

$$L_{min}$$

$$t_{ox}$$

$$N_A$$

$$p^+$$

$$n$$

$$p$$

$$n^+$$

$$x_j$$

Boundary: What is  $I_{DS,sat}$

Triode Region

$$V_{ds} \text{ (V)} \quad I_{ds} \text{ (mA)}$$

$$I_{dstat}$$

$$V_{gs} = 4V$$

$$V_{gs} = 3V$$

$$V_{gs} = 2V$$

$$V_{gs} < V_T$$

$$I_{dstat}$$

$$V_{gs} = -4V$$

$$V_{gs} = -3V$$

$$V_{gs} = -2V$$

$$V_{gs} < -|V_T|$$

$$V_{sd} \text{ (V)} \quad I_{sd} \text{ (mA)}$$

$$I_{dstat}$$

$$V_{sg} = 4V$$

$$V_{sg} = 3V$$

$$V_{sg} = 2V$$

$$V_{sg} < V_T$$

$$L \quad \Delta L \quad L - \Delta L \quad V_{od} = V_{GS} - V_T \quad V_{DS} - V_{od}$$