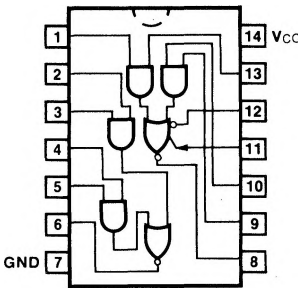


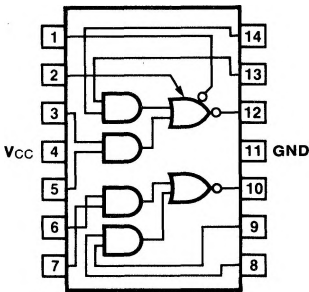
54/7450
54H/74H50

EXPANDABLE DUAL 2-WIDE 2-INPUT
AND-OR-INVERT GATE

CONNECTION DIAGRAMS
PINOUT A



PINOUT B



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	7450PC, 74H50PC		9A
Ceramic DIP (D)	A	7450DC, 74H50DC	5450DM, 54H50DM	6A
Flatpak (F)	B	7450FC, 74H50FC	5450FM, 54H50FM	3I

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

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE: Expander Pins Open

SYMBOL	PARAMETER	54/74	54/74H	UNITS	CONDITIONS	
		Min	Max			
I_{CCH}	Power Supply Current	8.0	12.8	mA	$V_{IN} = \text{Gnd}$	$V_{CC} = \text{Max}$
I_{CCL}		14	24		$V_{IN} = \text{Open}$	

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE: Using Expander Pins

SYMBOL	PARAMETER		54/74		UNITS	CONDITIONS	
			Min	Max			
V _{OH}	Output HIGH Voltage	XM			V	I ₁ = 320 μ A I ₂ = -320 μ A	I _{OH} = -500 μ A
		XC				I ₁ = 570 μ A I ₂ = -570 μ A	
V _{OH}	Output HIGH Voltage	XM	2.4		V	I ₁ = 0.15 mA I ₂ = -0.15 mA	I _{OH} = -400 mA
		XC	2.4			I ₁ = 270 mA I ₂ = -270 mA	
V _{OL}	Output LOW Voltage	XM			V	I ₁ = 470 μ A R ₁ = 68 Ω	I _{OL} = 20 mA
		XC				I ₁ = 600 μ A 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			V	I ₁ = 700 μ A	I _{OL} = 20 mA
		XC				I ₁ = 1.1 mA	R ₁ = 0 Ω
		XM				I ₁ = 0.41 mA	I _{OL} = 16 mA
		XC				I ₁ = 0.62 mA	R ₁ = 0 Ω
I _{INX}	Expander-Node Input Current	XM			mA	V _X = 1.4 V, V _{CC} = Min T _A = Min	
		XC					
I _X	Expander Current	XM	2.9		mA	V ₁ = 0.4 V, I _{OL} = 16 mA V _{CC} = Min, T _A = Min	
		XC	3.1				

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

SYMBOL	PARAMETER		54/74		UNITS	CONDITIONS
			Min	Max		
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* 7.4*	ns	C _L = 25 pF R _L = 280 Ω , C _X = 15 pF

*Typical Value

ADDED PROPAGATION DELAY TIME vs EXPANDER-NODE CAPACITANCE