

IN7440

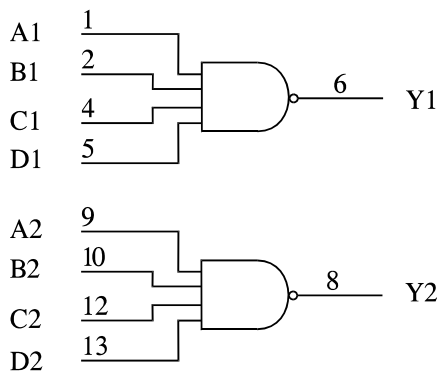
Dual 4-Input Positive-NAND Buffers

N SUFFIX
PLASTIC

D SUFFIX
SOIC

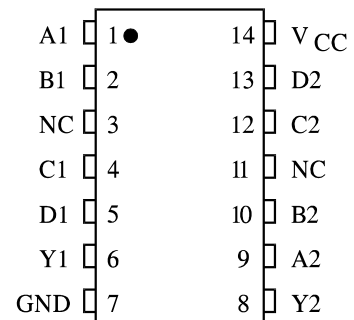
ORDERING INFORMATION
IN7440N Plastic
IN7440D SOIC
T_A = -10° to 70° C for all packages

LOGIC DIAGRAM



PIN 14 = V_{CC}
PIN 7 = GND

PIN ASSIGNMENT



NC - No internal connection

FUNCTION TABLE

Inputs				Output
A	B	C	D	Y
L	X	X	X	H
X	L	X	X	H
X	X	L	X	H
X	X	X	L	H
H	H	H	H	L

X = don't care

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V _{CC}	Supply Voltage	7.0	V
V _{IN}	Input Voltage	5.5	V
I _{OL}	Low Level Output Current	48	mA
T _{stg}	Storage Temperature Range	-65 to +150	°C

*Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V _{CC}	Supply Voltage	4.75	5.25	V
V _{IH}	High Level Input Voltage	2.0		V
V _{IL}	Low Level Input Voltage		0.8	V
I _{OH}	High Level Output Current		-1.2	mA
I _{OL}	Low Level Output Current		48	mA
T _A	Ambient Temperature Range	-10	+70	°C

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Test Conditions	Guaranteed Limit		Unit
			Min	Max	
V _{IK}	Input Clamp Voltage	V _{CC} = min, I _{IN} = -10 mA		-1.5	V
V _{OH}	High Level Output Voltage	V _{CC} = min, I _{OH} = max	2.4		V
V _{OL}	Low Level Output Voltage	V _{CC} = min, I _{OL} = max		0.4	V
I _I	Input Current at Maximum Input Voltage	V _{CC} = max, V _{IN} = 5.5 V		1	mA
I _{IH}	High Level Input Current	V _{CC} = max, V _{IN} = 2.4 V		40	μA
I _{IL}	Low Level Input Current	V _{CC} = max, V _{IN} = 0.4 V		-1.6	mA
I _{OS} *	Short-Circuit Output Current		-18	-70	mA
I _{CC}	Supply Current	V _{CC} = max	Outputs High	8	mA
			Outputs Low	27	

*Not more than one output should be shorted at a time, and duration of the short-circuit should not exceed one second.

AC ELECTRICAL CHARACTERISTICS ($T = 25^{\circ}\text{C}$, $V_{\text{CC}} = 5.0\text{ V}$, $C_L = 15\text{ pF}$, $R_L = 130\ \Omega$, Input $t_r = t_f = 10\text{ ns}$)

Symbol	Parameter	Min	Max	Unit
t_{PLH}	Propagation Delay Time, Low to High Level Output (from Input to Output)		22	ns
t_{PHL}	Propagation Delay Time, High to Low Level Output (from Input to Output)		15	ns

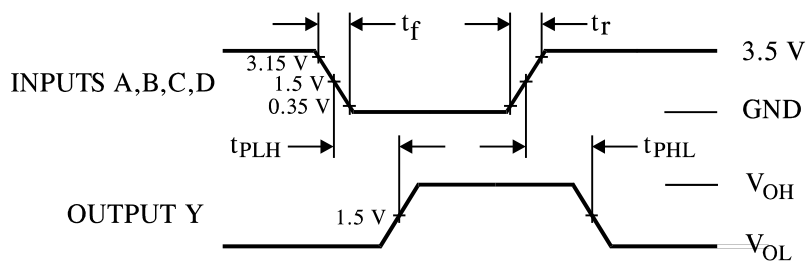
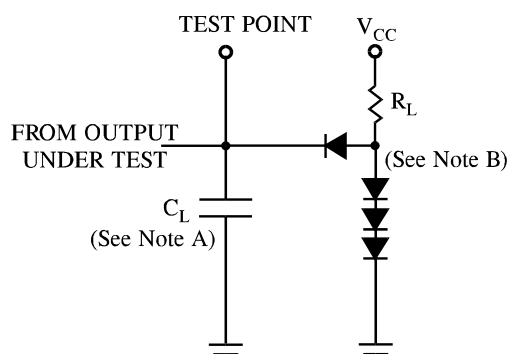


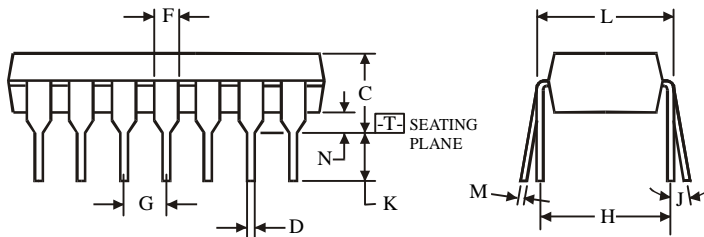
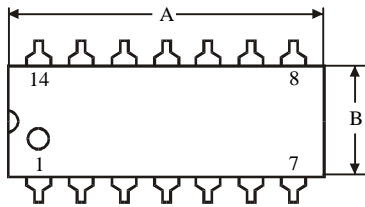
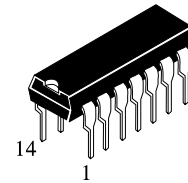
Figure 1. Switching Waveforms



NOTES A. C_L includes probe and jig capacitance.
 B. All diodes are 1N916 or 1N3064.

Figure 2. Test Circuit

**N SUFFIX PLASTIC DIP
(MS - 001AA)**



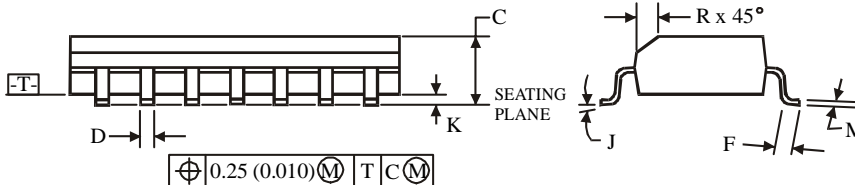
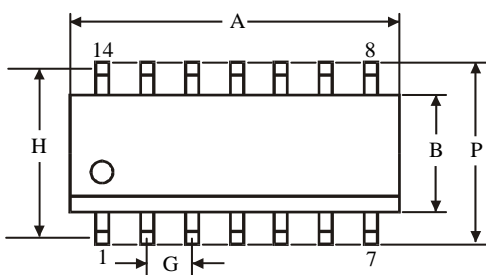
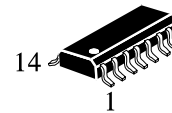
$\oplus 0.25 (0.010) \text{ (M) T}$

NOTES:

- Dimensions "A", "B" do not include mold flash or protrusions.
Maximum mold flash or protrusions 0.25 mm (0.010) per side.

Symbol	Dimension, mm	
	MIN	MAX
A	18.67	19.69
B	6.1	7.11
C		5.33
D	0.36	0.56
F	1.14	1.78
G	2.54	
H	7.62	
J	0°	10°
K	2.92	3.81
L	7.62	8.26
M	0.2	0.36
N	0.38	

**D SUFFIX SOIC
(MS - 012AB)**



$\oplus 0.25 (0.010) \text{ (M) T C (M)}$

NOTES:

- Dimensions A and B do not include mold flash or protrusion.
- Maximum mold flash or protrusion 0.15 mm (0.006) per side for A; for B - 0.25 mm (0.010) per side.

Symbol	Dimension, mm	
	MIN	MAX
A	8.55	8.75
B	3.8	4
C	1.35	1.75
D	0.33	0.51
F	0.4	1.27
G	1.27	
H	5.27	
J	0°	8°
K	0.1	0.25
M	0.19	0.25
P	5.8	6.2
R	0.25	0.5