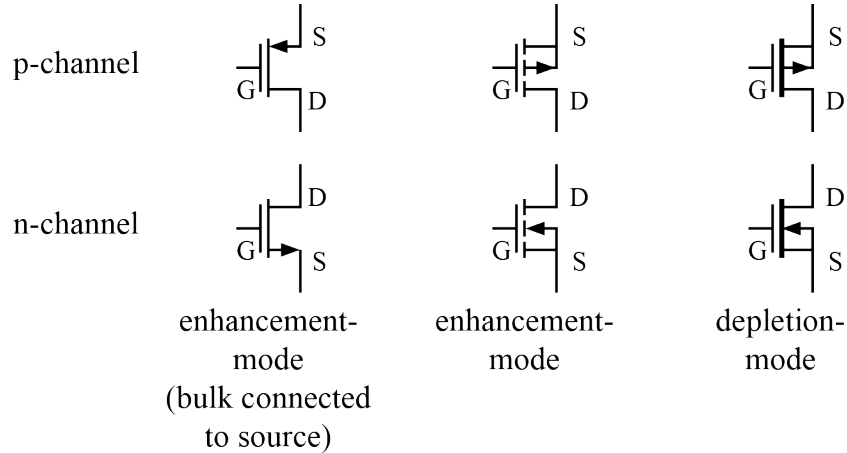
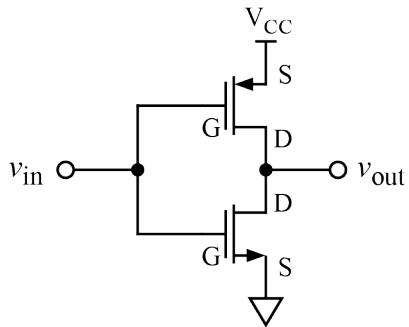


SYMB: MOSFET Symbols



Ex: CMOS Inverter circuit



Truth Table

v_{in}	v_{out}
0	V_{CC}
V_{CC}	0

When the inverter input voltage goes high, the NMOS transistor on the bottom turns on, and the PMOS transistor on top turn off. The Drain-to-Source channel of the NMOS transistor becomes low resistance (essentially a wire), pulling the output voltage low. The Drain-to-Source channel of the PMOS transistor becomes high resistance (essentially an open circuit), allowing the output to go low.

When the inverter input voltage goes low, things are reversed. The PMOS transistor on the top turns on, and the NMOS transistor on top turn off. The Drain-to-Source channel of the PMOS transistor becomes low resistance (essentially a wire), pulling the output voltage high. The Drain-to-Source channel of the NMOS transistor becomes high resistance (essentially an open circuit), allowing the output to go high.

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- REF:** [1] Adel S. Sedra and Kenneth C. Smith, *Microelectronic Circuits, 5th Ed.*, New York, NY: Oxford University Press, 2004.
- [2] Behzad Razavi, *Fundamentals of Microelectronics with Robotics and Bioengineering Applications, 3rd Ed., Enhanced eText*, New York, NY: Wiley, 2021. ISBN: 9781119694397