Metal Oxide Semiconductor Field Effect Transistor (MOSFET)

Presence of voltage = 1
Absence = 0
Serve as switches (logic elements)

• n-type

Input: 1
Switch closed

Input: 0
Switch open
- p-type $V_{dd}$

$\hat{S}$

$G \quad D$

Operation:

Input = 1

Switch open

Input = 0

Switch closed

Input | Switch
-----|-----
0 | On
1 | Off

CMOS (Complementary MOS)

Logic Gates

1. NOT gate

$\hat{S}$

In | p-type
-----|-------
0 | 1
1 | 0

$V_{dd}$
2) NAND gate

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<th>A</th>
<th>B</th>
<th>NAND (C)</th>
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A → C
B → C
\[ p \leftrightarrow n \]

- P types are in series, corresponding n-types are in parallel.

- P types are in parallel, n and n are in series.
Complete circuit using the complementarity principle

2) NOR gate
3) NOR gate
3-input AND

A
B
C

A and B and C

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