54/7450
54H/74H50

PIN CONFIGURATIONS

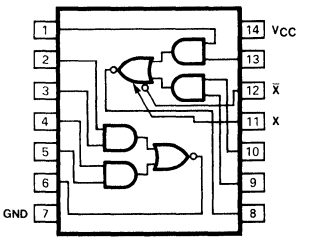

Figure A

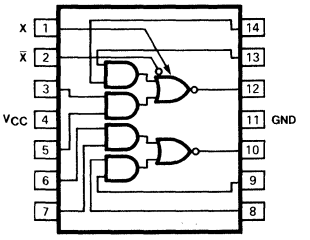

Figure B

ORDERING CODE (See Section 9 for further Package and Ordering Information)

PACKAGES	PIN CONF.	COMMERCIAL RANGES V_{CC}=5V ± 5%; T_A=0°C to +70°C	MILITARY RANGES V_{CC}=5V ± 10%; T_A=−55°C to +125°C
Plastic DIP	Fig. A	N7450N • N74H50N	
Ceramic DIP	Fig. A	N7450F • N74H50F	S5450F • S54H50F
Flatpak	Fig. B		S5450W • S54H50W

INPUT AND OUTPUT LOADING AND FAN-OUT TABLE[a]

PINS		54/74	54H/74H	54S/74S	54LS/74LS
Inputs	I_{IH} (μA) I_{IL} (mA)	40 −1.6	50 −2.0		
Outputs	I_{OH} (μA) I_{OL} (mA)	−400 16	−500 20		

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE[b]

PARAMETER		TEST CONDITIONS	54/74		54H/74H		54S/74S		54LS/74LS		UNIT
			Min	Max	Min	Max	Min	Max	Min	Max	
I_{CCH}	Supply current	V_{CC} = Max, V_{IN} = 0V		8.0		12.8					mA
I_{CCL}	Supply current	V_{CC} = Max, V_{IN} ≥4.5		14		24					mA

AC CHARACTERISTICS: T_A=25°C (See Section 4 for Waveforms and Conditions)

PARAMETER		TEST CONDITIONS	54/74		54H/74H		54S/74S		54LS/74LS		UNIT
			C_L = 15pF R_L = 400Ω		C_L = 25pF R_L 280Ω						
			Min	Max	Min	Max	Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation delay	Waveform 1		22 15		11 11					ns ns

NOTES

a. The slashed numbers indicate different parametric values for Military/Commercial temperature ranges respectively.

b. For family dc characteristics see inside front cover for 54/74 and 54H/74H, and see inside back cover for 54S/74S and 54LS/74LS specification.

DC CHARACTERISTICS (using expander inputs, V_{CC} = 4.5V, T_A = −55°C)

PARAMETER		TEST CONDITIONS	5450		54H50						UNIT
			Min	Max	Min	Max	Min	Max	Min	Max	
$I_{\overline{X}}$	Expander current	$V_{\overline{X}X}$ = 0.4V, I_{OL} = 16mA		−2.9							mA
		V_X = 1.4V, I_X = 0, I_{OL} = 0				−5.85					mA
$V_{BE(Q)}$	Base-Emitter voltage of output transistor	$I_X + I_{\overline{X}}$ = 410μA $R_{\overline{X}X}$ = 0, I_{OL} = 16mA		1.1							V
		$I_X + I_{\overline{X}}$ = 700μA $R_{\overline{X}X}$ = 0, I_{OL} = 20mA				1.1					V
V_{OH}	Output HIGH voltage	I_X = 150μA, $I_{\overline{X}}$ = −150μA I_{OH} = −400μA	2.4								V
		I_X = 320μA, $I_{\overline{X}}$ = −320μA I_{OH} = −500μA			2.4						V
V_{OL}	Output LOW voltage	$I_X + I_{\overline{X}}$ = 300μA $R_{\overline{X}X}$ = 138Ω, I_{OL} = 16mA		0.4							V
		$I_X + I_{\overline{X}}$ = 470μA $R_{\overline{X}X}$ = 68Ω, I_{OL} = 20mA				0.4					V

DC CHARACTERISTICS (using expander inputs, V_{CC} = 4.75V, T_A = 0°C)

PARAMETER		TEST CONDITIONS	7450		74H50						UNIT
			Min	Max	Min	Max	Min	Max	Min	Max	
$I_{\overline{X}}$	Expander current	$V_{\overline{X}X}$ = 0.4V, I_{OL} = 16mA		−3.1							mA
		V_X = 1.4V, I_X = 0, I_{OL} = 0				−6.3					mA
$V_{BE(Q)}$	Base-emitter voltage of output transistor	$I_X + I_{\overline{X}}$ = 620μA $R_{\overline{X}X}$ = 0, I_{OL} = 16mA		1.0							V
		$I_X + I_{\overline{X}}$ = 1.1mA $R_{X\overline{X}}$ = 0, I_{OL} = 20mA				1.0					V
V_{OH}	Output HIGH voltage	I_X = 270μA, $I_{\overline{X}}$ = −270μA I_{OH} = −400μA	2.4								V
		I_X = 570μA, $I_{\overline{X}}$ = −570μA I_{OH} = −500μA			2.4						V
V_{OL}	Output LOW voltage	$I_X + I_{\overline{X}}$ = 430μA $R_{\overline{X}X}$ = 130Ω, I_{OL} = 16mA		0.4							V
		$I_X + I_{\overline{X}}$ = 600μA $R_{\overline{X}X}$ = 63Ω, I_{OL} = 20mA				0.4					V