

54/7453
54H/74H53

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

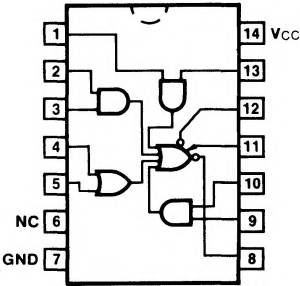
ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		V _{CC} = +5.0 V ±5%, T _A = 0° C to +70° C	V _{CC} = +5.0 V ±10%, T _A = -55° C to +125° 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	

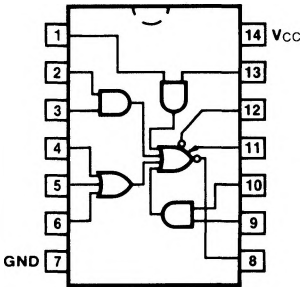
INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

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

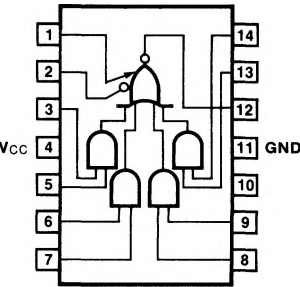
CONNECTION DIAGRAMS
PINOUT A



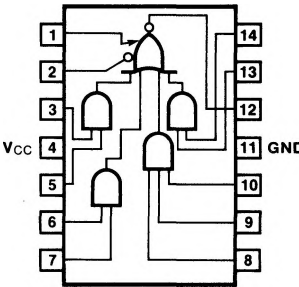
PINOUT B



PINOUT C



PINOUT D



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE: Using Expander Pins

SYMBOL	PARAMETER		54/74		54/74H		UNITS	CONDITIONS	
			Min	Max	Min	Max			
V _{OH}	Output HIGH Voltage	XM			2.4		V	$I_1 = 320 \mu A$ $I_2 = -320 \mu A$	$I_{OH} = -500 \mu A$
		XC			2.4			$I_1 = 570 \mu A$ $I_2 = -570 \mu A$	
V _{OH}	Output HIGH Voltage	XM	2.4				V	$I_1 = 0.15 \text{ mA}$ $I_2 = -0.15 \text{ mA}$	$I_{OH} = -400 \mu A$
		XC	2.4					$I_1 = 270 \mu A$ $I_2 = -270 \mu A$	
V _{OL}	Output LOW Voltage	XM			0.4		V	$I_1 = 470 \mu A$ $R_1 = 68 \Omega$	$I_{OL} = 20 \text{ mA}$
		XC			0.4			$I_1 = 600 \mu A$ $R_1 = 63 \Omega$	
V _{OL}	Output LOW Voltage	XM	0.4				V	$I_1 = 0.3 \text{ mA}$ $R_1 = 138 \Omega$	$I_{OL} = 16 \text{ mA}$
		XC	0.4					$I_1 = 0.43 \text{ mA}$ $R_1 = 130 \Omega$	
V _{BE(Q)}	Base-Emitter Voltage of Output Transistor Q	XM			1.0		V	$I_1 = 700 \mu A$	$I_{OL} = 20 \text{ mA}$ $R_1 = 0 \Omega$
		XC			1.0			$I_1 = 1.1 \text{ mA}$	
		XM			1.1			$I_1 = 0.41 \text{ mA}$	$I_{OL} = 16 \text{ mA}$ $R_1 = 0 \Omega$
		XC			1.0			$I_1 = 0.62 \text{ mA}$	
I _{INX}	Expander-Node Input Current	XM			-5.85		mA	V _X = 1.4 V	
		XC			-6.3				
I _X	Expander Current	XM	2.9				mA	V ₁ = 0.4 V, $I_{OL} = 16 \text{ mA}$	
		XC	3.1						
I _{CCH} I _{CCL}	Power Supply Current		8.0		11		mA	V _{IN} = Gnd	V _{CC} = Max
			9.5		14			V _{IN} = Open	

AC CHARACTERISTICS: V_{CC} = +5.0 V, T_A = +25°C (See Section 3 for waveforms and load configurations)

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

*Typical Value