UNITED STATES
AIR FORCE
ACADEMY

ECE 281
Lesson 10

UNITED STATES AIR FORCE ACADEMY

Lesson 10 Outline

- **Do Time Logs!**
- **Lab 1 In-class**

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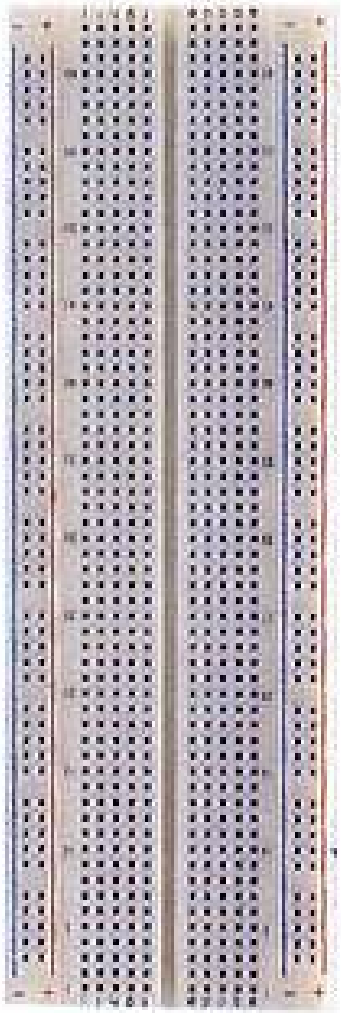
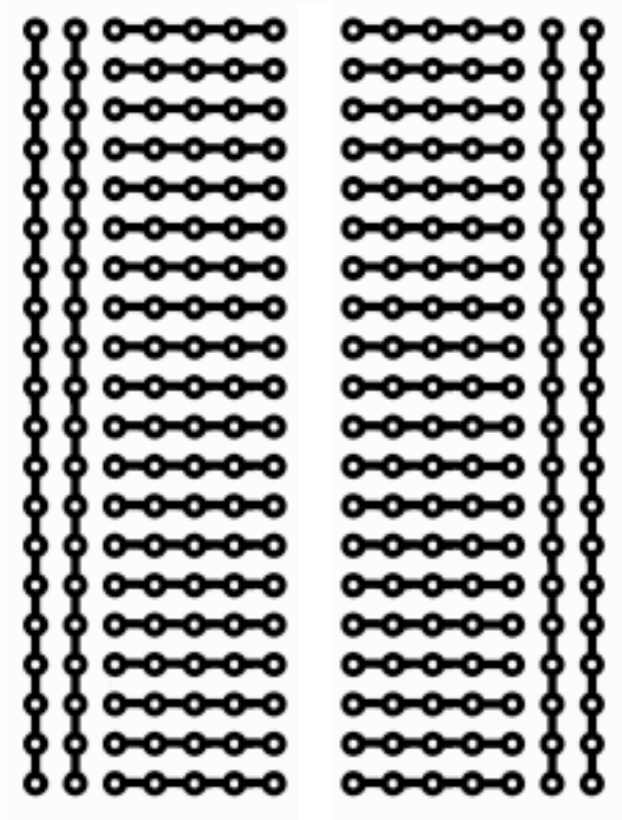
Breadboards 101





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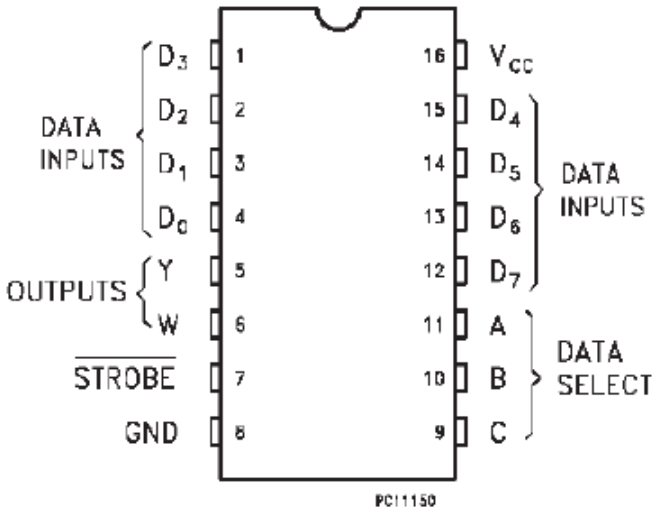
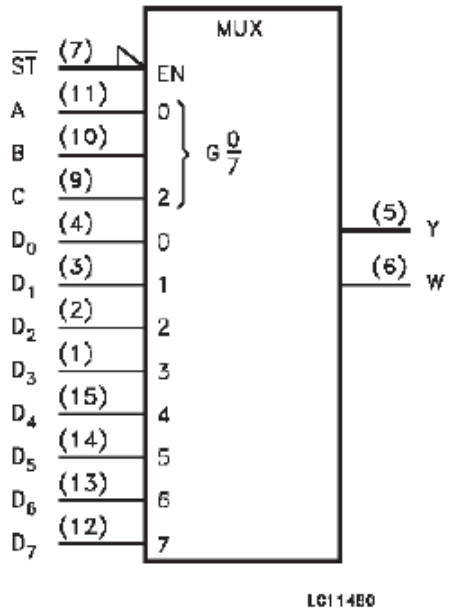
8:1 Multiplexer (PN 74151)





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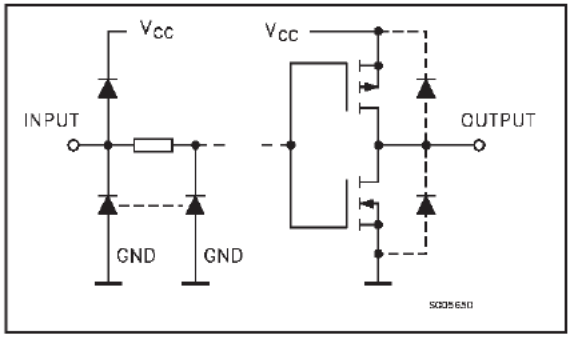
8:1 Multiplexer (PN 74151)

INPUT AND OUTPUT EQUIVALENT CIRCUIT



PIN DESCRIPTION

PIN No	SYMBOL	NAME AND FUNCTION
4, 3, 2, 1, 15, 14, 13, 12	D_0 to D_7	Multiplexer Inputs
5	Y	Multiplexer Output
6	W	Complementary Multiplexer Output
7	$\overline{STROBE}$	Strobe Input
11, 10, 9	A, B, C	Select Inputs
8	GND	Ground (0V)
16	V_{CC}	Positive Supply Voltage

TRUTH TABLE

INPUTS				OUTPUTS	
SELECT			$\overline{STROBE}$	Y	W
C	B	A	S		
X	X	X	H	L	H
L	L	L	L	D_0	$\overline{D_0}$
L	L	H	L	D_1	$\overline{D_1}$
L	H	L	L	D_2	$\overline{D_2}$
L	H	H	L	D_3	$\overline{D_3}$
H	L	L	L	D_4	$\overline{D_4}$
H	L	H	L	D_5	$\overline{D_5}$
H	H	L	L	D_6	$\overline{D_6}$
H	H	H	L	D_7	$\overline{D_7}$

X : Don't Care

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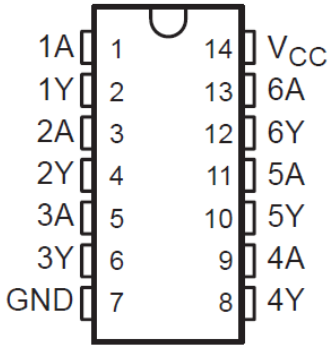
Hex NOT (PN 7404)

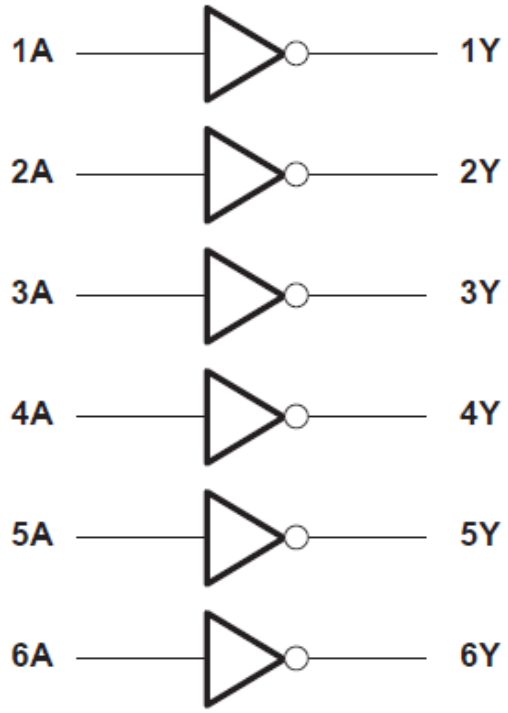
SN5404 . . . J PACKAGE
SN54LS04, SN54S04 . . . J OR W PACKAGE
SN7404, SN74S04 . . . D, N, OR NS PACKAGE
SN74LS04 . . . D, DB, N, OR NS PACKAGE
(TOP VIEW)



FUNCTION TABLE
(each inverter)

INPUT A	OUTPUT Y
H	L
L	H

logic diagram (positive logic)



$Y = \overline{A}$

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Tips

- **Test as you go**
  - **Connect ground and power first**
  - **Test one chip at a time**
  - **Then connect chips together**
- **Keep wires as flat and straight as possible**
- **Do not cross wires if you can avoid it**

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