

54/7449 54LS/74LS49

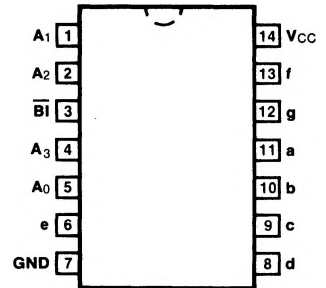
BCD TO 7-SEGMENT DECODER

DESCRIPTION — The '49 translates four lines of BCD (8421) input data into the 7-segment numeral code as shown in the Truth Table. It has open-collector outputs and is logically the 14-pin version of the '48, without the lamp test and ripple blanking features. Also see the 'LS249 data sheet.

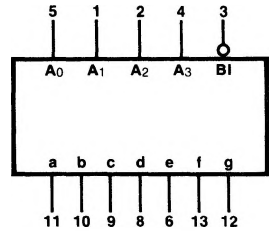
ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		V _{CC} = +5.0 V ±5%, T _A = 0°C to +70°C	V _{CC} = +5.0 V ±10%, T _A = -55°C to +125°C	
Plastic DIP (P)	A	74LS49PC		9A
Ceramic DIP (D)	A	74LS49DC	54LS49DM	6A
Flatpak (F)	A	7449FC, 74LS49FC	5449FM, 54LS49FM	3I

CONNECTION DIAGRAM PINOUT A



LOGIC SYMBOL



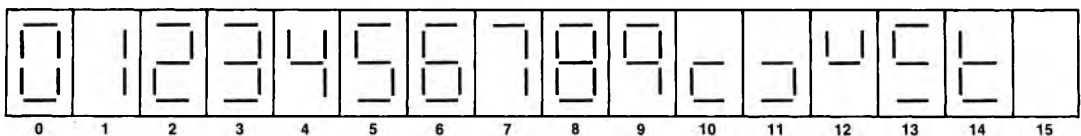
V_{CC} = Pin 14
GND = Pin 7

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

PIN NAMES	DESCRIPTION	54/74 (U.L.) HIGH/LOW	54/74LS (U.L.) HIGH/LOW
A ₀ — A ₃	BCD Inputs	1.0/1.0	0.5/0.25
BI	Blanking Input (Active LOW)	1.0/1.0	0.5/0.25
a — g	Segment Outputs (Active HIGH)	OC*/6.25	OC*/5.0 OC*/(2.5)

* OC — Open Collector

NUMERICAL DESIGNATIONS — RESULTANT DISPLAYS



TRUTH TABLE

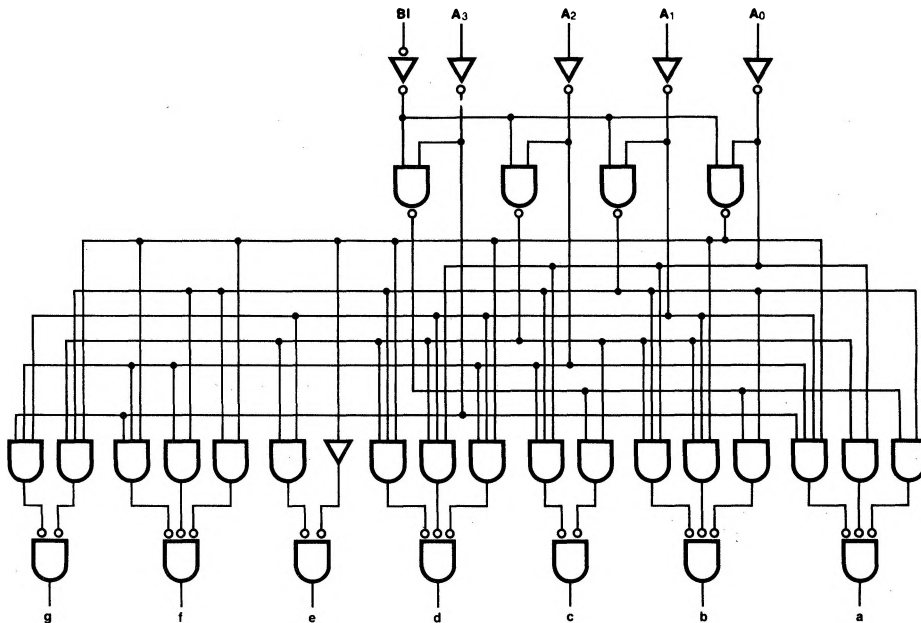
DECIMAL OR FUNCTION	INPUTS					OUTPUTS							NOTE
	A ₃	A ₂	A ₁	A ₀	\overline{BI}	a	b	c	d	e	f	g	
0	L	L	L	L	H	H	H	H	H	H	H	L	1
1	L	L	L	H	H	L	H	H	L	L	L	L	
2	L	L	H	L	H	H	H	L	H	H	L	H	
3	L	L	H	H	H	H	H	H	H	L	L	H	
4	L	H	L	L	H	L	H	H	L	L	H	H	
5	L	H	L	H	H	H	L	H	H	L	H	H	
6	L	H	H	L	H	L	L	H	H	H	H	H	
7	L	H	H	H	H	H	H	H	L	L	L	L	
8	H	L	L	L	H	H	H	H	H	H	H	H	
9	H	L	L	H	H	H	H	H	L	L	H	H	
10	H	L	H	L	H	L	L	L	H	H	L	H	
11	H	L	H	H	H	L	L	H	H	L	L	H	
12	H	H	L	L	H	L	H	L	L	L	H	H	
13	H	H	L	H	H	H	L	L	H	L	H	H	
14	H	H	H	L	H	L	L	L	H	H	H	H	
15	H	H	H	H	H	L	L	L	L	L	L	L	
BI	X	X	X	X	L	L	L	L	L	L	L	L	2

NOTES:

- (1) The blanking input must be open or held at a HIGH level when output functions 0 through 15 are desired.
- (2) When a LOW level is applied to the blanking input all segment outputs go to a LOW level regardless of the state of any other input condition. X = input may be HIGH or LOW.

H = HIGH Voltage Level
 L = LOW Voltage Level
 X = Immaterial

LOGIC DIAGRAM



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER		54/74		54/74LS		UNITS	CONDITIONS
			Min	Max	Min	Max		
V _{IL}	Input LOW Voltage	XM	0.6	0.7	v			
		XC	0.8	0.8				
I _{OH}	Output HIGH Current		250	250	μA	V _{CC} = Min, V _{OH} = 5.5 V		
I _{CC}	Power Supply Current	XM	47	15	mA	V _{CC} = Max, Inputs = 4.5 V		
		XC	56	15				

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

SYMBOL	PARAMETER		54/74		54/74LS		UNITS	CONDITIONS
			C _L = 15 pF R _L = 665 Ω		C _L = 15 pF R _L = 3 kΩ			
			Min	Max	Min	Max		
t _{PLH} t _{PHL}	Propagation Delay A _n to a—g		100	100	100	100	ns	Figs. 3-2, 3-20
t _{PLH} t _{PHL}	Propagation Delay \overline{B} I to a—g		100	100	100	100	ns	Figs. 3-2, 3-5 R _L = 6 kΩ for 'LS49