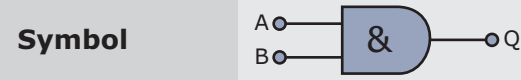


AND Gate

Description A Logic AND Gate has an output which is normally at logic level "0" and only goes "HIGH" to a logic level "1" when all off its inputs are at logic level "1"

Denoted by (.) Logical Multiplication

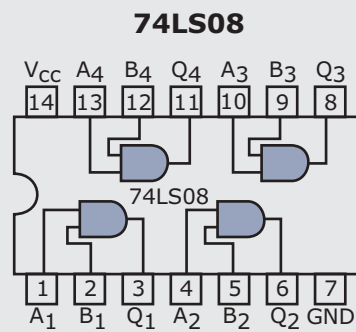
Expression $Q = A \cdot B$



Truth table		
A	B	Q
0	0	0
0	1	0
1	0	0
1	1	1

IC Number

Internal Structure

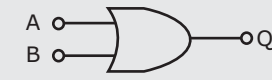


OR Gate

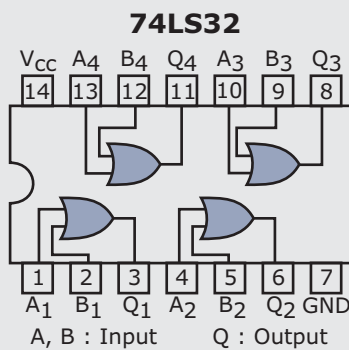
A Logic OR Gate has an output which is normally at logic level "0" and only goes "HIGH" to a logic level "1" when one or more of its inputs are at logic level "1"

(+) Logic Addition

$Q = A + B$



Truth table		
A	B	Q
0	0	0
0	1	1
1	0	1
1	1	1

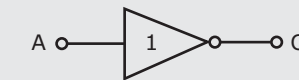


NOT Gate

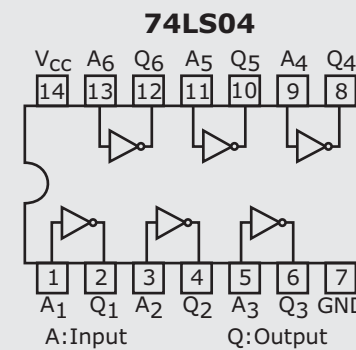
Also referred to as an Inverting Buffer or simply a Digital Inverter. It is a single input device which has an output level that is normally at logic level "1" and goes "LOW" to a logic level "0"

bar

$Q = \bar{A}$



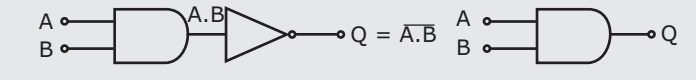
Truth table		
A		Q
0		1
1		0



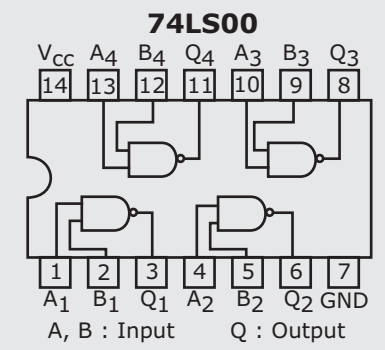
NAND Gate (Universal Gate)

The Logic NAND Gate is a combination of the digital logic AND gate with that of an inverter or NOT gate connected together in series.

$Q = \overline{A \cdot B}$



Truth table		
A	B	Q
0	0	0
0	1	1
1	0	1
1	1	0

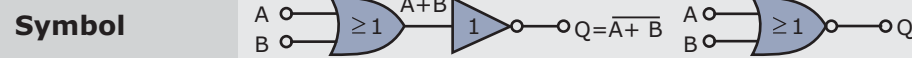


NOR Gate (Universal Gate)

Description The logic NOR Gate or Inclusive-Nor gate is combination of the digital logic OR gate with that of an inverter or NOT gate connected together in series.

Denoted by

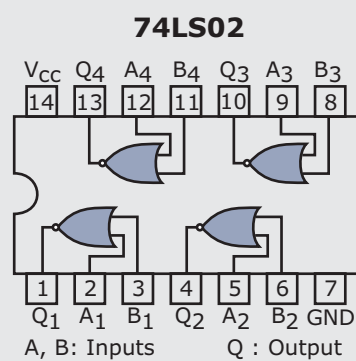
Expression $Q = \overline{A + B}$



Truth table		
A	B	Q
0	0	1
0	1	0
1	0	0
1	1	0

IC Number

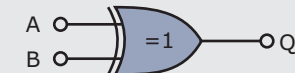
Internal Structure



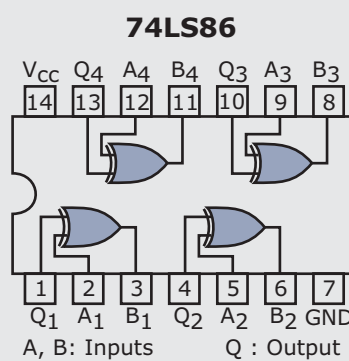
Exclusive-OR (XOR) Gate

Exclusive-OR gate ONLY goes "HIGH" when its two input terminals are at different logic level with respect to each other and they can both be at logic level "1" or both at logic level "0"

$Q = (A \oplus B) = \bar{A} \cdot B + A \cdot \bar{B}$



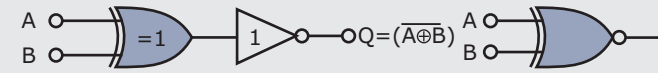
Truth table		
A	B	Q
0	0	0
0	1	0
1	0	1
1	1	0



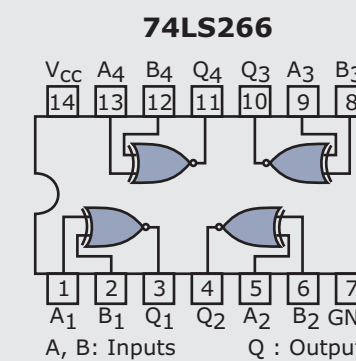
Exclusive-Nor (XNOR) Gate

The Exclusive-NOR Gate function or Ex-NOR for short, is a digital logic gate that is the reverse or complementary form of the Exclusive-OR

$Q = (\overline{A \oplus B}) = \bar{A} \cdot \bar{B} + A \cdot B$

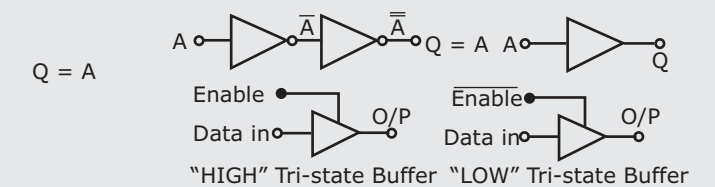


Truth table		
B	A	Q
0	0	1
0	1	0
1	0	0
1	1	1



Digital Buffer

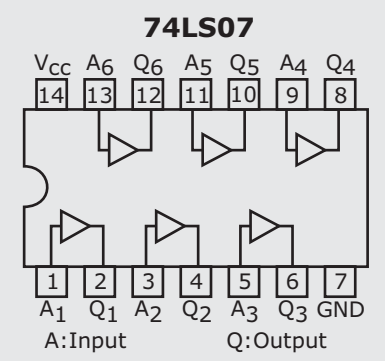
A Digital Buffer is single input device that does not invert or perform any type of logical operation on its input signal as its output exactly matches that of its input



A	Q
0	0
1	1

Truth table		
Enable	A	Q
1	0	0
1	1	1
0	0	Hi-Z
0	1	Hi-Z

Truth table		
Enable	A	Q
0	0	0
0	1	1
1	0	Hi-Z
1	1	Hi-Z



33505
Logic Lab



33514
Logic Gates Circuit
Trainer



38609
Logic Tutor Board



38616
Logic Training Board on
Counters & Shift Registers



38624
Study of OR, AND, NOT
Logic Gates



38626
Study of Universal
Logic Gates



38690
Sequential Logic Tutor



38691
Logic Gates Tutor