

- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

description

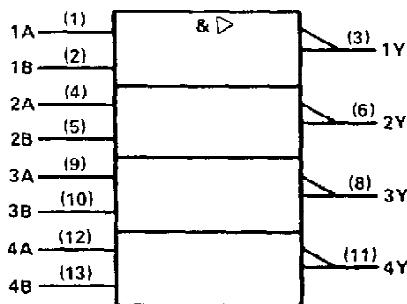
These devices contain four independent 2-input NAND buffer gates. They perform the Boolean functions $Y = A \cdot B$ or $Y = \overline{A} + \overline{B}$ in positive logic.

The SN54F37 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74F37 is characterized for operation from 0°C to 70°C .

FUNCTION TABLE (each gate)

INPUTS		OUTPUT
A	B	Y
H	H	L
L	X	H
X	L	H

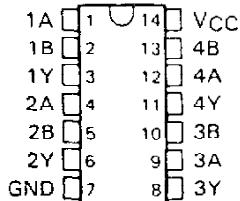
logic symbol[†]



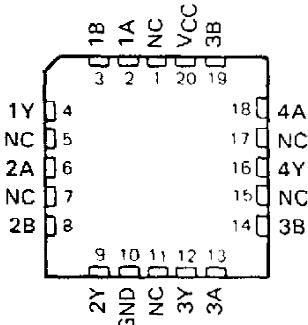
[†]This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

Pin numbers shown are for D, J, and N packages.

SN54F37 . . . J PACKAGE
SN74F37 . . . D OR N PACKAGE
(TOP VIEW)

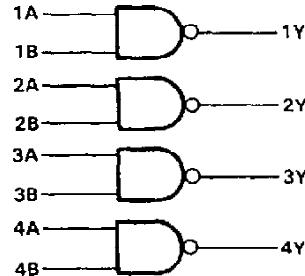


SN54F37 . . . FK PACKAGE
(TOP VIEW)



NC = No internal connection

logic diagram (positive logic)



SN54F37, SN74F37 QUADRUPLE 2-INPUT POSITIVE-NAND BUFFERS

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

[†]The input voltage ratings may be exceeded provided the input current ratings are observed.

recommended operating conditions

		SN54F37			SN74F37			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V _{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V _{IH}	High-level input voltage		2		2			V
V _{IL}	Low-level input voltage			0.8			0.8	V
I _{IK}	Input clamp current			-18			-18	mA
I _{OH}	High-level output current			-15			-15	mA
I _{OL}	Low-level output current			48			64	mA
T _A	Operating free-air temperature	-55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS	SN54F37			SN74F37			UNIT
		MIN	TYP [†]	MAX	MIN	TYP [†]	MAX	
V_{IK}	$V_{CC} = 4.5 \text{ V}$, $I_I = -18 \text{ mA}$	-	-0.73	-1.2	-	-	-1.2	V
V_{OH}	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = -1 \text{ mA}$	2.5	3.4	-	2.5	3.4	-	V
	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = -15 \text{ mA}$	2	-	-	2	-	-	
	$V_{CC} = 4.75 \text{ V}$, $I_{OH} = -1 \text{ mA}$	-	-	-	2.7	-	-	
V_{OL}	$V_{CC} = 4.5 \text{ V}$	$I_{OL} = 48 \text{ mA}$	0.35	0.5	-	-	-	V
		$I_{OL} = 64 \text{ mA}$	-	-	-	0.40	0.55	
I_I	$V_{CC} = 5.5 \text{ V}$, $V_I = 7 \text{ V}$	-	-	0.1	-	-	0.1	mA
I_{IH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 2.7 \text{ V}$	-	-	20	-	-	20	μA
I_{IL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0.5 \text{ V}$	-	-	-0.6	-	-	-0.6	mA
I_{OS}^{\ddagger}	$V_{CC} = 5.5 \text{ V}$, $V_O = 0$	-100	-	-225	-100	-	-225	mA
I_{CCH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0$	-	3	6	-	3	6	mA
I_{CCl}	$V_{CC} = 5.5 \text{ V}$, $V_I = 4.5 \text{ V}$	-	23	33	-	23	33	mA

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5\text{ V}$, $C_L = 50\text{ pF}$, $R_L = 500\text{ }\Omega$, $T_A = 25^\circ\text{C}$	$V_{CC} = 4.5\text{ V to }5.5\text{ V}$, $C_L = 50\text{ pF}$, $R_L = 500\text{ }\Omega$, $T_A = \text{MIN to MAX}^\S$	UNIT					
			'F37							
			MIN	Typ†	MAX					
			MIN	MAX	MIN					
t_{PLH}	A or B	Y	1.5	3.1	5.5	1	7	1.5	6.5	ns
t_{PHL}			1	2.1	4.5	1	6	1	5	

[†] All typical values are at $V_{CC} = 5$ V, $T_A = 25^\circ\text{C}$.

* Not more than one output should be shorted at a time and the duration of the short circuit should not exceed one second.

For conditions shown as MIN or MAX, use the appropriate value specified under Recommended Operating Conditions.

NOTE 1: Load circuits and waveforms are shown in Section 1 of the *E Logic Data Book, 1989*.

TEXAS
INSTRUMENTS

IMPORTANT NOTICE

Texas Instruments (TI) reserves the right to make changes to its products or to discontinue any semiconductor product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

TI warrants performance of its semiconductor products and related software to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

Certain applications using semiconductor products may involve potential risks of death, personal injury, or severe property or environmental damage ("Critical Applications").

TI SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS.

Inclusion of TI products in such applications is understood to be fully at the risk of the customer. Use of TI products in such applications requires the written approval of an appropriate TI officer. Questions concerning potential risk applications should be directed to TI through a local SC sales office.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards should be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein. Nor does TI warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used.

Copyright © 1996, Texas Instruments Incorporated

IMPORTANT NOTICE

Texas Instruments and its subsidiaries (TI) reserve the right to make changes to their products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including those pertaining to warranty, patent infringement, and limitation of liability.

TI warrants performance of its semiconductor products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

CERTAIN APPLICATIONS USING SEMICONDUCTOR PRODUCTS MAY INVOLVE POTENTIAL RISKS OF DEATH, PERSONAL INJURY, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE ("CRITICAL APPLICATIONS"). TI SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS. INCLUSION OF TI PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE FULLY AT THE CUSTOMER'S RISK.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards must be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance or customer product design. TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used. TI's publication of information regarding any third party's products or services does not constitute TI's approval, warranty or endorsement thereof.

Copyright © 1998, Texas Instruments Incorporated