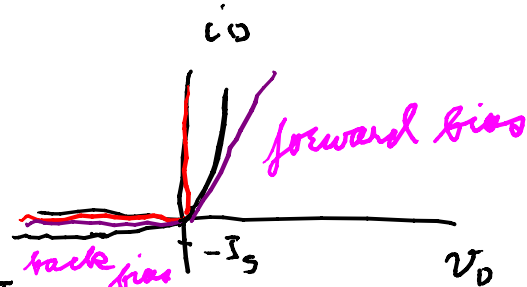


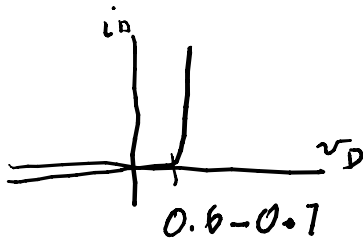
Curves: i_D + anode
diode v_D
- cathode



$v_D \cdot i_D = \text{Power in}$

solid state

$i_D = I_S (e^{+v_D/VT} - 1)$, $V_T = kT/q \approx 26 \text{ mV @ room T}$
↑
temperature



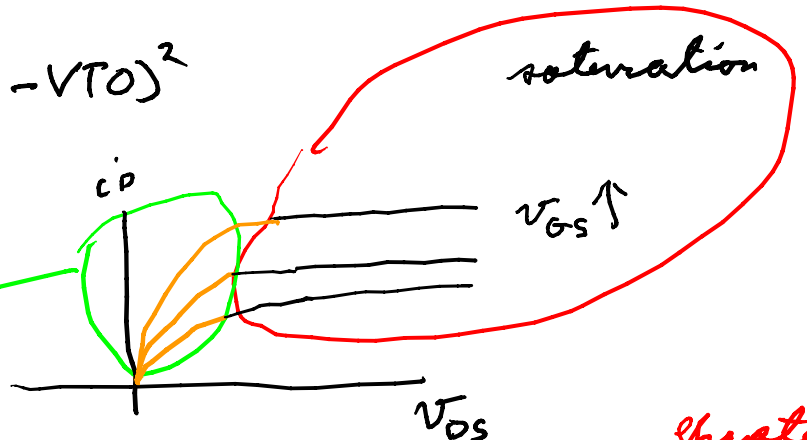
NMOS, $v_{BS} = 0$

$i_D = \frac{K_P}{2} \cdot \frac{W}{L} \{ (v_{GS} - V_{TO})^2$

ohmic

$i_D = \frac{K_P W}{2 L} \{ 2(v_{GS} - V_{TO})v_{DS} - v_{DS}^2$

ohmic triode



looks like a resistor varied by v_{GS}

