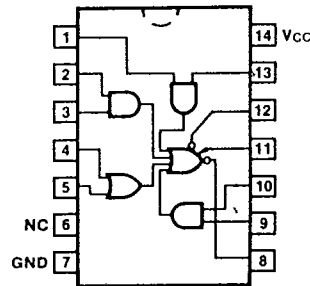


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# 54/7453 54H/74H53

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

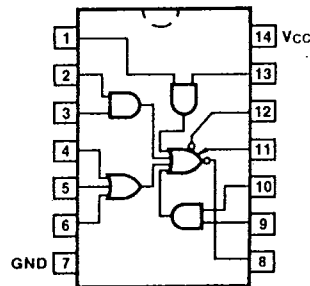
### CONNECTION DIAGRAMS PINOUT A



ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		V <sub>CC</sub> = +5.0 V ±5%, T <sub>A</sub> = 0°C to +70°C	V <sub>CC</sub> = +5.0 V ±10%, T <sub>A</sub> = -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	

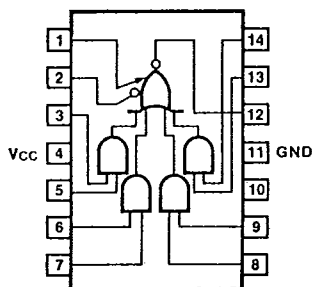
### PINOUT B



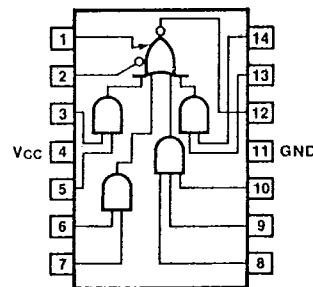
INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

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

53

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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 μA I <sub>2</sub> = -320 μA I <sub>OH</sub> = -500 μA	
		XC		2.4				
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 μA	
		XC	2.4					
V <sub>OL</sub>	Output LOW Voltage	XM		0.4		V	I <sub>1</sub> = 470 μA R <sub>1</sub> = 68 Ω I <sub>OL</sub> = 20 mA	
		XC		0.4				
V <sub>OL</sub>	Output LOW Voltage	XM	0.4			V	I <sub>1</sub> = 0.3 mA R <sub>1</sub> = 138 Ω I <sub>OL</sub> = 16 mA	
		XC	0.4					
V <sub>BE(Q)</sub>	Base-Emitter Voltage of Output Transistor Q	XM		1.0		V	I <sub>1</sub> = 700 μA I <sub>OL</sub> = 20 mA R <sub>1</sub> = 0 Ω	
		XC		1.0				
		XM	1.1					I <sub>OL</sub> = 16 mA R <sub>1</sub> = 0 Ω
		XC	1.0					
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>CCH</sub> I <sub>CCL</sub>	Power Supply Current		8.0 9.5	11 14		mA	V <sub>IN</sub> = Gnd V <sub>IN</sub> = Open V <sub>CC</sub> = Max	

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> t <sub>PHL</sub>	Propagation Delay	22 15		11 11		ns	Expander Pins Open Figs. 3-1, 3-4
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay			11.4* 7.4*			

\*Typical Value

05453-2X