

54H/74H87

4-BIT TRUE/COMPLEMENT, ZERO/ONE ELEMENT

DESCRIPTION — The '87 performs four operations at its outputs, depending on the state of the Select inputs S_1 and S_2 . The outputs can be forced HIGH or LOW, or can follow the Data inputs in either the True or Complement form. The Select input coding and the output responses are shown in the Truth Table.

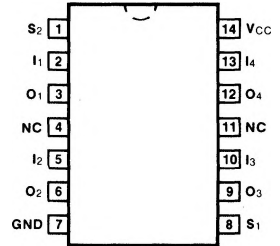
ORDERING CODE: See Section 9

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	74H87PC		9A
Ceramic DIP (D)	A	74H87DC	54H87DM	6A
Flatpak (F)	A	74H87FC	54H87FM	3I

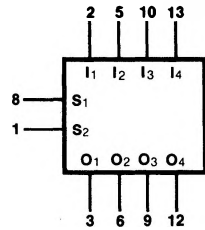
INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

PIN NAMES	DESCRIPTION	54/74H (U.L.) HIGH/LOW
$I_1 - I_4$	Data Inputs	1.25/1.25
S_1, S_2	Select Inputs	1.25/1.25
$O_1 - O_4$	Outputs	25/12.5

CONNECTION DIAGRAM PINOUT A



LOGIC SYMBOL



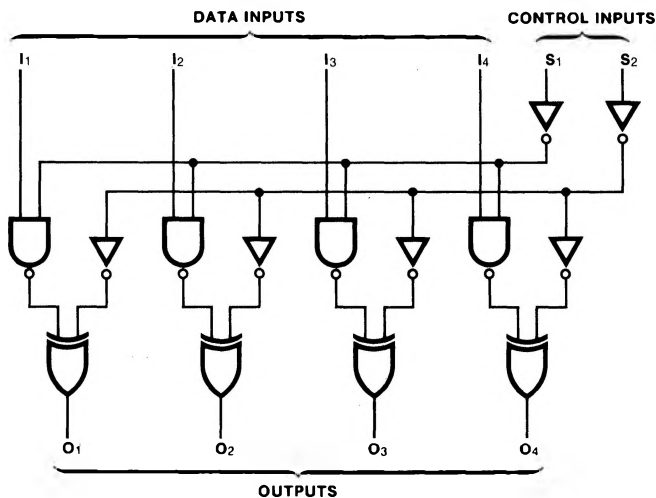
$V_{CC} = \text{Pin } 14$
 $\text{GND} = \text{Pin } 7$

TRUTH TABLE

SELECT INPUTS		OUTPUTS			
S_1	S_2	O_1	O_2	O_3	O_4
L	L	\bar{I}_1	\bar{I}_2	\bar{I}_3	\bar{I}_4
L	H	I_1	I_2	I_3	I_4
H	L	H	H	H	H
H	H	L	L	L	L

H = HIGH Voltage Level
L = LOW Voltage Level

LOGIC DIAGRAM



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER	54/74H		UNITS	CONDITIONS
		Min	Max		
V_{OH}	Output HIGH Voltage	2.4		V	$V_{CC} = \text{Min}$, $I_{OH} = -1.0 \text{ mA}$, $V_{IH} = 2.0 \text{ V}$, $V_{IL} = 0.8 \text{ V}$
I_{CC}	Power Supply Current	XM	78	mA	$V_{CC} = \text{Max}$
		XC	89		

AC CHARACTERISTICS: $V_{CC} = 5.0 \text{ V}$, $T_A = 25^\circ \text{ C}$ (See Section 3 for waveforms and load configurations)

SYMBOL	PARAMETER	54/74H		UNITS	CONDITIONS
		$C_L = 25 \text{ pF}$ $R_L = 280 \Omega$			
		Min	Max		
t_{PLH} t_{PHL}	Propagation Delay I_n to O_n		20 19	ns	Figs. 3-1, 3-20
t_{PLH} t_{PHL}	Propagation Delay S_n to O_n		25 25		