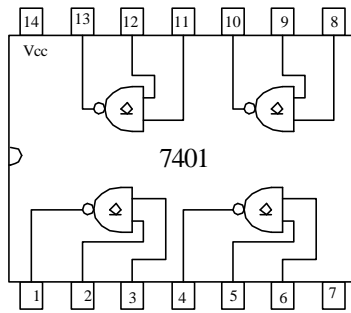
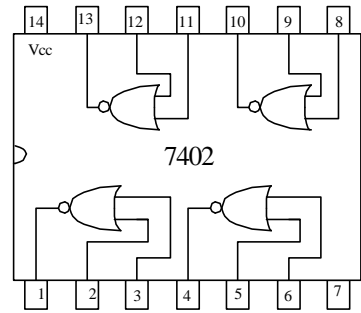


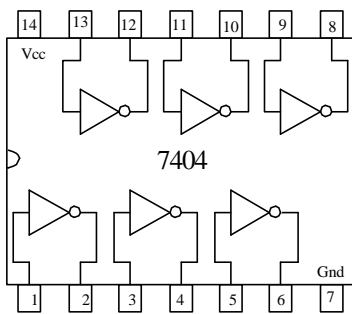
**7400 Quad 2-input NAND**



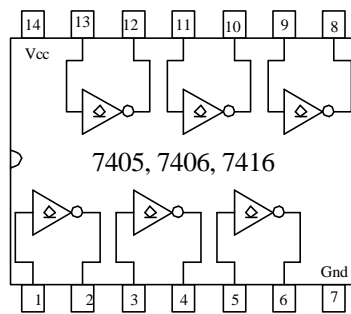
**7401 Quad 2-input NAND**  
(open-collector outputs)



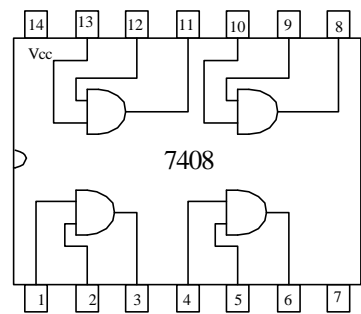
**7402 Quad 2-input NOR**



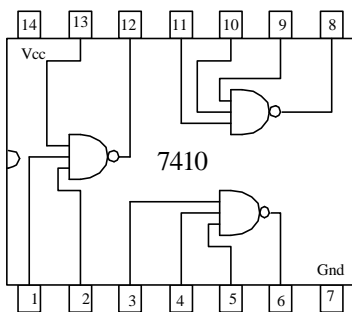
**7404 Hex Inverter**



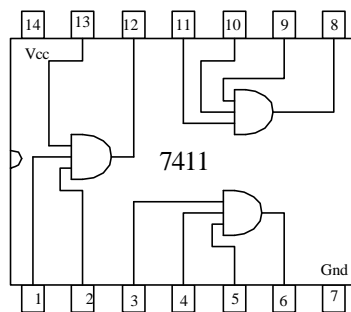
**7405, 7406, 7416 Hex Inverter**  
(open-collector outputs)



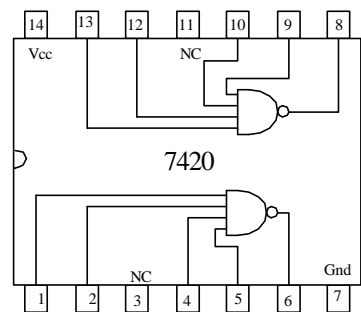
**7408 Quad 2-input AND**



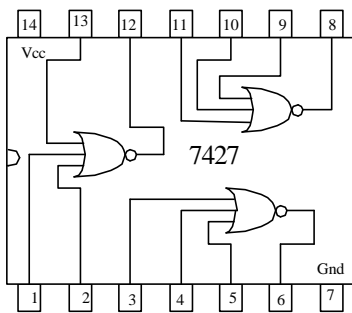
**7410 Triple 3-input NAND**



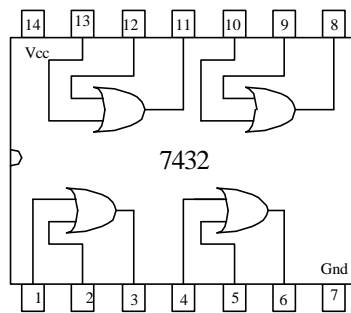
**7411 Triple 3-input AND**



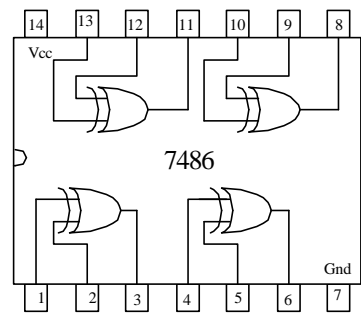
**7420 Dual 4-input NAND**



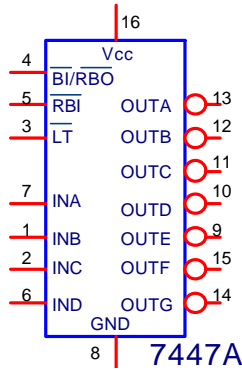
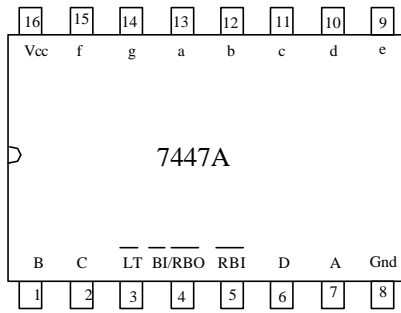
**7427 Triple 3-input NOR**



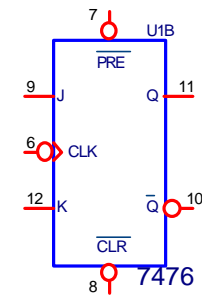
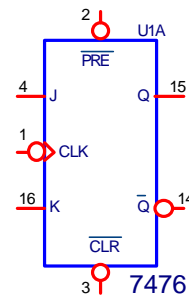
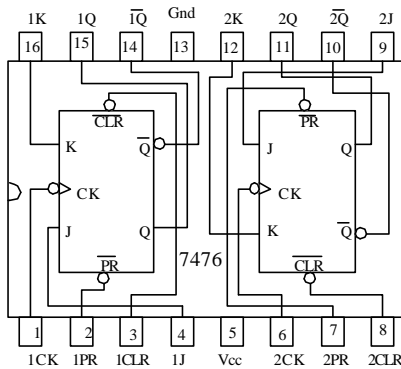
**7432 Quad 2-input OR**



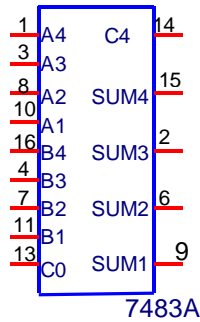
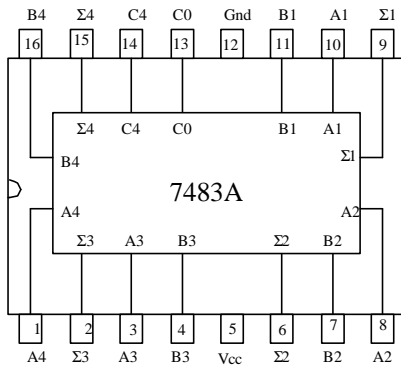
**7486 Quad 2-input Exclusive-OR**



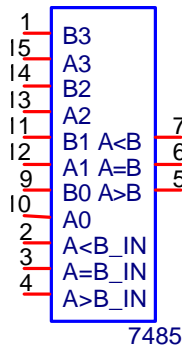
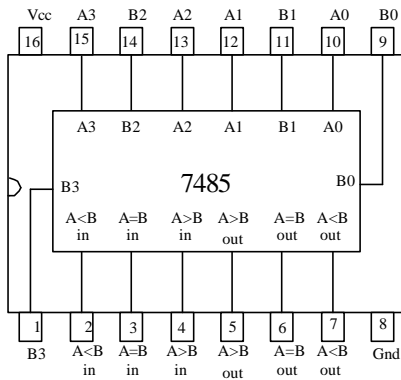
**7447A BCD to 7-segment decoder/driver: Pinout and Logic Symbol**



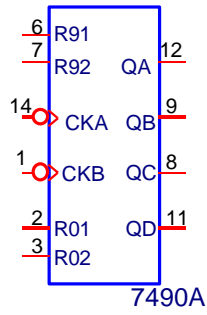
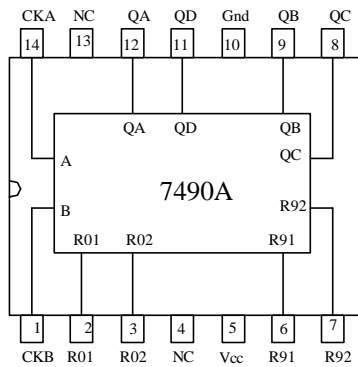
**7476 Dual JK Flip-Flop: Pinout and Logic Symbols**



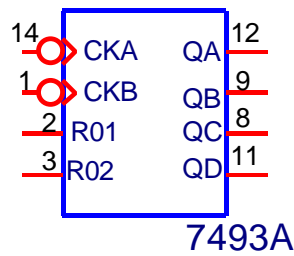
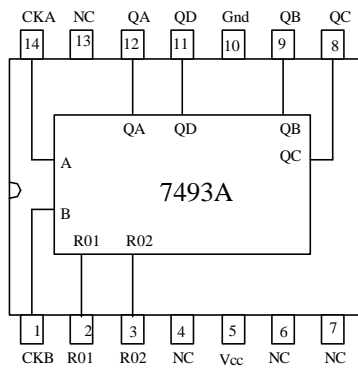
**7483A 4-Bit Adder: Pinout and Logic Symbol**



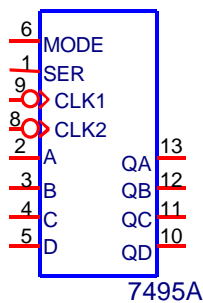
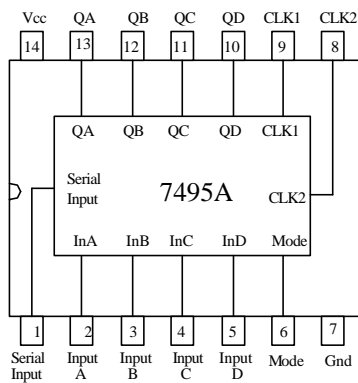
**7485 4-Bit Magnitude Comparator: Pinout and Logic Symbol**



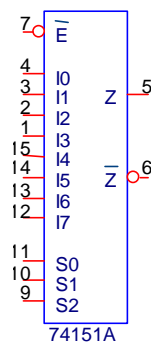
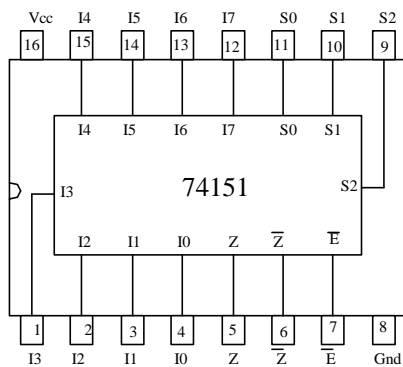
**7490A Decade Counter: Pinout and Logic Symbol**



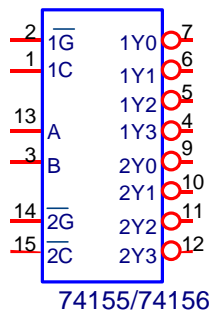
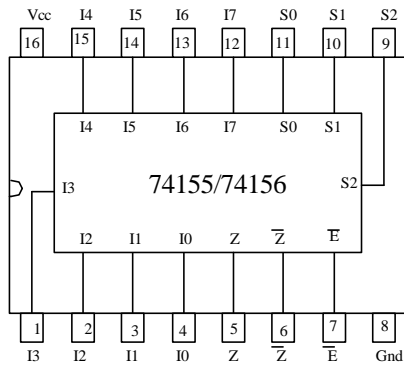
**7493A 4-Bit Binary Counter: Pinout and Logic Symbol**



**7495A 4-Bit Parallel-Load Shift Register: Pinout and Logic Symbol**

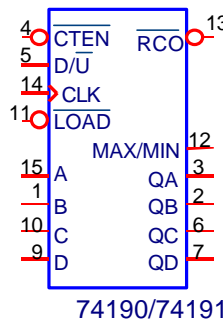
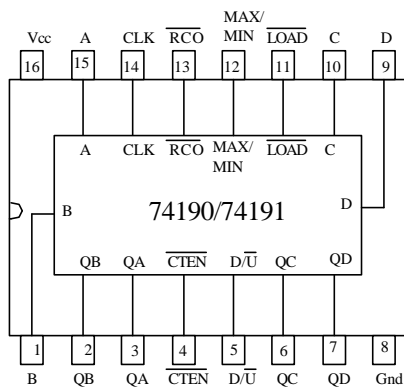


**74151 8x1 Data Selector/Multiplexer: Pinout and Logic Symbol**



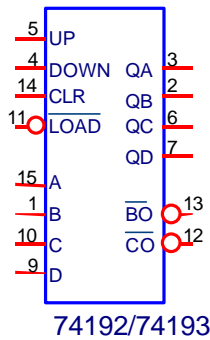
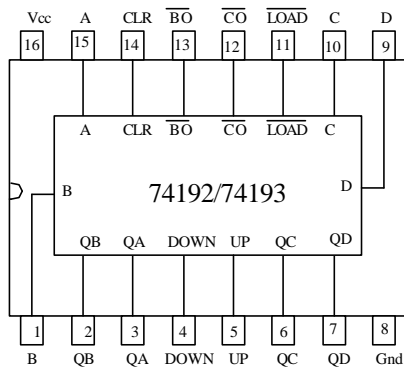
74155 – Totem Pole Outputs  
74156 – Open-Collector Outputs

74155/74156 Dual 2-Line To 4-Line Decoder/Demultiplexer: Pinout and Logic Symbol



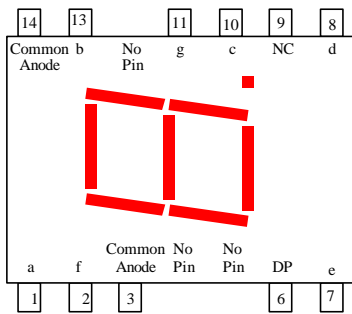
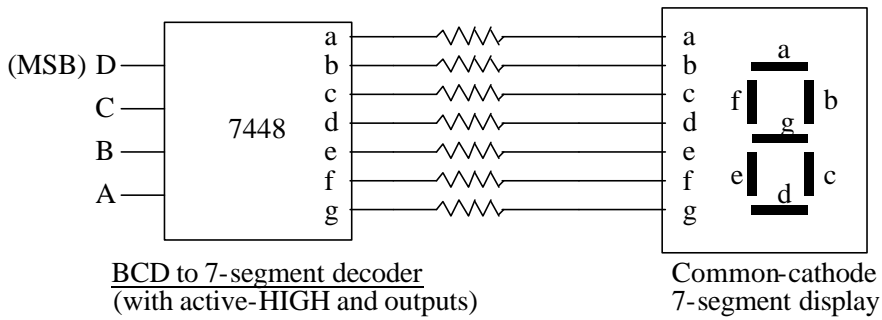
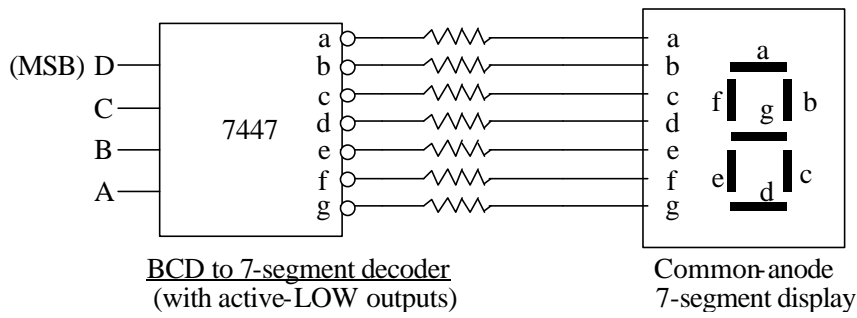
74190 – BCD Counter  
74191 – 4-Bit Binary Counter

74190/74191 Synchronous Up/Down Counter: Pinout and Logic Symbol

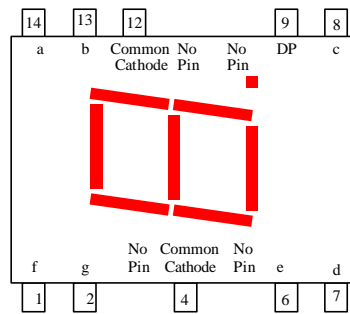


74192 – BCD Counter  
74193 – 4-Bit Binary Counter

74192/74193 Synchronous Up/Down Counter: Pinout and Logic Symbol



**MAN72A Common Anode 7-segment Display**  
(common anode connection to Vcc)

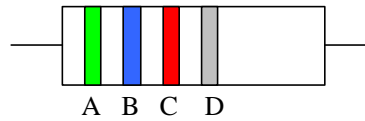


**MAN74A Common Cathode 7-segment Display**  
(common cathode connection to ground)

## Resistor Color Code

Carbon resistors are typically color-coded using four colored bands labeled A, B, C, and D as indicated below.

Bands A, B, C		Band D	
Black	0	Gold	5%
Brown	1	Silver	10%
Red	2	No band	20%
Orange	3		
Yellow	4		
Green	5		
Blue	6		
Violet	7		
Gray	8		
White	9		
Gold	-1		
Silver	-2		

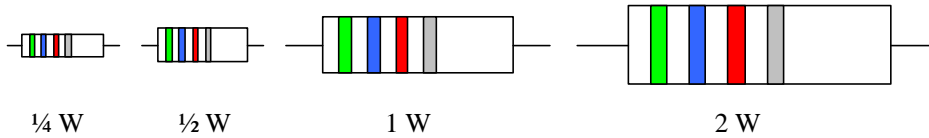


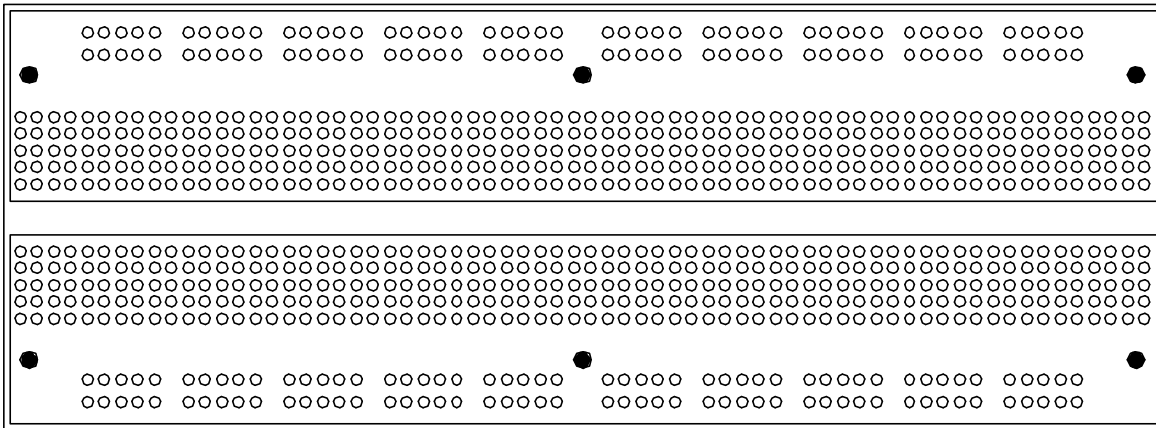
A – First significant digit  
 B – Second significant digit  
 C – Exponent  
 D – Tolerance

Resistance value:  $R = AB \times 10^C$

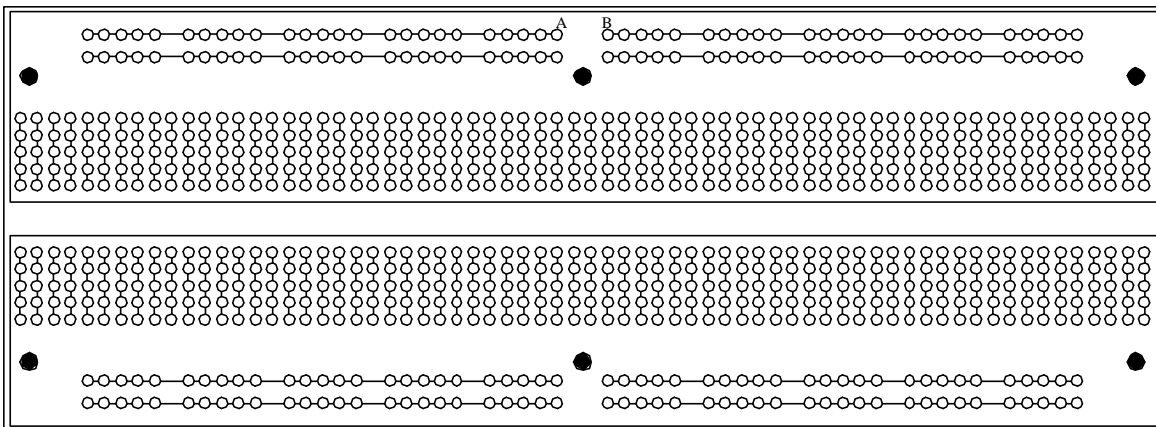
Ex: Green, Blue, Red, Silver  
 $R = 56 \times 10^2 = 5.6 \text{ k}\Omega$ , 10% tolerance

The size of a carbon resistor indicates its power rating.





**SK-10 Solderless Breadboard (or equivalent)**



**Internal Connections on the SK-10 Solderless Breadboard**

- Notes:
- 1) Lines indicate which holes are connected under the breadboard.
  - 2) To connect two or more wires together, plug them in the same row of holes.
  - 3) Holes A and B are connected on some breadboards (as well as the similar holes on the other horizontal rows).

**Example:** Connect the following circuit using the SK-10 solderless breadboard.

