54/7453
54H/74H53

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

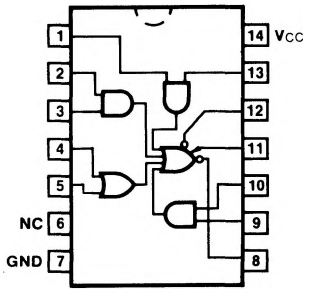
ORDERING CODE: See Section 9

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

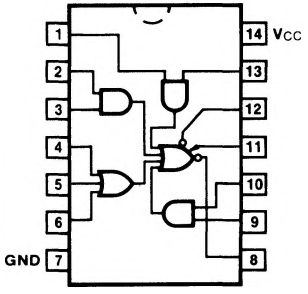
INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

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

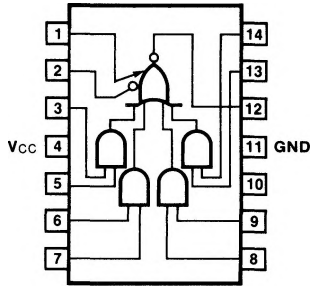
CONNECTION DIAGRAMS
PINOUT A



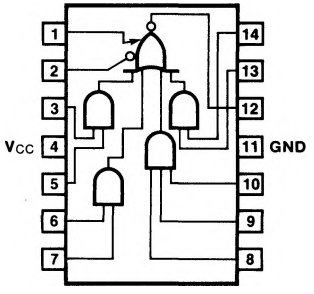
PINOUT B



PINOUT C



PINOUT D



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE: Using Expander Pins

SYMBOL	PARAMETER		54/74 Min	54/74 Max	54/74H Min	54/74H Max	UNITS	CONDITIONS	
V_{OH}	Output HIGH Voltage	XM			2.4		V	I_1 = 320 μA I_2 = -320 μA	I_{OH} = -500 μA
		XC			2.4			I_1 = 570 μA I_2 = -570 μA	
V_{OH}	Output HIGH Voltage	XM	2.4				V	I_1 = 0.15 mA I_2 = -0.15 mA	I_{OH} = -400 μA
		XC	2.4					I_1 = 270 μA I_2 = -270 μA	
V_{OL}	Output LOW Voltage	XM				0.4	V	I_1 = 470 μA R_1 = 68 Ω	I_{OL} = 20 mA
		XC				0.4		I_1 = 600 μA R_1 = 63 Ω	
V_{OL}	Output LOW Voltage	XM		0.4			V	I_1 = 0.3 mA R_1 = 138 Ω	I_{OL} = 16 mA
		XC		0.4				I_1 = 0.43 mA R_1 = 130 Ω	
$V_{BE(Q)}$	Base-Emitter Voltage of Output Transistor Q	XM				1.0	V	I_1 = 700 μA	I_{OL} = 20 mA R_1 = 0 Ω
		XC				1.0		I_1 = 1.1 mA	
		XM		1.1				I_1 = 0.41 mA	I_{OL} = 16 mA R_1 = 0 Ω
		XC		1.0				I_1 = 0.62 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 mA	
		XC	3.1						
I_{CCH} I_{CCL}	Power Supply Current			8.0 9.5		11 14	mA	V_{IN} = Gnd V_{IN} = Open	V_{CC} = Max

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

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

*Typical Value