

DM74AS1000A Quadruple 2-Input NAND Driver

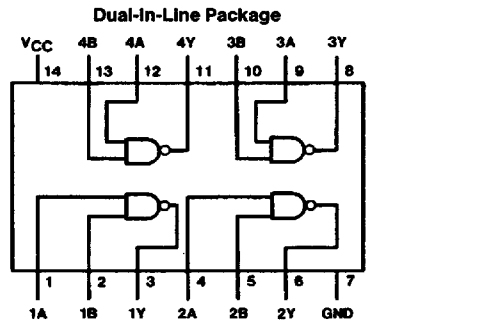
General Description

These devices contain four independent 2-input drivers, each of which performs the logic NAND function. The 'AS1000A is a driver version of the 'AS00. Each driver has increased output drive capability to allow the driving of high capacitive loads.

Features

- Switching specifications at 50 pF
- Switching specifications guaranteed over full temperature and V_{CC} range
- Advanced oxide-isolated, ion-implanted Schottky TTL process
- Improved line receiving characteristics

Connection Diagram



Order Number DM74AS1000AM or DM74AS1000AN
See NS Package Number M14A or N14A

Function Table

$$Y = \overline{AB}$$

Inputs		Output
A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

H = High Logic Level
L = Low Logic Level

Absolute Maximum Ratings

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature Range	0°C to +70°C
Storage Temperature Range	-65°C to +150°C
Typical θ_{JA}	
N Package	76.0°C/W
M Package	106.0°C/W

Note: This product meets application requirements of 500 temperature cycles from -65°C to +150°C.

Note: The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the "Electrical Characteristics" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

Recommended Operating Conditions

Symbol	Parameter	Min	Nom	Max	Units
V_{CC}	Supply Voltage	4.5	5	5.5	V
V_{IH}	High Level Input Voltage	2			V
V_{IL}	Low Level Input Voltage			0.8	V
I_{OH}	High Level Output Current			-48	mA
I_{OL}	Low Level Output Current			48	mA
T_A	Free Air Operating Temperature	0		70	°C

Electrical Characteristics

over recommended operating free air temperature range. All typical values are measured at $V_{CC} = 5V$, $T_A = 25^\circ C$.

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{IK}	Input Clamp Voltage	$V_{CC} = 4.5V$, $I_I = -18 mA$			-1.2	V
V_{OH}	High Level Output Voltage	$V_{CC} = 4.5V$ $V_{IL} = Max$	$I_{OH} = -3 mA$	2.4	3.2	V
			$I_{OH} = Max$	2		
		$I_{OH} = -2 mA$, $V_{CC} = 4.5V$ to $5.5V$		$V_{CC} - 2$		
V_{OL}	Low Level Output Voltage	$V_{CC} = 4.5V$, $V_{IH} = 2V$ $I_{OL} = Max$		0.35	0.5	V
I_I	Input Current @ Max Input Voltage	$V_{CC} = 5.5V$, $V_{IH} = 7V$			0.1	mA
I_{IH}	High Level Input Current	$V_{CC} = 5.5V$, $V_{IH} = 2.7V$			20	μA
I_{IL}	Low Level Input Current	$V_{CC} = 5.5V$, $V_{IL} = 0.4V$			-0.5	mA
I_O	Output Drive Current	$V_{CC} = 5.5V$, $V_O = 2.25V$	-50	-135	-200	mA
I_{CCH}	Supply Current	Outputs High, $V_{CC} = 5.5V$, $V_I = 0V$		2.3	3.5	mA
I_{CCL}	Supply Current	Outputs Low, $V_{CC} = 5.5V$, $V_I = 4.5V$		11.5	19	mA

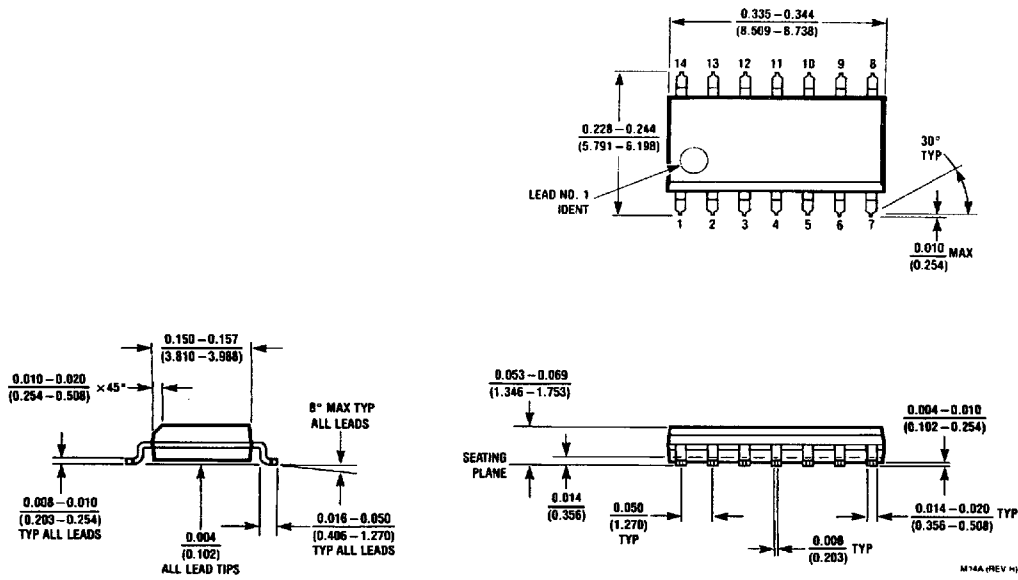
Switching Characteristics

over recommended operating free air temperature range (Note 1)

Symbol	Parameter	Conditions	Min	Max	Units
t_{PLH}	Propagation Delay Time Low to High Level Output	$V_{CC} = 4.5V$ to $5.5V$ $R_L = 500\Omega$ $C_L = 50 pF$	1	4	ns
t_{PHL}	Propagation Delay Time High to Low Level Output		1	4	ns

Note 1: See Section 5 for test waveforms and output load.

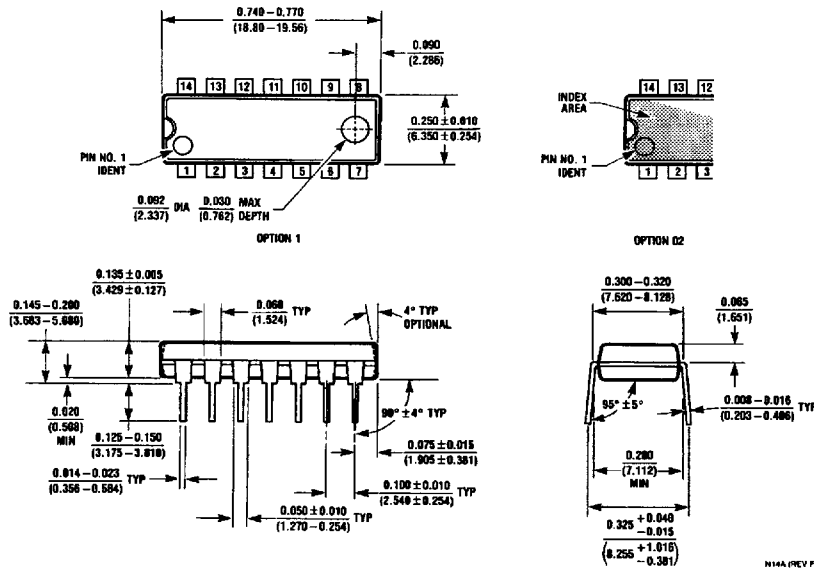
Physical Dimensions inches (millimeters)



Small Outline Package (M)
Order Number DM74AS1000AM
NS Package Number M14A

MMA (REV H)

Physical Dimensions inches (millimeters) (Continued)




Molded Dual-In-Line Package (N)
Order Number DM74AS1000AN
NS Package Number N14A

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