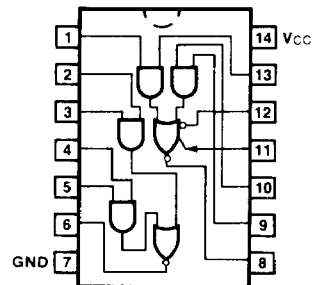


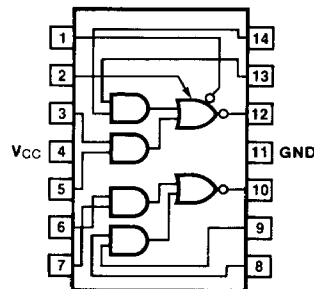
011612  
 ✓ 54/7450 ~~030436~~ 034655  
 ✓ 54H/74H50 011613

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		54/74H		UNITS	CONDITIONS	
		Min	Max	Min	Max			
VOH	Output HIGH Voltage	XM		2.4		V	$I_1 = 320 \mu A$ $I_2 = -320 \mu A$ $I_1 = 570 \mu A$ $I_2 = -570 \mu A$	$I_{OH} = -500 \mu A$
		XC		2.4				
VOH	Output HIGH Voltage	XM	2.4			V	$I_1 = 0.15 mA$ $I_2 = -0.15 mA$ $I_1 = 270 mA$ $I_2 = -270 mA$	$I_{OH} = -400 mA$
		XC	2.4					
VOL	Output LOW Voltage	XM			0.4	V	$I_1 = 470 \mu A$ $R_1 = 68 \Omega$ $I_1 = 600 \mu A$ $R_1 = 63 \Omega$	$I_{OL} = 20 mA$
		XC			0.4			
VOL	Output LOW Voltage	XM	0.4			V	$I_1 = 0.3 mA$ $R_1 = 138 \Omega$ $I_1 = 0.43 mA$ $R_1 = 130 \Omega$	$I_{OL} = 16 mA$
		XC	0.4					
VBE(Q)	Base-Emitter Voltage of Output Transistor Q	XM			1.0	V	$I_1 = 700 \mu A$ $I_1 = 1.1 mA$	$I_{OL} = 20 mA$ $R_1 = 0 \Omega$
		XC			1.0			
		XM	1.1				$I_1 = 0.41 mA$ $I_1 = 0.62 mA$	$I_{OL} = 16 mA$ $R_1 = 0 \Omega$
		XC	1.0					
IINX	Expander-Node Input Current	XM			-5.85	mA	$V_X = 1.4 V, V_{CC} = Min$ $T_A = Min$	
		XC			-6.3			
I <sub>X</sub>	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:**  $V_{CC} = +5.0 V, T_A = +25^\circ C$  (See Section 3 for waveforms and load configurations)

SYMBOL	PARAMETER	54/74		54/74H		UNITS	CONDITIONS	
		Min	Max	Min	Max			
tPLH	Propagation Delay		22		11	ns	Expander Pins Open Figs. 3-1, 3-4	
tPHL			15		11			
tPLH	Propagation Delay				11*	ns	$C_L = 25 pF$ $R_L = 280 \Omega, C_X = 15 pF$	
tPHL					7.4*			

\*Typical Value

**ADDED PROPAGATION DELAY TIME vs EXPANDER-NODE CAPACITANCE**

