

VLSI Week 3

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1 Transistor Capacitance

1.1 Gate Capacitance

The gate capacitance is frequently approximated as relative to the ground. The formula for C_{gs} is as follows:

$$C_{gs} = \epsilon_{ox} \frac{W}{L} \quad (1)$$

$$C_{gs} = \frac{2}{3} W L C'_{ox} \quad (2)$$

1.2 Diffusion Capacitances

Refer the the capacitance between the source and body, and drain and body.

The capacitance between the gate and body can be calculated as:

$$C_{gb} = C'_{ox} L_{eff} W_{drawn} \quad (3)$$

