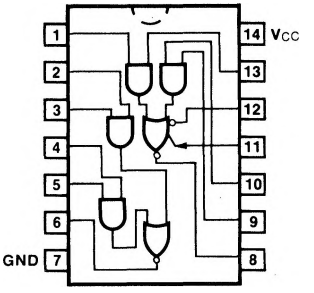
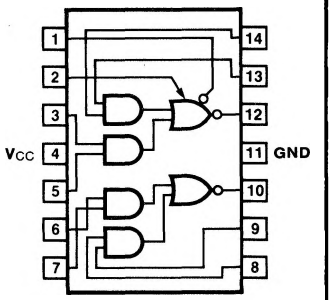
54/7450
54H/74H50

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 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	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	Min	Max			
I_{CCH}	Power Supply Current		8.0		12.8	mA	V_{IN} = Gnd	V_{CC} = Max
I_{CCL}			14		24		V_{IN} = Open	

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 mA
		XC	2.4					I_1 = 270 mA I_2 = -270 mA	
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, V_{CC} = Min T_A = Min	
		XC				-6.3			
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 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* 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