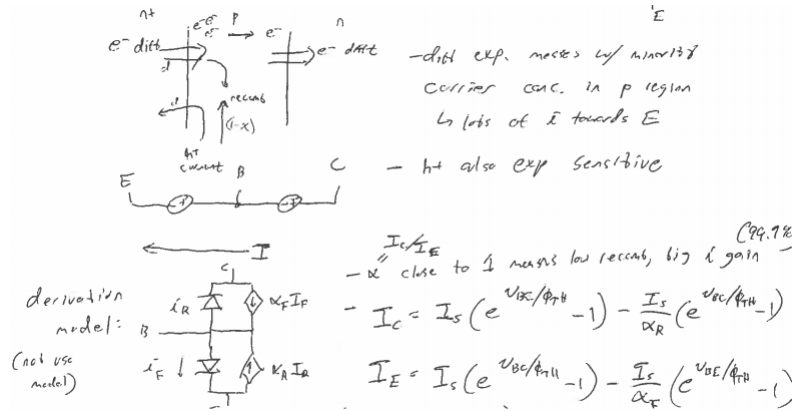
Circuit Models in Regions of Operation

- Specify each region in terms of BE jn on/off and BE jn on/off
- Link to what is on in Ebers-Moll, clarify hitting V_CE,SAT → saturated