

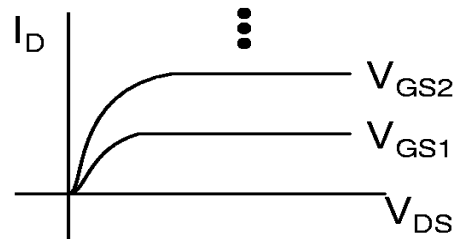
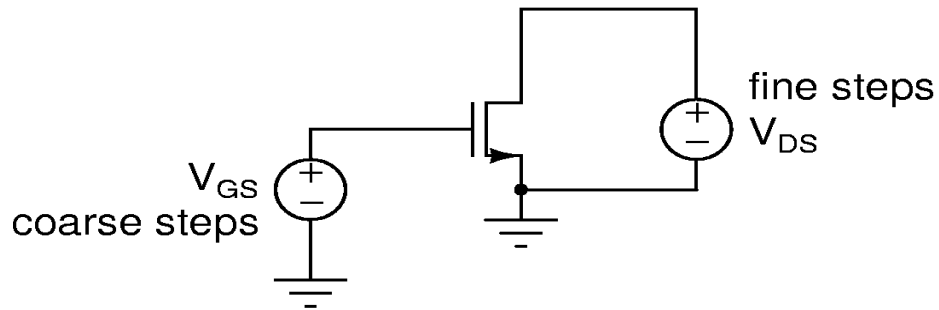
E4332: VLSI Design Laboratory

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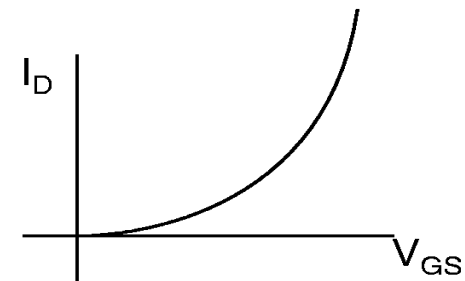
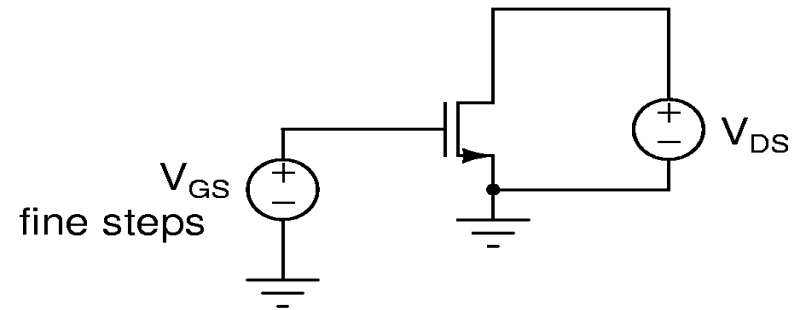
Evaluating a technology

- Specs like f_T given with the technology
 - But measured at max. V_{GS} , V_{DS} etc.
- But need to estimate performance under different conditions.
 - V-I characteristics
 - Loaded ring oscillator speed
 - Differential pairs (loaded)
 - Current mirrors

Evaluating a technology



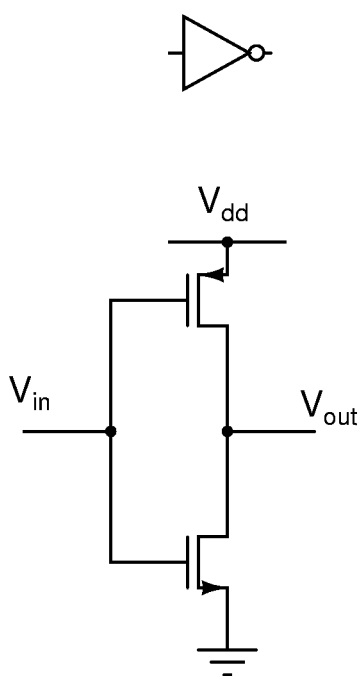
(a) I_D vs. V_{DS}



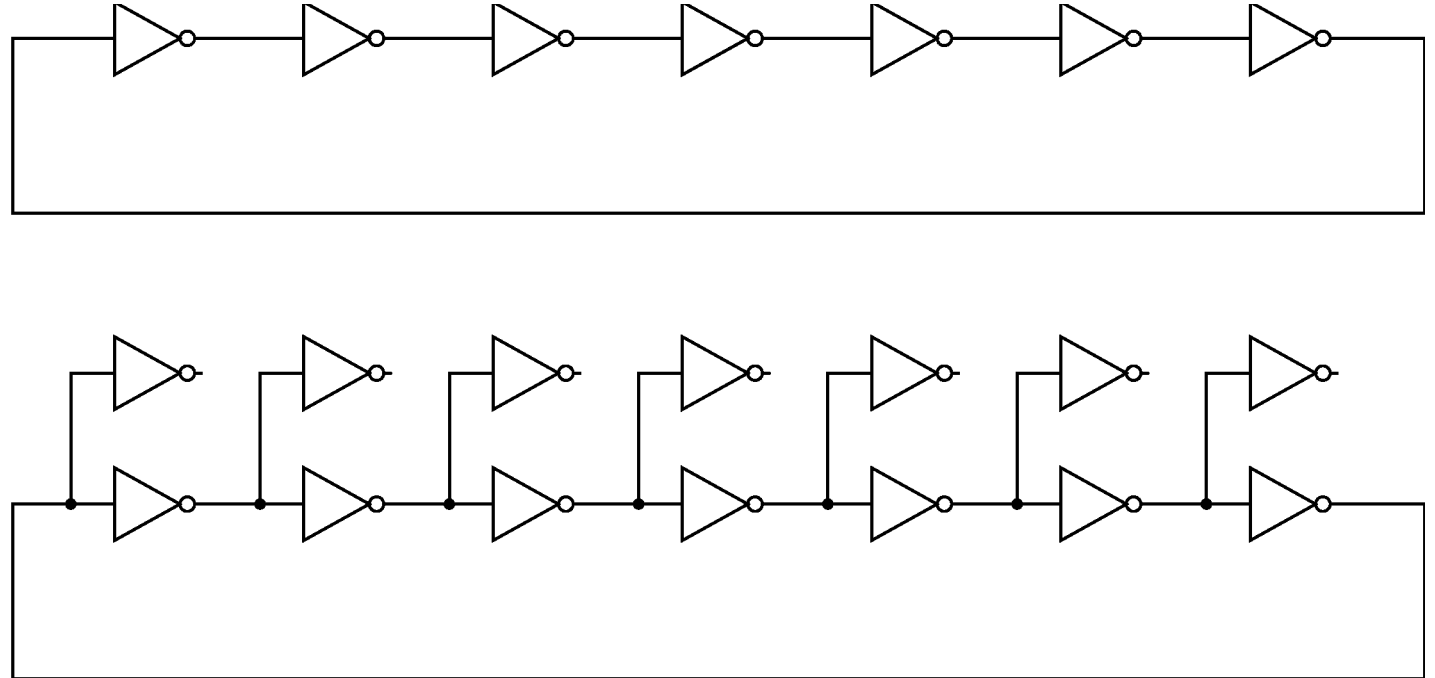
(b) I_D vs. V_{GS}

- DC characteristics, V_{GS} for a given current drive, drain conductance etc.

Evaluating a technology



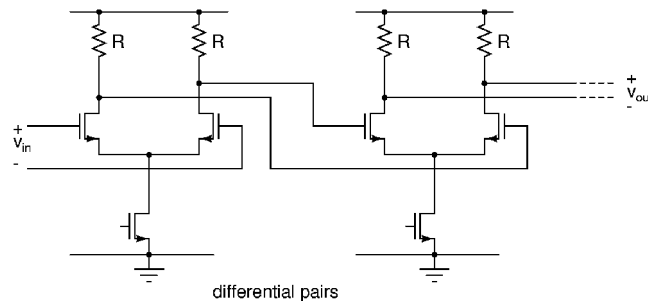
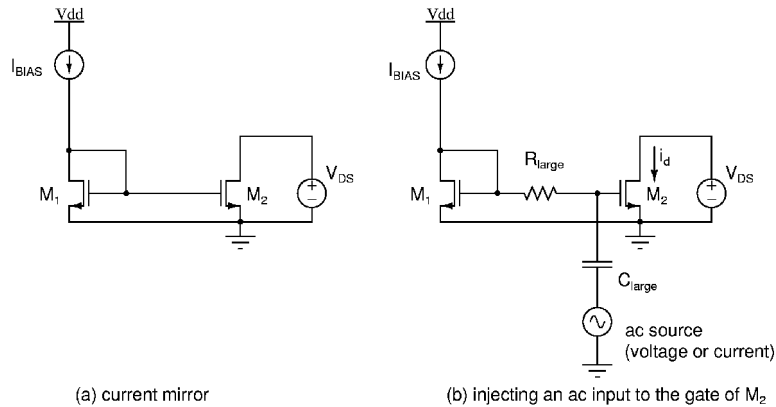
inverter



7 stage ring oscillator

- **Loaded ring oscillator speed**
 - Gate delay, logic speed etc.

Evaluating a technology



- Current mirror: f_T , g_m , g_{ds} under realistic bias
- Differential pairs: amplifier performance