

## Quad 2-input gates

- 7400 quad 2-input NAND
- 7403 quad 2-input NAND with open collector outputs
- 7408 quad 2-input AND
- 7409 quad 2-input AND with open collector outputs
- 7432 quad 2-input OR
- 7486 quad 2-input EX-OR
- 74132 quad 2-input NAND with Schmitt trigger inputs
- 7402 quad 2-input NOR
  - Note the unusual gate layout.

## Triple 3-input gates

- 7410 triple 3-input NAND
- 7411 triple 3-input AND
- 7412 triple 3-input NAND with open collector outputs
- 7427 triple 3-input NOR

## Dual 4-input gates

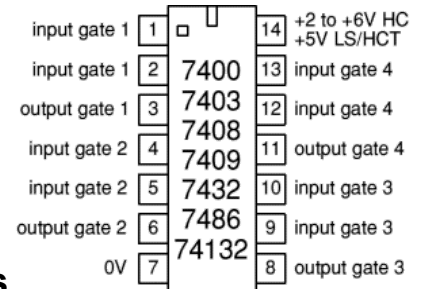
- 7420 dual 4-input NAND
- 7421 dual 4-input AND

## 7430 8-input NAND gate

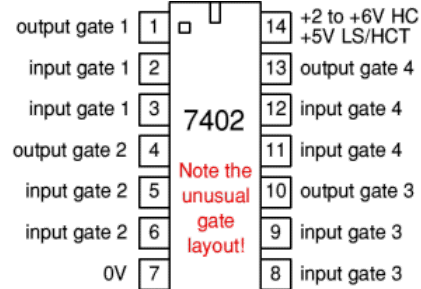
NC = No Connection (a pin that is not used).

## Hex NOT gates

- 7404 hex NOT
- 7405 hex NOT with open collector outputs
- 7414 hex NOT with Schmitt trigger inputs

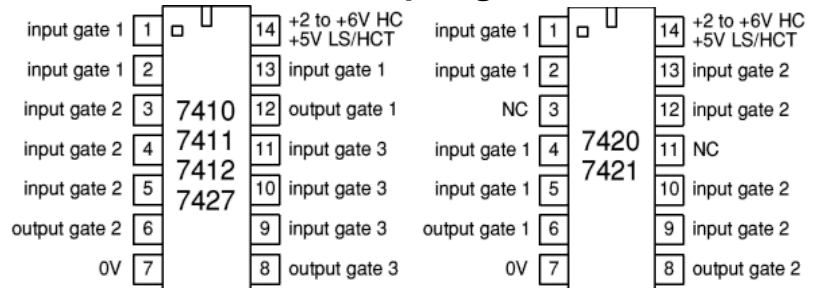


## Quad 2-input gates

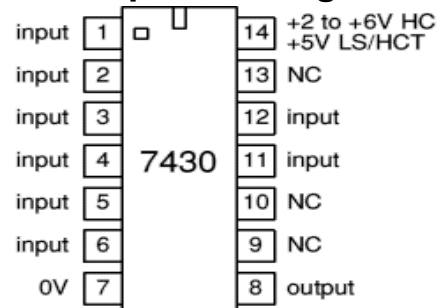


## Triple 3-input gates

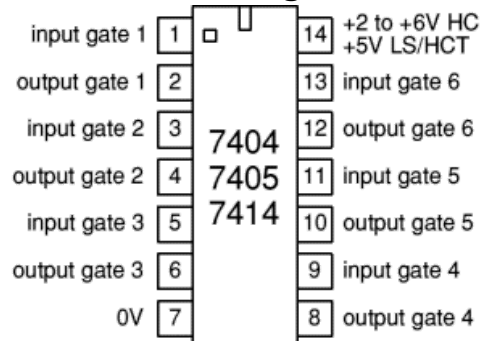
## Dual 4-input gates



## 7430 8-input NAND gate



## Hex NOT gates



**General characteristics** - There are several families of logic ICs numbered from 74xx00 onwards with letters (xx) in the middle of the number to indicate the type of circuitry, eg 74LS00 and 74HC00. The original family (now obsolete) had no letters, eg 7400.

The **74LS** (Low-power Schottky) family (like the original) uses TTL (Transistor-Transistor Logic) circuitry which is fast but requires more power than later families. The 74 series is often still called the 'TTL series' even though the latest ICs do not use TTL!

The **74HC** family has High-speed CMOS circuitry, combining the speed of TTL with the very low power consumption of the 4000 series. They are

CMOS ICs with the same pin arrangements as the older 74LS family. Note that 74HC inputs cannot be reliably driven by 74LS outputs because the voltage ranges used for logic 0 are not quite compatible, use 74HCT instead.

The **74HCT** family is a special version of 74HC with 74LS TTL-compatible inputs so 74HCT can be safely mixed with 74LS in the same system. In fact 74HCT can be used as low-power direct replacements for the older 74LS ICs in most circuits. The minor disadvantage of 74HCT is a lower immunity to noise, but this is unlikely to be a problem in most situations.

The CMOS circuitry used in the **74HC** and **74HCT** series ICs means that they are [static sensitive](#). Touching a pin while charged with static electricity (from your clothes for example) may damage the IC. In fact most ICs in regular use are quite tolerant and earthing your hands by touching a metal water pipe or window frame before handling them will be adequate. ICs should be left in their protective packaging until you are ready to use them.