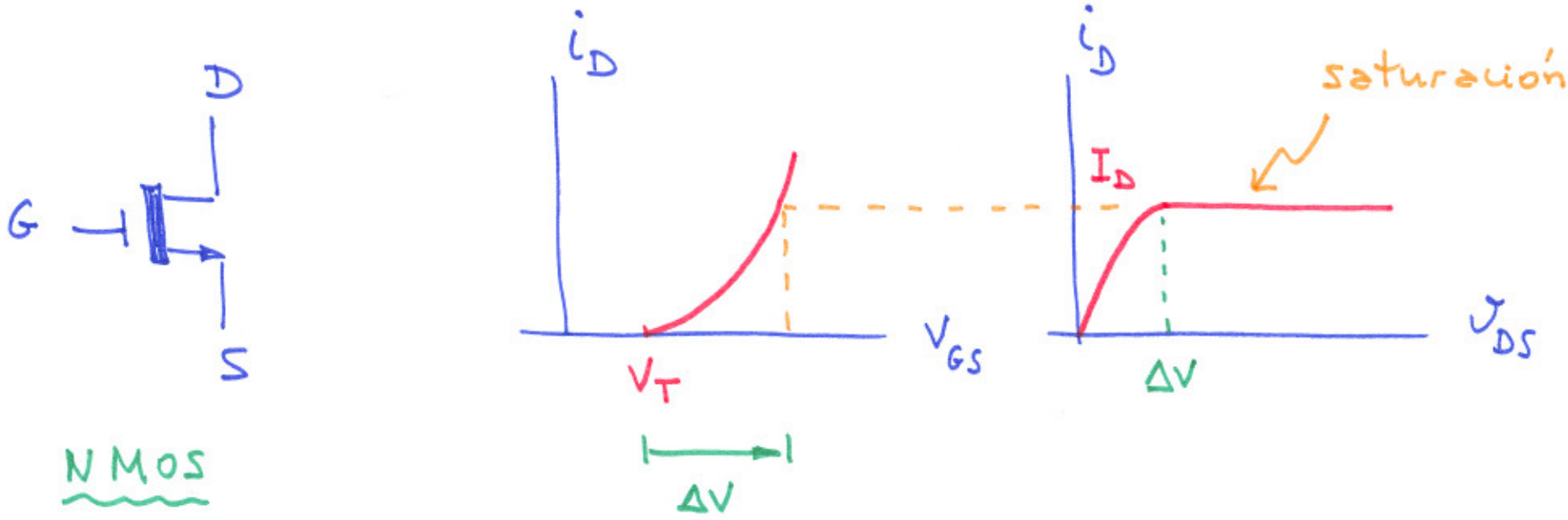
Transistor MOSFET

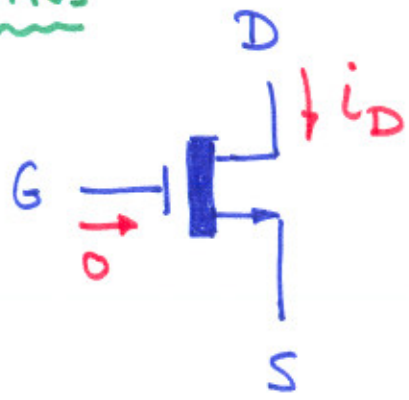


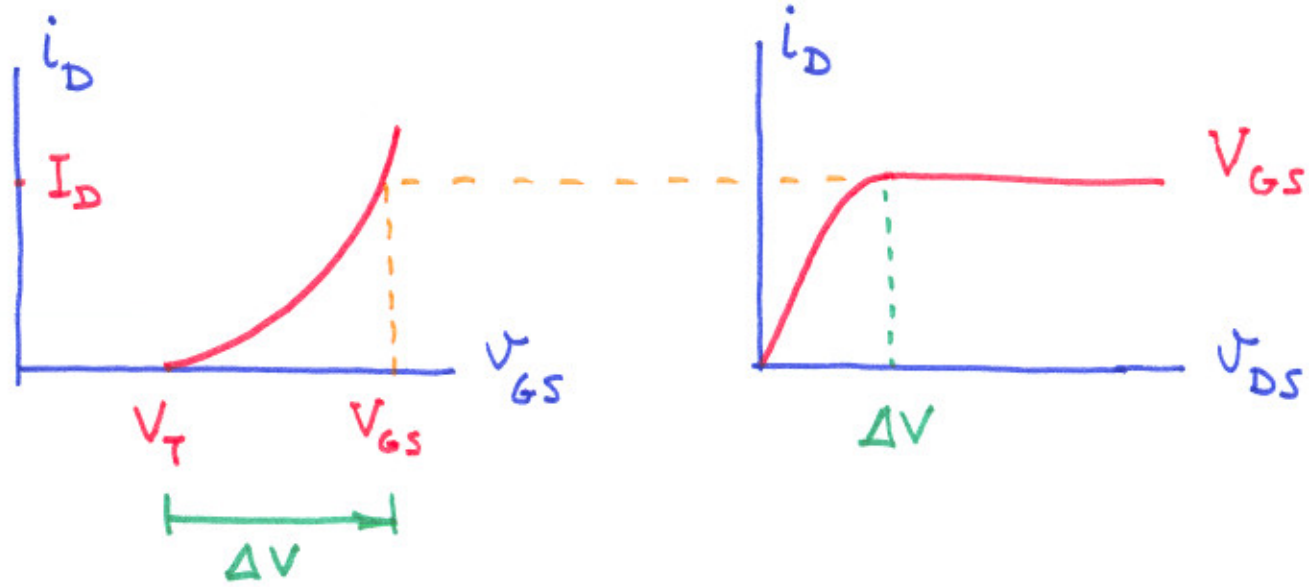
En saturación $\longrightarrow$ $i_D = K\,(v_{GS} - V_T)^2$

- $V_T \equiv$ tensión umbral
- $K \equiv$ factor de escala.

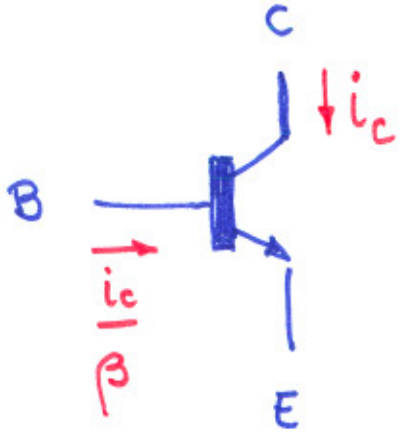
MOSFET versus BJT

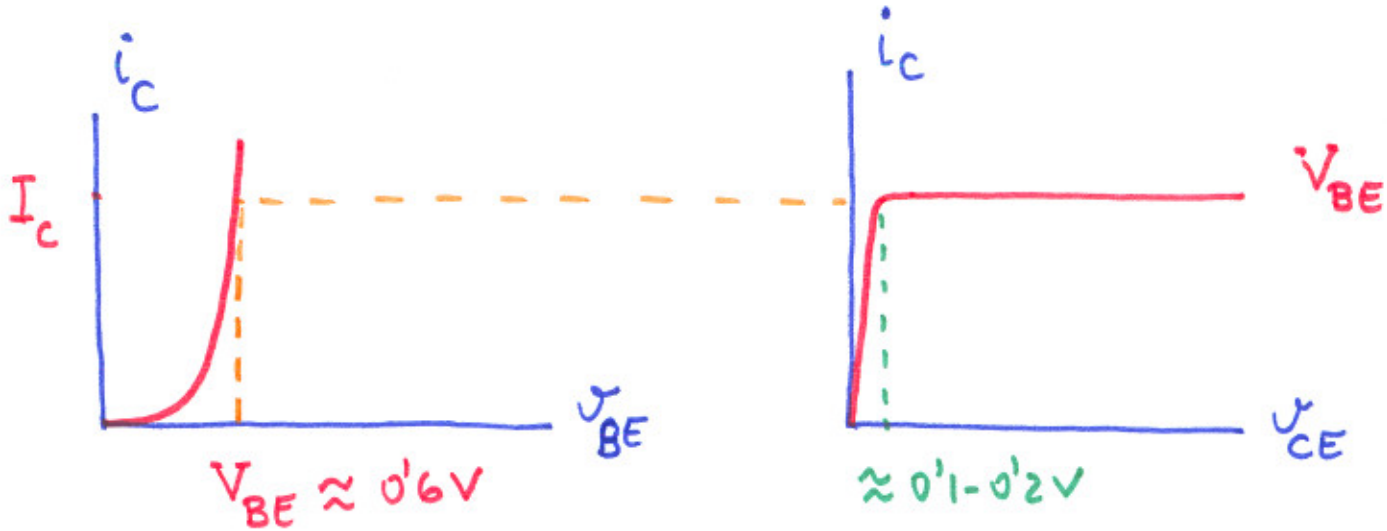
NMOS

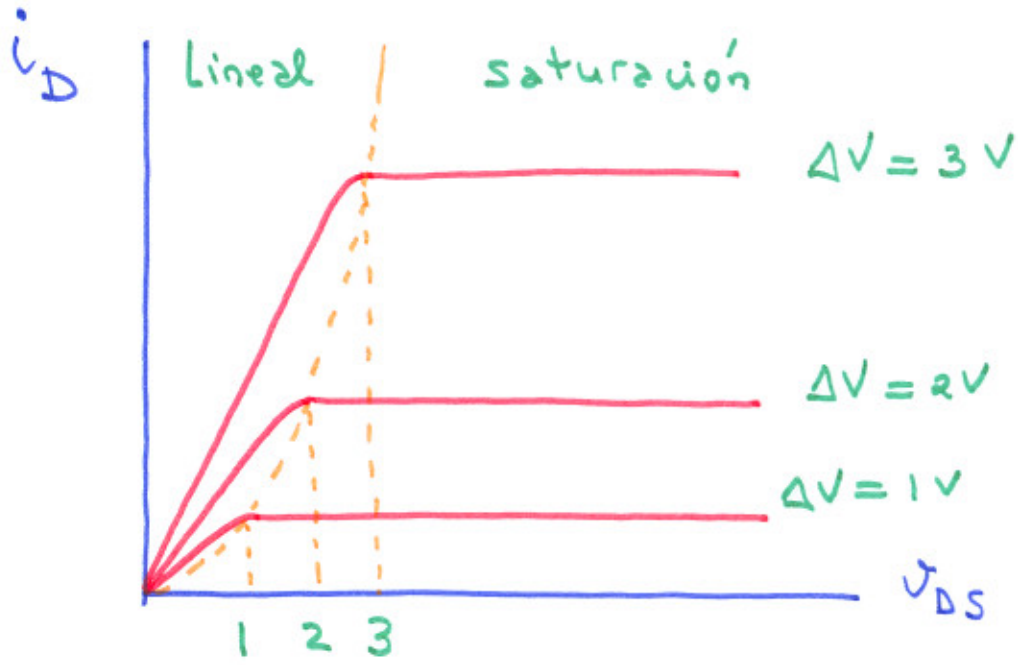


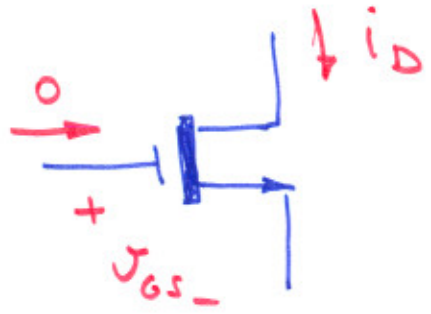


BJT





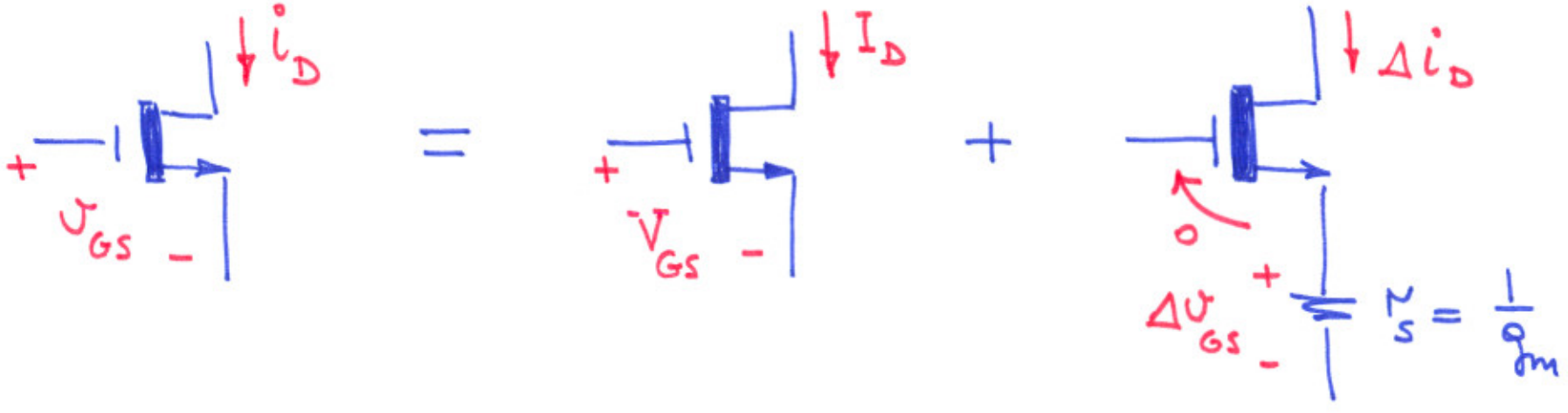




En región lineal $\quad i_D = 2K\left[(v_{GS} - V_T)\,V_{DS} - \frac{v_{DS}^2}{2}\right]$

En región de saturación $\quad i_D = K\,(v_{GS} - V_T)^2$

Modelo de pequeña señal del MOSFET



Comparación de transconductancia

MOS

$$g_m = 2\sqrt{K I_D}$$

BJT

$$g_m = \frac{I_C}{V_T}$$

$V_T \simeq 25\,mV$ @ T_{amb}