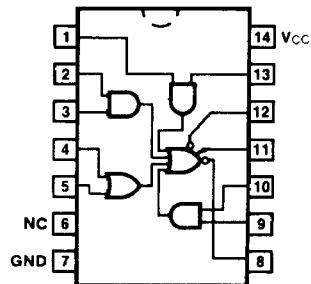


✓ 54/7453 011601  
 ✓ 54H/74H53 011602

EXPANDABLE 4-WIDE, 2-INPUT AOI GATE ('53)  
 EXPANDABLE 2-2-2-3-INPUT AOI GATE ('H53)

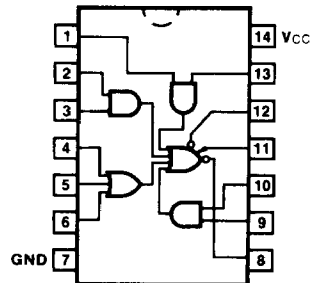
CONNECTION DIAGRAMS  
 PINOUT A



ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		$V_{CC} = +5.0\text{ V} \pm 5\%$ , $T_A = 0^\circ\text{C to } +70^\circ\text{C}$	$V_{CC} = +5.0\text{ V} \pm 10\%$ , $T_A = -55^\circ\text{C to } +125^\circ\text{C}$	
Plastic DIP (P)	A	7453PC		9A
	B	74H53PC		
Ceramic DIP (D)	A	7453DC	5453DM	6A
	B	74H53DC	54H53DM	
Flatpak (F)	C	7453FC	5453FM	3I
	D	74H53FC	54H53FM	

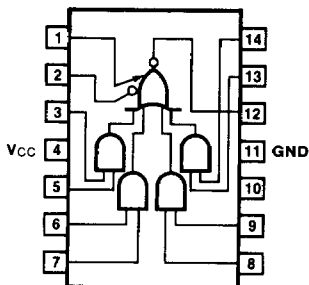
PINOUT B



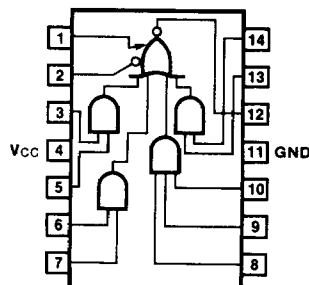
INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

PINS	54/74 (U.L.) HIGH/LOW	54/74H (U.L.) HIGH/LOW
Inputs	1.0/1.0	1.25/1.25
Outputs	20/10	12.5/12.5

PINOUT C



PINOUT D



4

**DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE: Using Expander Pins**

SYMBOL	PARAMETER		54/74		54/74H		UNITS	CONDITIONS		
			Min	Max	Min	Max				
V <sub>OH</sub>	Output HIGH Voltage	XM			2.4		V	I <sub>1</sub> = 320 $\mu$ A I <sub>2</sub> = -320 $\mu$ A	I <sub>OH</sub> = -500 $\mu$ A	
		XC			2.4					I <sub>1</sub> = 570 $\mu$ A I <sub>2</sub> = -570 $\mu$ A
V <sub>OH</sub>	Output HIGH Voltage	XM	2.4				V	I <sub>1</sub> = 0.15 mA I <sub>2</sub> = -0.15 mA	I <sub>OH</sub> = -400 $\mu$ A	
		XC	2.4							I <sub>1</sub> = 270 $\mu$ A I <sub>2</sub> = -270 $\mu$ A
V <sub>OL</sub>	Output LOW Voltage	XM			0.4		V	I <sub>1</sub> = 470 $\mu$ A R <sub>1</sub> = 68 $\Omega$	I <sub>OL</sub> = 20 mA	
		XC			0.4					I <sub>1</sub> = 600 $\mu$ A R <sub>1</sub> = 63 $\Omega$
V <sub>OL</sub>	Output LOW Voltage	XM	0.4				V	I <sub>1</sub> = 0.3 mA R <sub>1</sub> = 138 $\Omega$	I <sub>OL</sub> = 16 mA	
		XC	0.4							I <sub>1</sub> = 0.43 mA R <sub>1</sub> = 130 $\Omega$
V <sub>BE(Q)</sub>	Base-Emitter Voltage of Output Transistor Q	XM			1.0		V	I <sub>1</sub> = 700 $\mu$ A	I <sub>OL</sub> = 20 mA R <sub>1</sub> = 0 $\Omega$	
		XC			1.0					I <sub>1</sub> = 1.1 mA
		XM	1.1							I <sub>1</sub> = 0.41 mA
		XC	1.0							I <sub>1</sub> = 0.62 mA R <sub>1</sub> = 0 $\Omega$
I <sub>INX</sub>	Expander-Node Input Current	XM			-5.85		mA	V <sub>X</sub> = 1.4 V		
		XC			-6.3					
I <sub>X</sub>	Expander Current	XM	2.9				mA	V <sub>1</sub> = 0.4 V, I <sub>OL</sub> = 16 mA		
		XC	3.1							
I <sub>CC</sub>	Power Supply Current		8.0		11		mA	V <sub>IN</sub> = Gnd	V <sub>CC</sub> = Max	
I <sub>CC</sub>			9.5		14			V <sub>IN</sub> = Open		

**AC CHARACTERISTICS: V<sub>CC</sub> = +5.0 V, T<sub>A</sub> = +25°C (See Section 3 for waveforms and load configurations)**

SYMBOL	PARAMETER		54/74		54/74H		UNITS	CONDITIONS	
			Min	Max	Min	Max			
t <sub>PLH</sub>	Propagation Delay		22		11		ns	Expander Pins Open Figs. 3-1, 3-4	
t <sub>PHL</sub>			15		11				
t <sub>PLH</sub>	Propagation Delay				11.4*		ns	C <sub>X</sub> = 15 pF	
t <sub>PHL</sub>					7.4*				

\*Typical Value