National Semiconductor

April 1996

DM74AS1036A Quad 2-Input NOR Driver

General Description

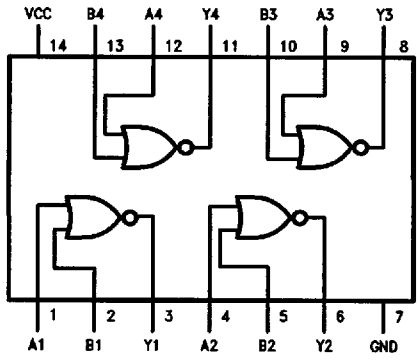
These devices contain four independent drivers, each of which performs the logic NOR function. Each driver has increased output drive capability, allowing the driving of high capacitive loads.

Features

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

Connection Diagram

Dual-In-Line Package



TL/F/6342–1

Order Number DM74AS1036AM or DM74AS1036AN
See NS Package Number M14A or N14A

Function Table

$$Y = \overline{A + B}$$

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

H = High Level
L = Low Level
X = Don't Care

Absolute Maximum Ratings

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature	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: *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	Operating Free Air Temperature Range	0		70	°C

Electrical Characteristics over recommended operating free air temperature range

Symbol	Parameter	Conditions	Min	Typ (Note 2)	Max	Units
V_{IK}	Input Clamp Voltage	V_{CC} = 4.5V, I_I = −18 mA			−1.2	V
V_{OH}	High Level Output Voltage	I_{OH} = −2 mA, V_{CC} = 4.5V to 5.5V	V_{CC} − 2			V
		I_{OH} = −3 mA, V_{CC} = 4.5V	2.4	3.2		
		I_{OH} = Max, V_{CC} = 4.5V	2			
V_{OL}	Low Level Output Voltage	V_{CC} = 4.5V, I_{OL} = Max, V_{IH} = 2V		0.35	0.5	V
I_I	Input Current at Maximum Input Voltage	V_{CC} = 5.5V, V_I = 7V			100	μA
I_{IH}	High Level Input Current	V_{CC} = 5.5V, V_I = 2.7V			20	μA
I_{IL}	Low Level Input Current	V_{CC} = 5.5V, V_I = 0.4V			−500	μA
I_O	Output Drive Current	V_{CC} = 5.5V, V_O = 2.25V	−50	−135	−200	mA
I_{CCH}	Supply Current with Outputs High	V_{CC} = 5.5V		4.7	7	mA
I_{CCL}	Supply Current with Outputs Low	V_{CC} = 5.5V		15.3	23	mA

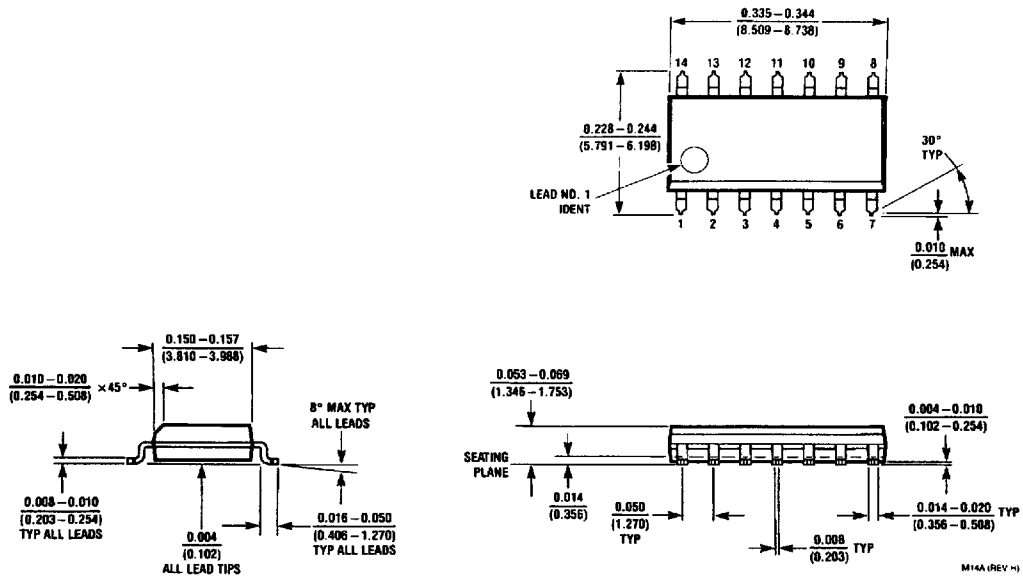
Switching Characteristics over recommended operating free air temperature range (Note 1)

Symbol	Parameter	Conditions (Note 1)	Min	Max	Units
t_{PLH}	Propagation Delay Time, Low to High Level Output	V_{CC} = 4.5V to 5.5V R_L = 500Ω C_L = 50 pF	1	4.3	ns
t_{PHL}	Propagation Delay Time, High to Low Level Output		1	4.3	ns

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

Note 2: Typical values are measured at V_{CC} = 5V and T_A = 25°C.

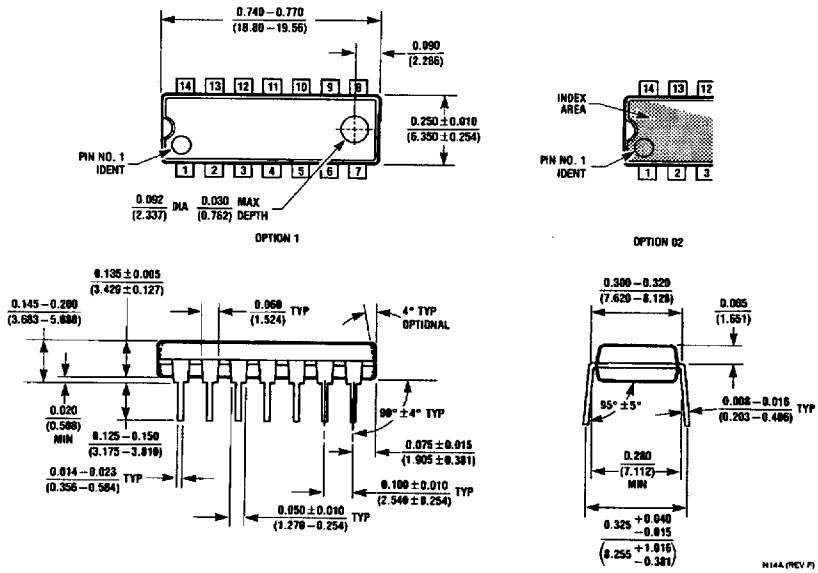
Physical Dimensions inches (millimeters)



S.O. Package (M)
Order Number DM74AS1036AM
NS Package Number M14A

Physical Dimensions inches (millimeters) (Continued)

Lit. # 102874



Molded Dual-In-Line Package (N)
Order Number DM74AS1036AN
NS Package Number N14A

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