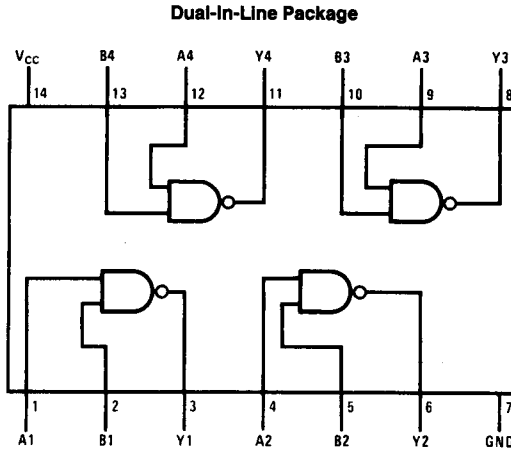


DM54LS37/DM74LS37 Quad 2-Input NAND Buffers

General Description

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

Connection Diagram



TL/F/6362-1

Order Number DM54LS37J, DM74LS37M or DM74LS37N
See NS Package Number J14A, 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 (Note)

Specifications for Military/Aerospace products are not contained in this datasheet. Refer to the associated reliability electrical test specifications document.

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature Range	
DM54LS	-55°C to +125°C
DM74LS	0°C to +70°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	DM54LS37			DM74LS37			Units
		Min	Nom	Max	Min	Nom	Max	
V _{CC}	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH}	High Level Input Voltage	2			2			V
V _{IL}	Low Level Input Voltage			0.7			0.8	V
I _{OH}	High Level Output Current			-1.2			-1.2	mA
I _{OL}	Low Level Output Current			12			24	mA
T _A	Free Air Operating Temperature	-55		125	0		70	°C

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

Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V _I	Input Clamp Voltage	V _{CC} = Min, I _I = -18 mA			-1.5	V
V _{OH}	High Level Output Voltage	V _{CC} = Min, I _{OH} = Max	DM54	2.5	3.4	V
		V _{IL} = Max	DM74	2.7	3.4	
V _{OL}	Low Level Output Voltage	V _{CC} = Min, I _{OL} = Max	DM54	0.25	0.4	V
		V _{IH} = Min	DM74	0.35	0.5	
		I _{OL} = 12 mA, V _{CC} = Min	DM74	0.25	0.4	
I _I	Input Current @ Max Input Voltage	V _{CC} = Max, V _I = 7V			0.1	mA
I _{IH}	High Level Input Current	V _{CC} = Max, V _I = 2.7V			20	μA
I _{IL}	Low Level Input Current	V _{CC} = Max, V _I = 0.4V			-0.36	mA
I _{OS}	Short Circuit Output Current	V _{CC} = Max (Note 2)	DM54	-20	-100	mA
			DM74	-20	-100	
I _{CCH}	Supply Current with Outputs High	V _{CC} = Max		0.9	2	mA
I _{CCL}	Supply Current with Outputs Low	V _{CC} = Max		6	12	mA

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

Symbol	Parameter	R _L = 667Ω				Units
		C _L = 45 pF		C _L = 150 pF		
		Min	Max	Min	Max	
t _{PLH}	Propagation Delay Time Low to High Level Output	3	15	4	18	ns
t _{PHL}	Propagation Delay Time High to Low Level Output	3	15	4	21	ns

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

Note 2: Not more than one output should be shorted at a time, and the duration should not exceed one second.