DLD Sessional - 01

Introduction to Basic Gates

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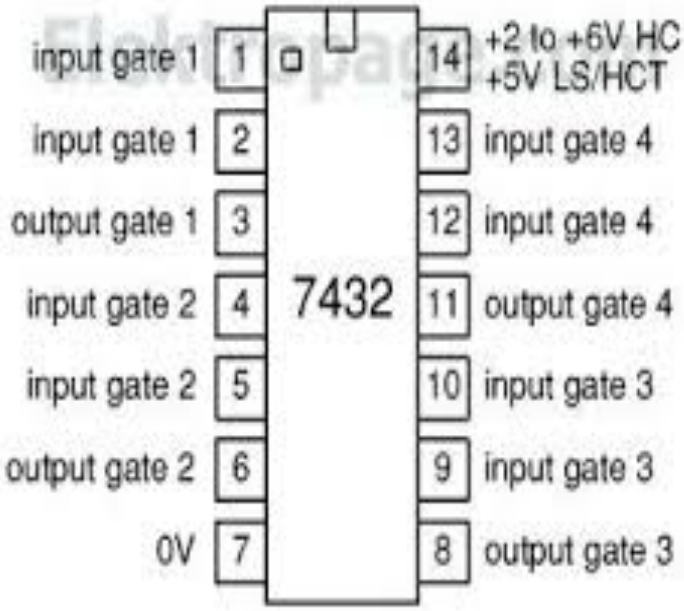
Basic Gates

- AND gate
- OR gate
- NOT gate

An IC


SN74LS32N
HLF®
1708


7432
input gate 1
1
input gate 1
2
output gate 1
3
input gate 2
4
input gate 2
5
output gate 2
6
0V
7
14
+2 to +6V HC
+5V LS/HCT
13
input gate 4
12
input gate 4
11
output gate 4
10
input gate 3
9
input gate 3
8
output gate 3

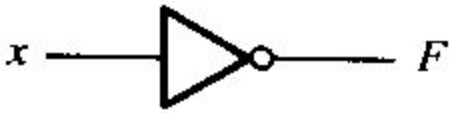
IC number of Basic Gates

- 7408 2-Input AND gate
- 7432 2-Input OR gate
- 7404 2-Input NOT gate

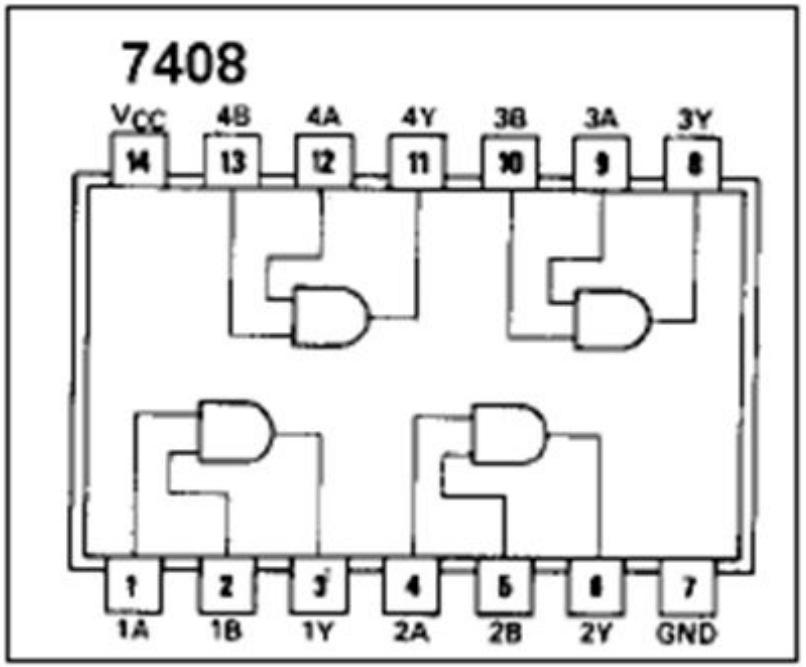
AND, OR

Name	Graphic symbol	Algebraic function	Truth table
AND		$F = xy$	x y | F 0 0 | 0 0 1 | 0 1 0 | 0 1 1 | 1
OR		$F = x + y$	x y | F 0 0 | 0 0 1 | 1 1 0 | 1 1 1 | 1

NOT

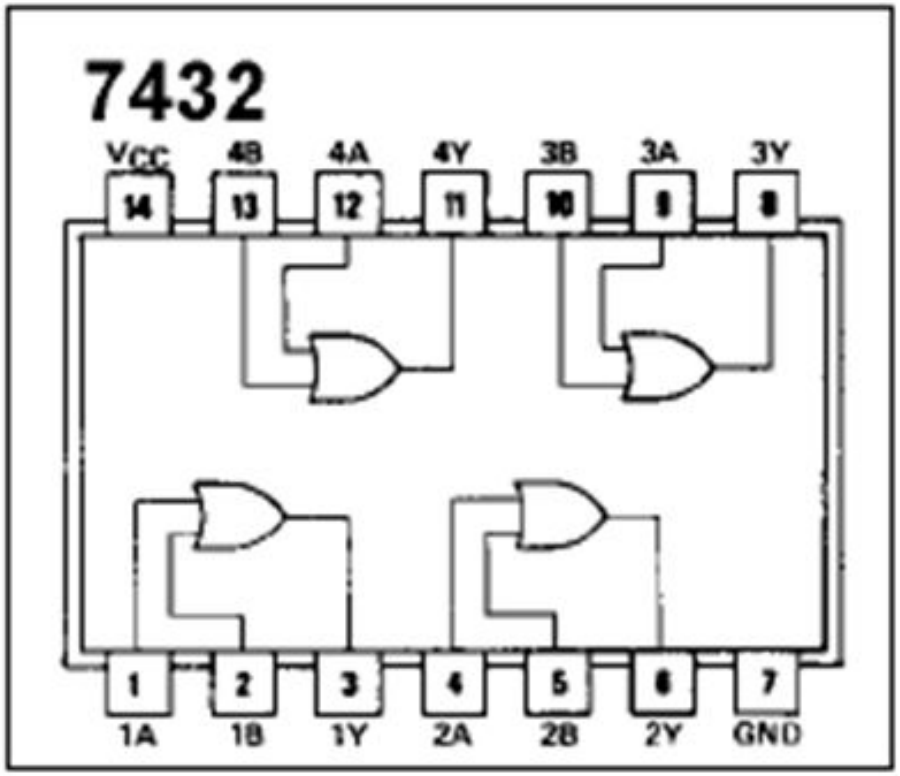
Name	Graphic symbol	Algebraic function	Truth table
Inverter		$F = x'$	x | F 0 | 1 1 | 0

AND



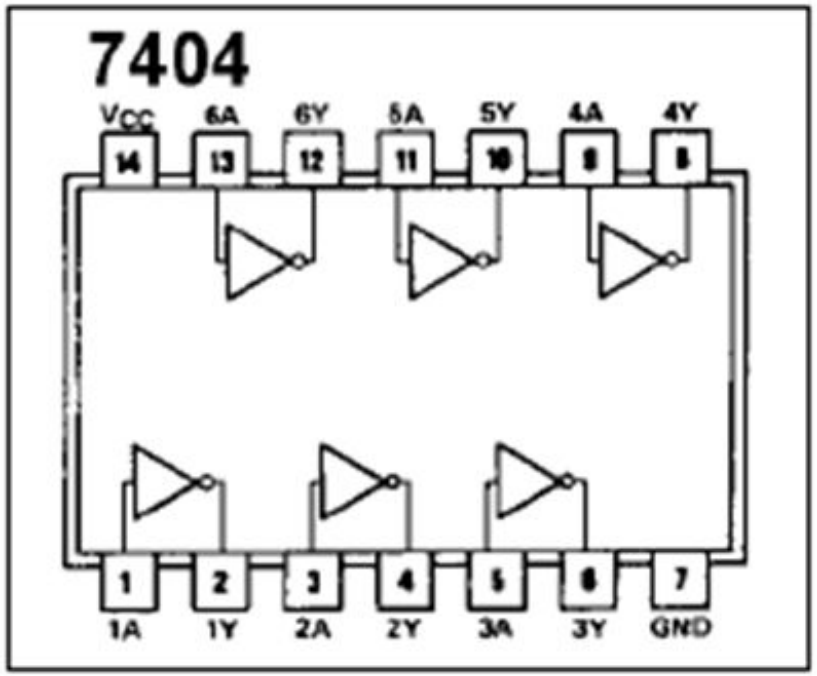
2 INPUT AND GATE

OR



2 INPUT OR GATE

NOT


7404
VCC
6A
6Y
5A
5Y
4A
4Y
14
13
12
11
10
9
8
1
2
3
4
5
6
7
1A
1Y
2A
2Y
3A
3Y
GND

NOT GATE

Additional Gates

- NAND
- NOR
- XOR

XOR

Name	Graphic symbol	Algebraic function	Truth table
Exclusive-OR (XOR)		$F = xy' + x'y$ $= x \oplus y$	x y F 0 0 0 0 1 1 1 0 1 1 1 0

Report

- Question/Answer
- IC Diagram
- IC Requirement
- Truth Table
- Circuit Diagram