

E151 Lecture 4 Handout

What is the formula for a diode's i-v relation?

What is the thermal voltage? What is its value at room temperature?

Is there a closed-form analytical solution for the series diode-resistor I-V relationship?

Draw a load line graph for a series diode-resistor circuit

What mathematical concepts do we invoke when we do a small signal analysis?

What is the notation convention for total signal, DC signal and small signal?

When drawing small signal equivalent circuits, what do you do to DC voltage sources?

What is the small signal model for a diode? How did we derive it?

What is the difference between a DC simulation, an AC simulation and a transient simulation?

Draw a circuit for setting the current in a diode and calculate how much current is flowing using a switch/voltage-source model.

Draw an envelope detector and the output voltage when it is excited by a sinusoidal input. Again, assume a switch/voltage-source model