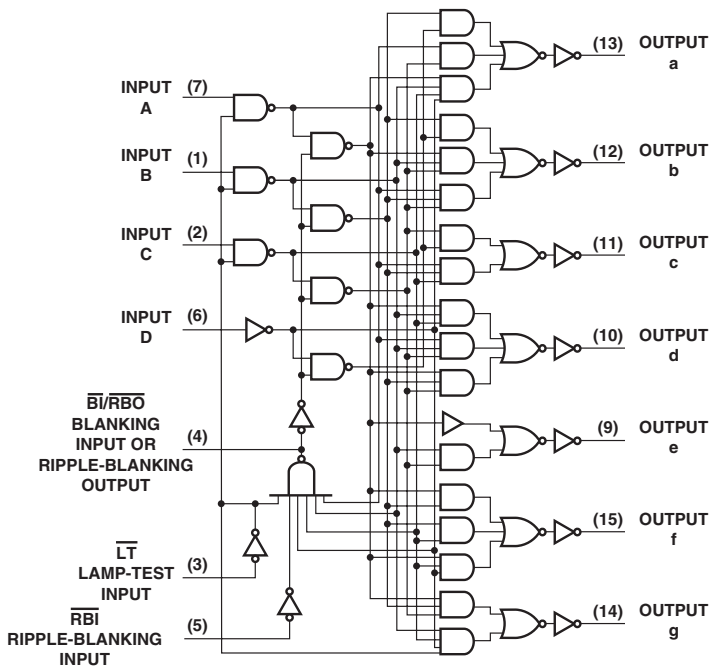
47

BCD-TO-SEVEN-SEGMENT DECODERS/DRIVERS

- Open-Collector Outputs
- Lamp-Test Provision
- Leading/Trailing Zero Suppression

Logic Diagram



: OBSOLETED or NOT RECOMMENDED NEW DESIGNS

FUNCTION TABLE

No.	INPUTS						OUTPUTS						
	$\overline{LT}$	$\overline{RBI}$	D	C	B	A	$\overline{BI}/\overline{RBO}$†	a	b	c	d	e	f	g
0	H	H	L	L	L	L	H	ON	ON	ON	ON	ON	ON	OFF
1	H	X	L	L	L	H	H	OFF	ON	ON	OFF	OFF	OFF	OFF
2	H	X	L	L	H	L	H	ON	ON	OFF	ON	ON	OFF	ON
3	H	X	L	L	H	H	H	ON	ON	ON	ON	OFF	OFF	ON
4	H	X	L	H	L	L	H	OFF	ON	ON	OFF	OFF	ON	ON
5	H	X	L	H	L	H	H	ON	OFF	ON	ON	OFF	ON	ON
6	H	X	L	H	H	L	H	OFF	OFF	ON	ON	ON	ON	ON
7	H	X	L	H	H	H	H	ON	ON	ON	OFF	OFF	OFF	OFF
8	H	X	H	L	L	L	H	ON	ON	ON	ON	ON	ON	ON
9	H	X	H	L	L	H	H	ON	ON	ON	OFF	OFF	ON	ON
10	H	X	H	L	H	L	H	OFF	OFF	OFF	ON	ON	OFF	ON
11	H	X	H	L	H	H	H	OFF	OFF	ON	ON	OFF	OFF	ON
12	H	X	H	H	L	L	H	OFF	ON	OFF	OFF	OFF	ON	ON
13	H	X	H	H	L	H	H	ON	OFF	OFF	ON	OFF	ON	ON
14	H	X	H	H	H	L	H	OFF	OFF	OFF	ON	ON	ON	ON
15	H	X	H	H	H	H	H	OFF	OFF	OFF	OFF	OFF	OFF	OFF
BI	X	X	X	X	X	X	L	OFF	OFF	OFF	OFF	OFF	OFF	OFF
RBI	H	L	L	L	L	L	L	OFF	OFF	OFF	OFF	OFF	OFF	OFF
LT	L	X	X	X	X	X	H	ON	ON	ON	ON	ON	ON	ON

H = high level, L = low level, irrelevant

NOTES: 1. The blanking input ($\overline{BI}$) must be open held at high logic level when output functions 0 through 15 are desired. The ripple-blanking input ($\overline{RBI}$) must be open or high it blanking of a decimal zero is not desired.

2. When a low logic level is applied directly to the blanking input ($\overline{BI}$), all segment outputs are off regardless of the level of any other input.

3. When ripple-blanking input ($\overline{RBI}$) and inputs A, B, C, and D are at a low level with the lamp test input high, all segment outputs go off and the ripple-blanking input/ripple blanking output ($\overline{BI}/\overline{RBI}$) is open or held high and a low is applied to the lamp-test input, all segment outputs are on.

† $\overline{BI}/\overline{RBO}$ is wire AND logic serving as blanking input ($\overline{BI}$) and/or ripple-blanking output ($\overline{RBI}$).

ELECTRICAL CHARACTERISTICS AND RECOMMENDED OPERATING CONDITIONS

PARAMETER	MAX or MIN	TTL	LS	UNIT
I_{CC}	MAX	103	13	mA
I_{OH}	MAX	-0.2	-0.05	mA
I_{OL}	MAX	8	3.2	mA

TIMING REQUIREMENTS AND SWITCHING CHARACTERISTICS

PARAMETER	INPUT	OUTPUT	MAX or MIN	TTL	LS
t_{off}	A	A to g	MAX	100	100
t_{on}	A	A to g	MAX	100	100
t_{off}	$\overline{RBI}$	A to g	MAX	100	100
t_{on}	$\overline{RBI}$	A to g	MAX	100	100

UNIT: ns