

74F37 Quad Two-Input NAND Buffer

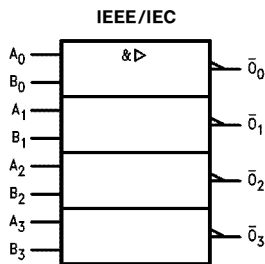
General Description

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

Commercial	Package Number	Package Description
74F37PC	N14A	14-Lead (0.300" Wide) Molded Dual-In-Line
74F37SC (Note 1)	M14A	14-Lead (0.150" Wide) Molded Small Outline, JEDEC

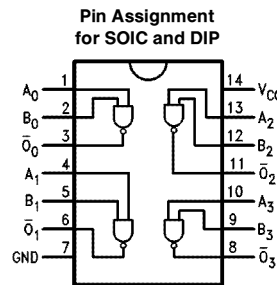
Note 1: Devices also available in 13" reel. Use suffix = SCX and SJX.

Logic Symbol



TL/F/9464-3

Connection Diagram



TL/F/9464-1

Unit Loading/Fan Out

Pin Names	Description	74F	
		U.L. HIGH/LOW	Input I_{IH}/I_{IL} Output I_{OH}/I_{OL}
A_n, B_n	Inputs	1.0/2.0	20 μ A/ -1.2 mA
\bar{O}_n	Outputs	600/106.6 (80)	-12 mA/64 mA (48 mA)

Function Table

Inputs		Output
A	B	\bar{O}
L	L	H
L	H	H
H	L	H
H	H	L

H = HIGH Voltage Level
L = LOW Voltage Level

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Absolute Maximum Ratings (Note 1)

Storage Temperature	-65°C to +150°C
Ambient Temperature under Bias	-55°C to +125°C
Junction Temperature under Bias	-55°C to +175°C
Plastic	-55°C to +150°C
V _{CC} Pin Potential to Ground Pin	-0.5V to +7.0V
Input Voltage (Note 2)	-0.5V to +7.0V
Input Current (Note 2)	-30 mA to +5.0 mA
Voltage Applied to Output in HIGH State (with V _{CC} = 0V)	
Standard Output	-0.5V to V _{CC}
TRI-STATE® Output	-0.5V to +5.5V

Current Applied to Output in LOW State (Max) twice the rated I_{OL} (mA)

Note 1: Absolute maximum ratings are values beyond which the device may be damaged or have its useful life impaired. Functional operation under these conditions is not implied.

Note 2: Either voltage limit or current limit is sufficient to protect inputs.

Recommended Operating Conditions

Free Air Ambient Temperature	0°C to +70°C
Commercial	
Supply Voltage	+4.5V to +5.5V
Commercial	

DC Electrical Characteristics

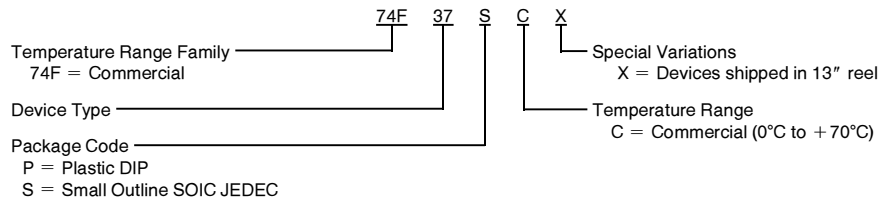
Symbol	Parameter	74F			Units	V _{CC}	Conditions
		Min	Typ	Max			
V _{IH}	Input HIGH Voltage	2.0			V		Recognized as a HIGH Signal
V _{IL}	Input LOW Voltage			0.8	V		Recognized as a LOW Signal
V _{CD}	Input Clamp Diode Voltage			-1.2	V	Min	I _{IN} = -18 mA
V _{OH}	Output HIGH Voltage	74F 10% V _{CC} 74F 10% V _{CC} 74F 5% V _{CC}	2.4 2.0 2.7		V	Min	I _{OH} = -3 mA I _{OH} = -15 mA I _{OH} = -3 mA
V _{OL}	Output LOW Voltage	74F 10% V _{CC}		0.55	V	Min	I _{OL} = 64 mA
I _{IH}	Input HIGH Current	74F		5.0	μA	Max	V _{IN} = 2.7V
I _{BVI}	Input HIGH Current Breakdown Test	74F		7.0	μA	Max	V _{IN} = 7.0V
I _{CEX}	Output HIGH Leakage Current	74F		50	μA	Max	V _{OUT} = V _{CC}
V _{ID}	Input Leakage Test	74F	4.75		V	0.0	I _{ID} = 1.9 μA All Other Pins Grounded
I _{OD}	Output Leakage Circuit Current	74F		3.75	μA	0.0	V _{IOD} = 150 mV All Other Pins Grounded
I _{IL}	Input LOW Current			-1.2	mA	Max	V _{IN} = 0.5V
I _{OS}	Output Short-Circuit Current		-100	-225	mA	Max	V _{OUT} = 0V
I _{CCH}	Power Supply Current		3.7	6.0	mA	Max	V _O = HIGH
I _{CCL}	Power Supply Current		28.0	33.0	mA	Max	V _O = LOW

AC Electrical Characteristics

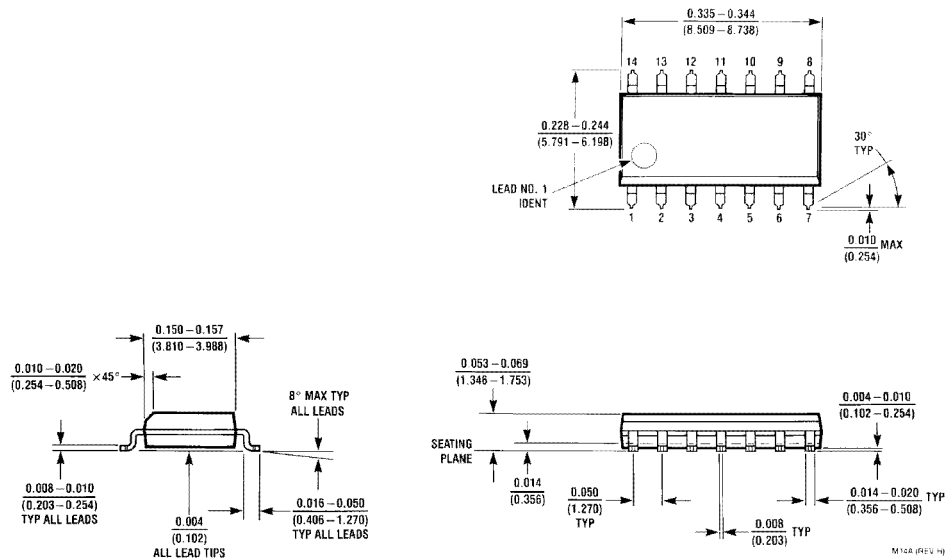
Symbol	Parameter	74F			74F		Units
		$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{V}$ $C_L = 50\text{pF}$			$T_A, V_{CC} = \text{Com}$ $C_L = 50\text{pF}$		
		Min	Typ	Max	Min	Max	
t _{PLH}	Propagation Delay	2.0	3.2	5.5	1.5	6.5	ns
t _{PHL}	A _n , B _n to \bar{O}_n	1.5	2.4	4.5	1.0	5.0	

Ordering Information

The device number is used to form part of a simplified purchasing code where the package type and temperature range are defined as follows:

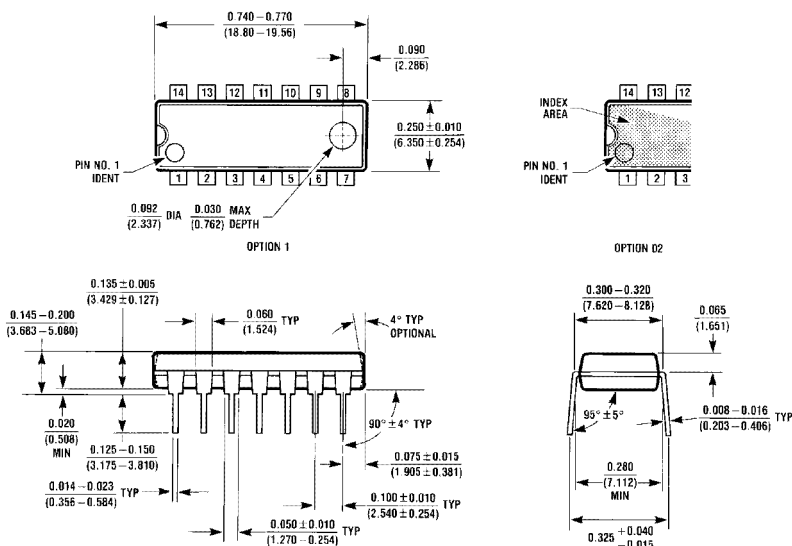


Physical Dimensions inches (millimeters)



14-Lead (0.150" Wide) Molded Small Outline Package (S)
NS Package Number M14A

Physical Dimensions inches (millimeters) (Continued)



**14-Lead (0.300" Wide) Molded Dual-In-Line Package (P)
NS Package Number N14A**

N14A (REV F)

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