

Lecture 13 -- BJT Dynamic Model

What physical phenomenon gives rise to junction capacitance?

Does junction capacitance increase or decrease as a diode is biased? Why?

Draw a picture and write a formula describing how junction capacitance varies in the large signal sense. Is junction capacitance linear?

What is an expression for small signal junction capacitance? Is small signal junction capacitance linear?

Draw a small signal model of a diode with junction capacitance included

Why does the junction capacitance of a photodiode matter? How should a photodiode be biased?

Draw a cross section of a BJT and label the junctions that give rise to C_{pi} and C_{mu}

Draw a small signal model of a BJT including C_{pi} and C_{mu}

What is f_t ? Derive it for a BJT

What is f_{max} ?