

# E151 Lecture 7

## PNPs and Biasing Improvements

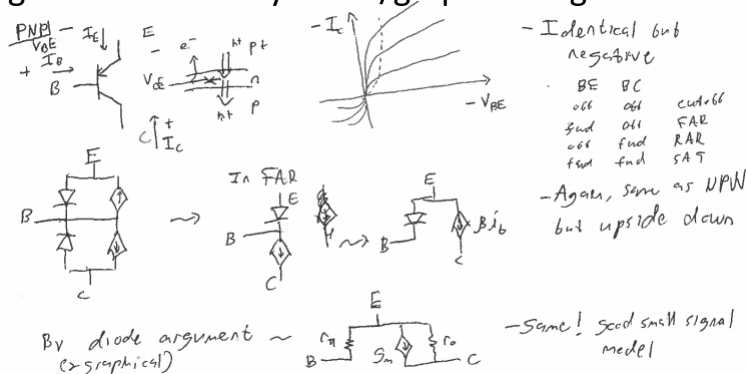
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### Disclaimer

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

# What About PNP? Large signal negative

- Backwards from NPN, diodes point IN! (care w/ i direction)
- Region of operation table to emphasize
- Small signal is identical by diode/graphical argument



# PNP Exercise for Class

- Have them work example

Recall that I find this  $\Rightarrow$  confusing. Just think of PNP

In a circuit (or as junctions)

You guys

① - Find  $I_c$

- For PNP, if we have emitter to supply & recall stuff turns on below supply it makes sense

$B = 50$

$V_{BE,ON} = 0.7V$

$V_B = 1.8V \rightarrow I_b = 1.8mA \rightarrow I_c = 90mA$  ( $V_{CE} = 0.1V$ )

② - What is max  $R_1$  before we enter sat?  $V_{CE,SAT} = 0.1V$

$V_{CE} = 5V - 90mA \cdot R_1$   $V_C = 90mA \cdot R_1$   $V_C$  must be  $< 4.9V$

$R_1 < \sim 55 \Omega$