DM54L00

DM54L00 Quad 2-Input NAND Gates

Literature Number: SNOS264A

National Semiconductor

June 1989

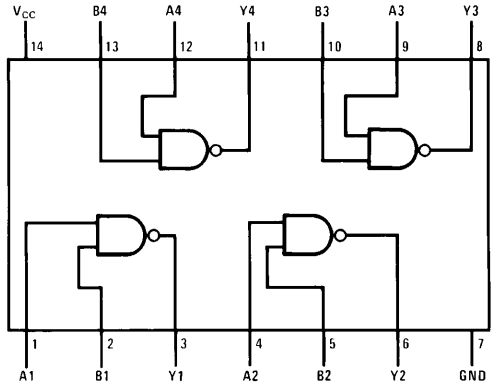
DM54L00
Quad 2-Input NAND Gates

General Description

This device contains four independent gates each of which performs the logic NAND function.

Connection Diagram

Dual-In-Line Package



TL/F/6654–1

Order Number DM54L00J or DM54L00W
See NS Package Number J14A or W14B

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

RRD-B30M105/Printed in U. S. A.

Absolute Maximum Ratings (Note)

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage	8V
Input Voltage	5.5V
Operating Free Air Temperature Range	
DM57L	−55°C to +125°C
Storage Temperature Range	−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	DM54L00			Units
		Min	Nom	Max	
V_{CC}	Supply Voltage	4.5	5	5.5	V
V_{IH}	High Level Input Voltage	2			V
V_{IL}	Low Level Input Voltage			0.7	V
I_{OH}	High Level Output Current			−0.2	mA
I_{OL}	Low Level Output Current			2	mA
T_A	Free Air Operating Temperature	−55		125	°C

Electrical Characteristics over recommended operating free air temperature (unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V_{OH}	High Level Ouput Voltage	V_{CC} = Min, I_{OH} = Max, V_{IL} = Max	2.4	3.3		V
V_{OL}	Low Level Output Voltage	V_{CC} = Min, I_{OL} = Max, V_{IH} = Min		0.15	0.3	V
I_I	Input Current @ Max Input Voltage	V_{CC} = Max, V_I = 5.5V			0.1	mA
I_{IH}	High Level Input Current	V_{CC} = Max, V_I = 2.4V			10	μA
I_{IL}	Low Level Input Current	V_{CC} = Max, V_I = 0.3V			−0.18	mA
I_{OS}	Short Circuit Output Current	V_{CC} = Max (Note 2)	−3		−15	mA
I_{CCH}	Supply Current with Outputs High	V_{CC} = Max		0.44	0.8	mA
I_{CCL}	Supply Current with Outputs Low	V_{CC} = Max		1.16	2.04	mA

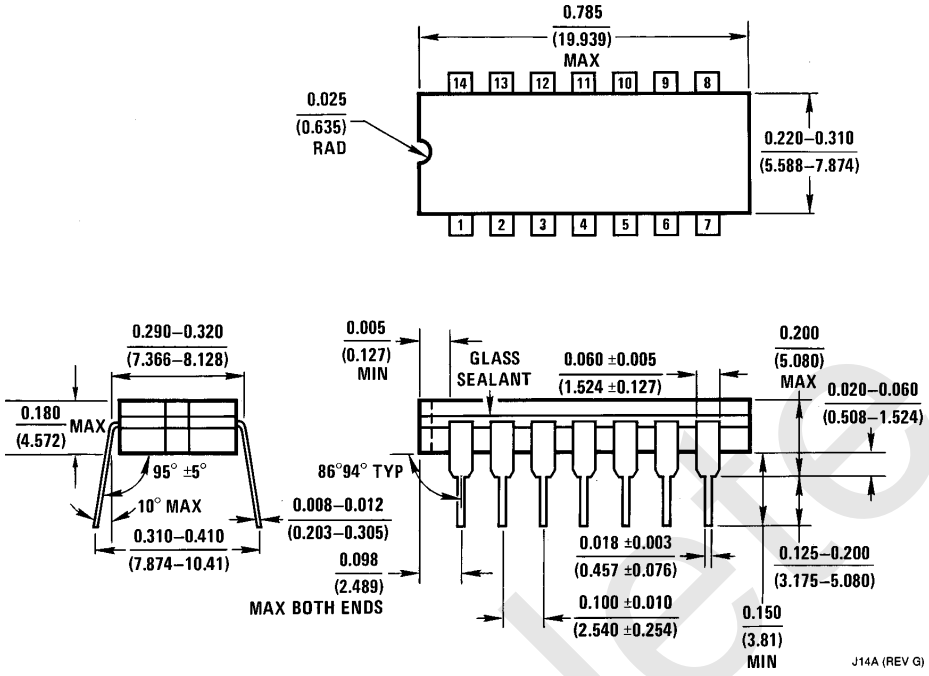
Note 1: All typicals are at V_{CC} = 5V, T_A = 25°C.

Note 2: Not more than one should be shorted at a time.

Switching Characteristics at V_{CC} = 5V and T_A = 25°C (See Section 1 for Test Waveforms and Output Load)

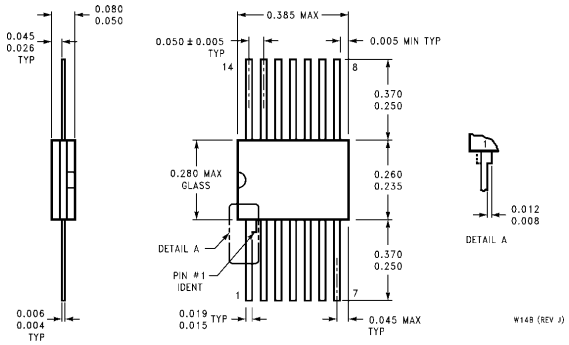
Symbol	Parameter	Conditions	Min	Max	Units
t_{PLH}	Propagation Delay Low to High Level Output	R_L = 4 kΩ, C_L = 50 pF		60	ns
t_{PHL}	Propagation Delay High to Low Level Output			60	ns

Physical Dimensions inches (millimeters)



14-Lead Ceramic Dual-In-Line Package (J)
Order Number DM54L00J
NS Package Number J14A

Physical Dimensions inches (millimeters) (Continued)



14-Lead Ceramic Flat Package (W)
Order Number DM54L00W
NS Package Number W14B

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