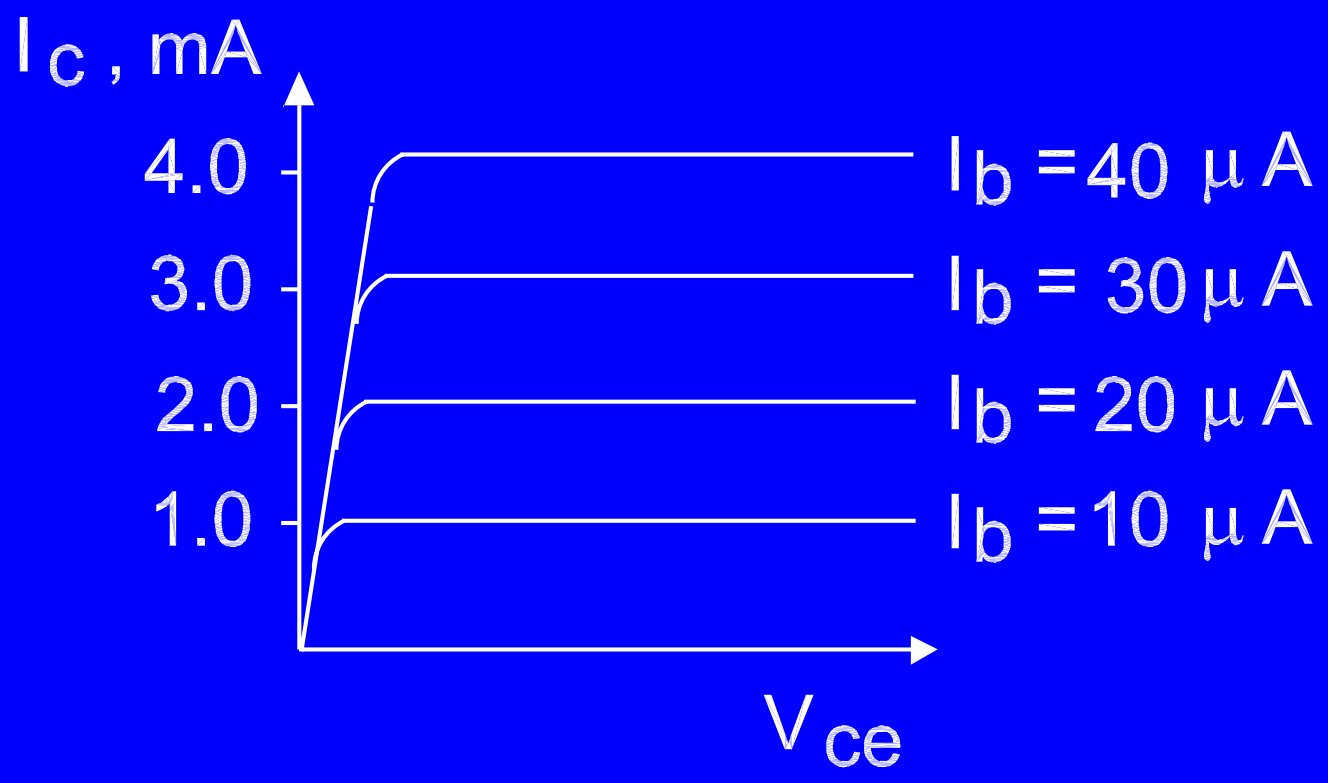
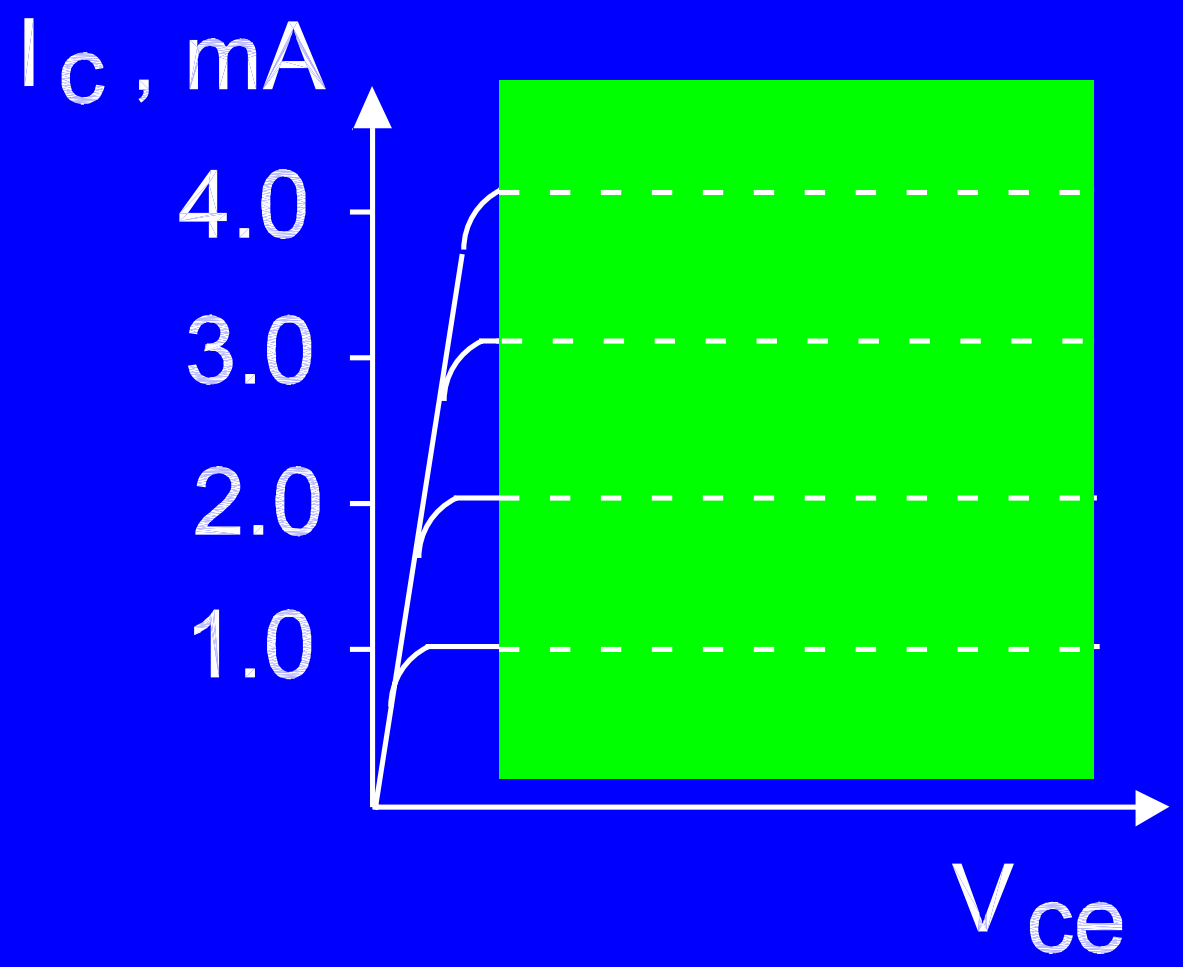
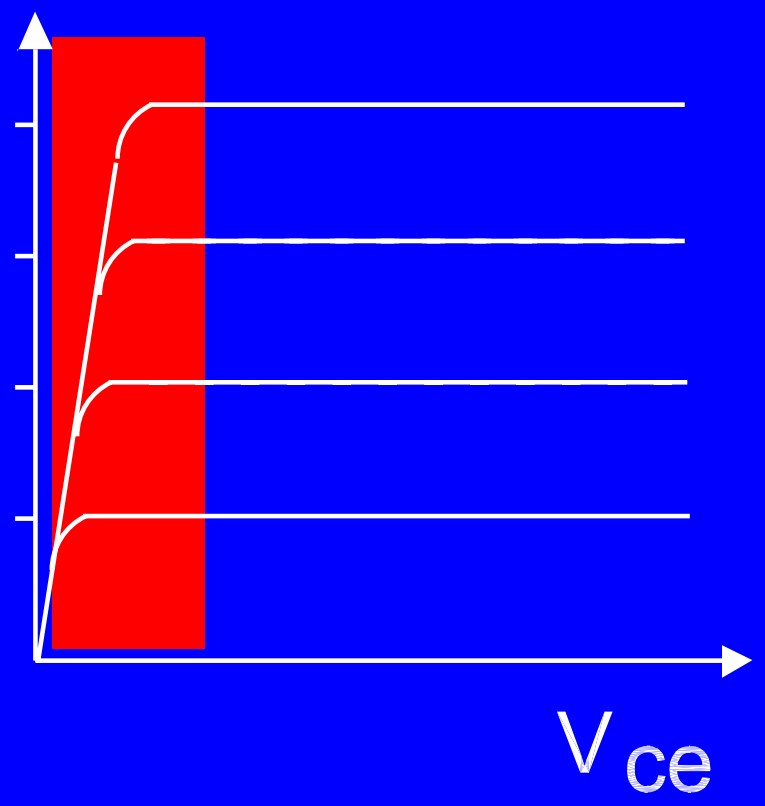
BJT Collector Curves



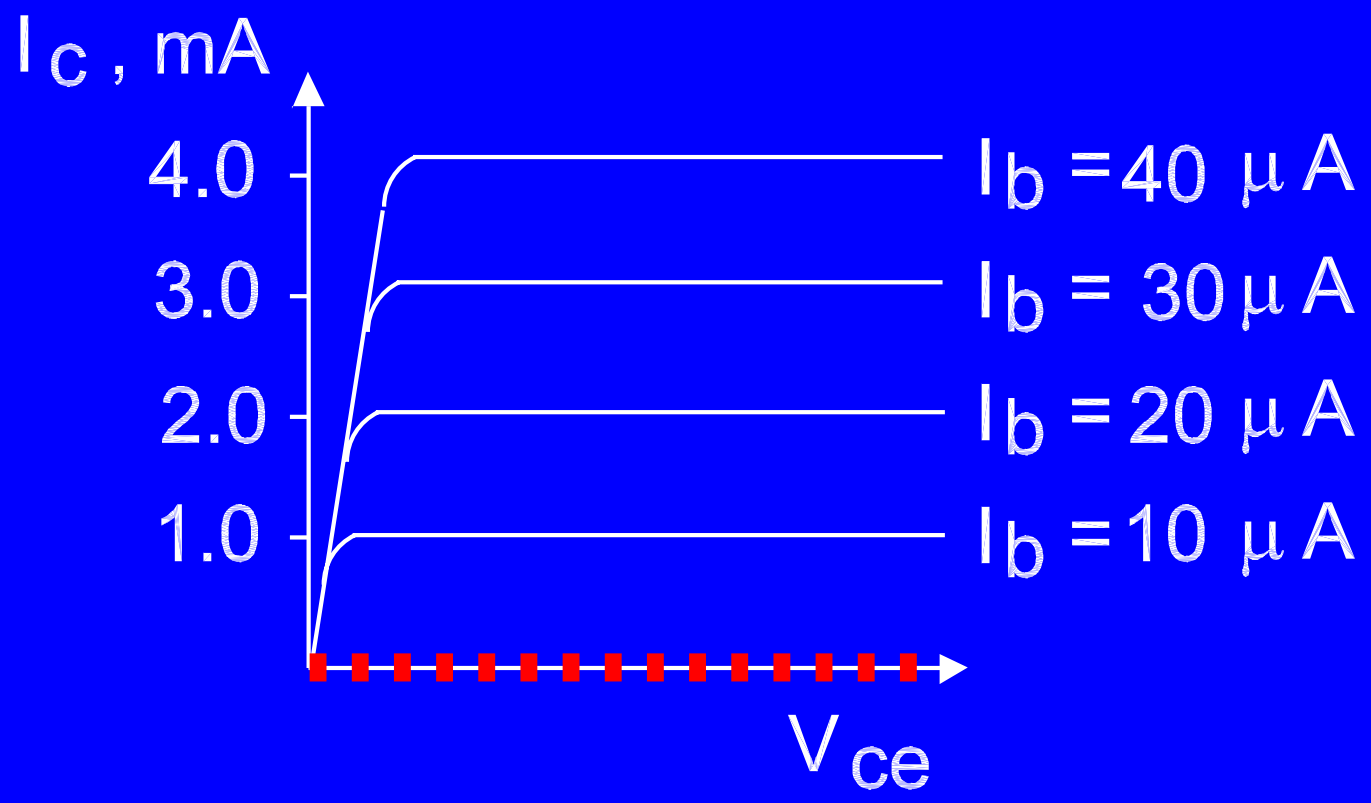
BJT Active Region



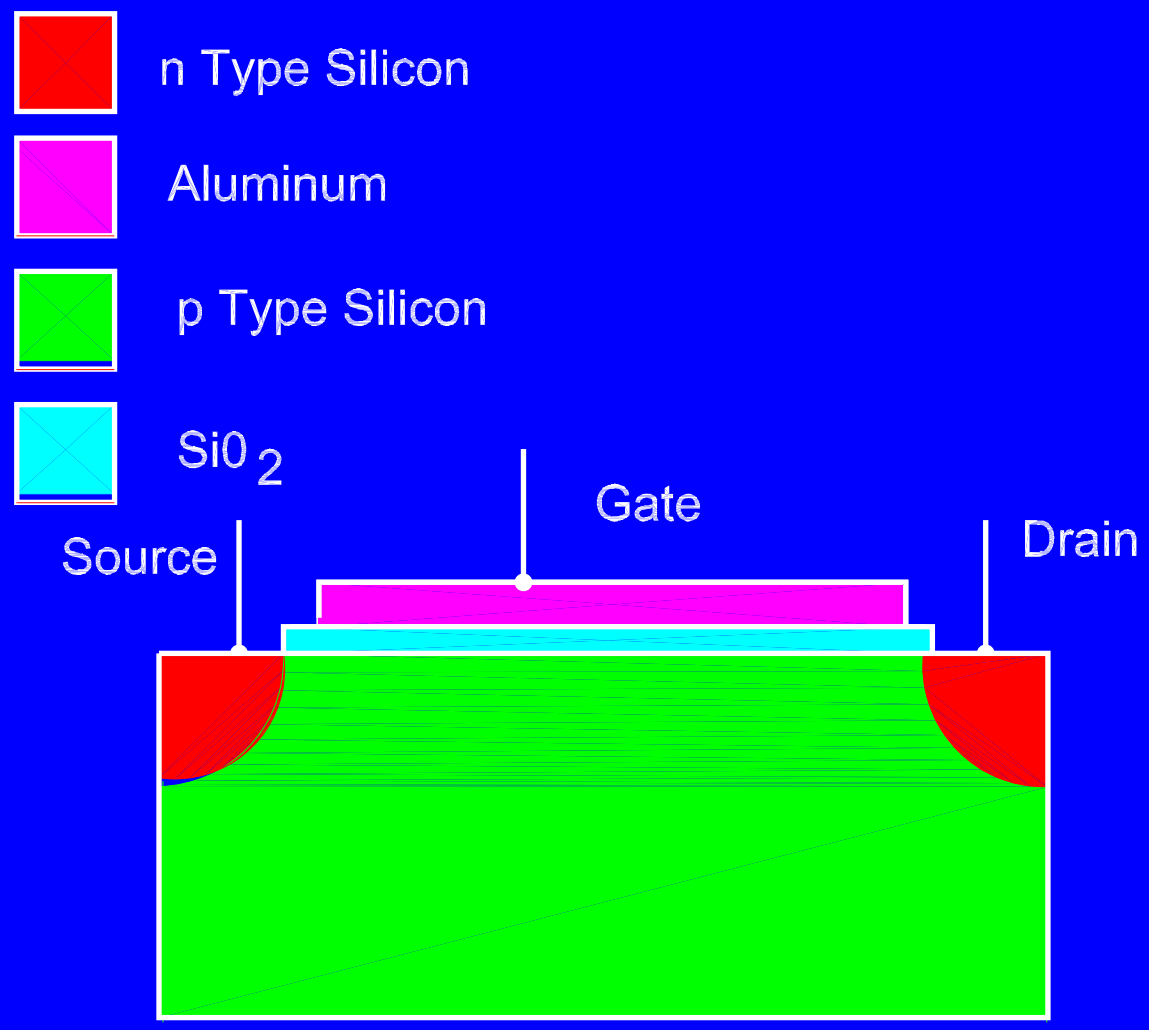
BJT Saturated Region



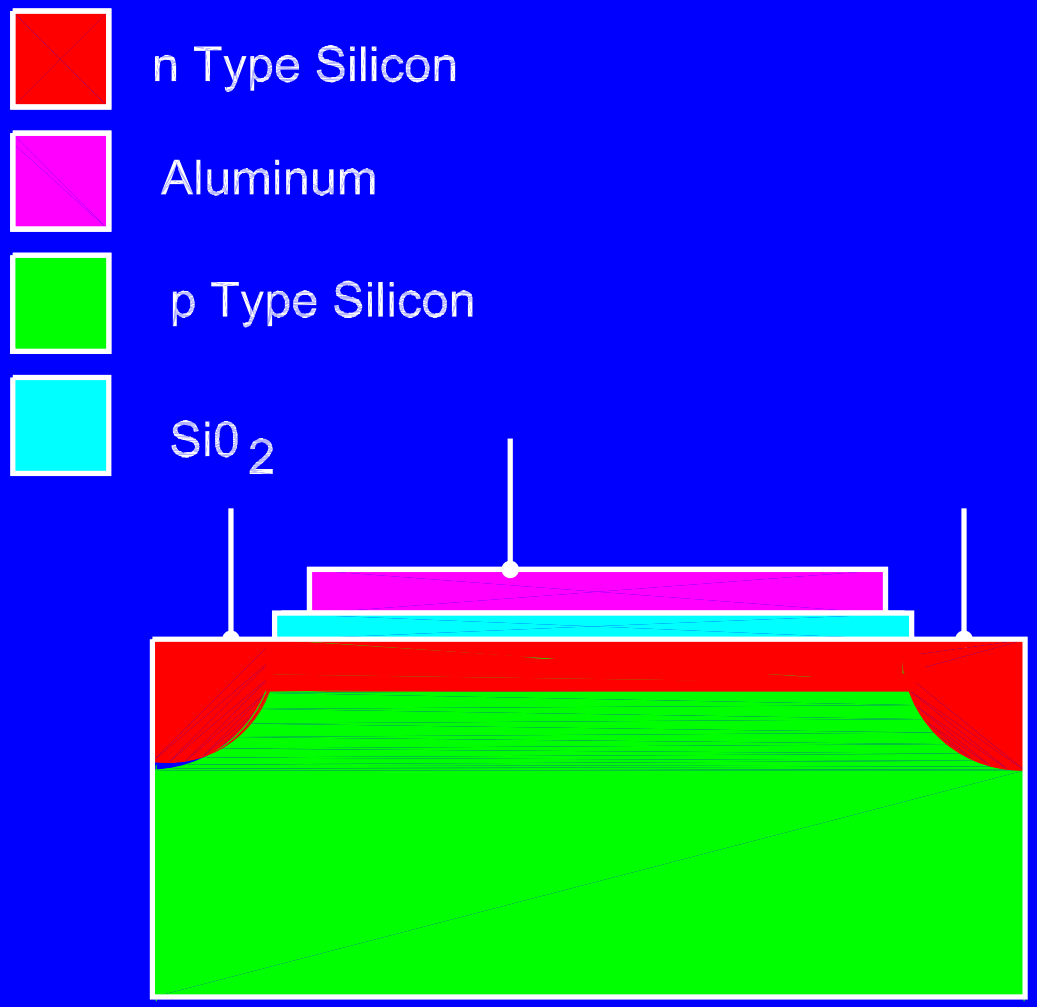
BJT Cutoff Region



MOS Field Effect Transistor



MOSFET: Gate Bias Applied



MOSFET Characteristics

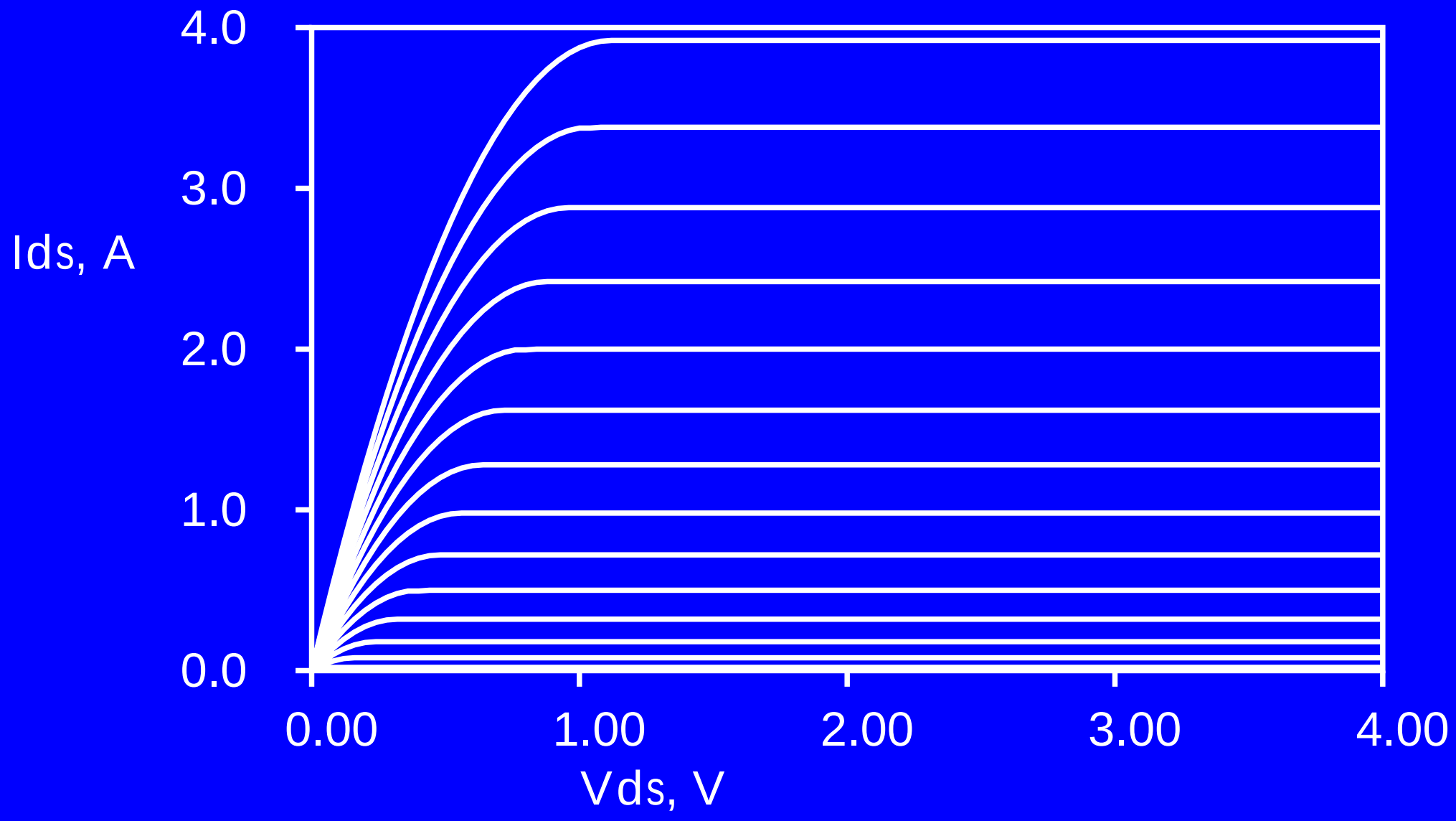
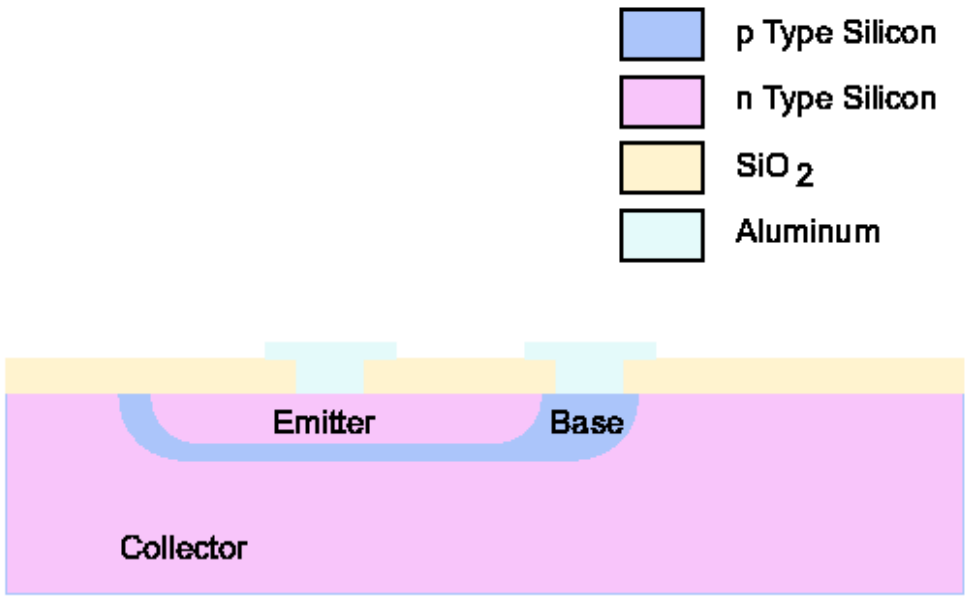
V_T = Threshold Voltage
K = Device Constant
V_{gs} = Gate-to-Source Voltage
V_{ds} = Drain-to-Source Voltage
For $V_{ds} < V_{gs} - V_T$ ("Triode" region):

$$I = K[(V_{gs} - V_T)V_{ds} - 1/2V_{ds}^2$$

For $V_{ds} > V_{gs} - V_T$("Saturation" region):

$$I = (K/2)(V_{gs} - V_T)^2$$

MOSFET Drain Curves



Bipolar Junction Transistor