XD74LS247 DIP16 XD74LS248 DIP16

74LS247

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

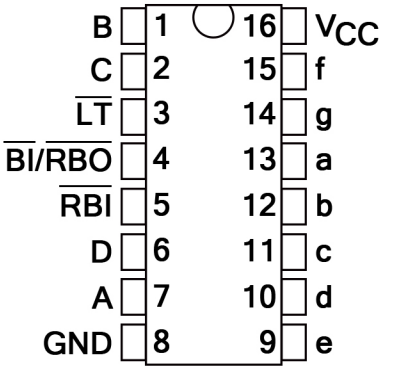
74LS248

- Internal Pull-Ups Eliminate Need for External Resistors
- Lamp-Test Provision
- Leading/Trailing Zero Suppression

- All Circuit Types Feature Lamp Intensity Modulation Capability

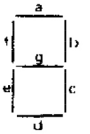
TYPE	DRIVER OUTPUTS				TYPICAL POWER DISSIPATION	PACKAGES
	ACTIVE LEVEL	OUTPUT CONFIGURATION	SINK CURRENT	MAX VOLTAGE		
74LS247 74LS248	low high	open-collector 2-kΩ pull-up	24 mA 6 mA	15 V 5.5 V	35 mW 125 mW	J,N J,N

74LS247 74LS248

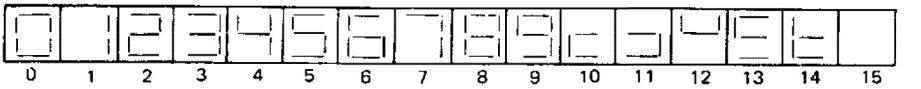


description

74LS247, and 74LS248 compose the 5 and with tails. Composition of all other characters, including display patterns for BCD inputs above nine. Is Identical. 74LS247 feature active-low outputs designed for driving Indicators directly, and the 74LS248 features active-high outputs for driving lamp buffers. All of the circuits have full rippie^blanking input/output controls and a lamp test input Segment identification and resultant displays are shown below. Display patterns for BCD input counts above 9 are unique symbols to authenticate input conditions.All of these circuits incorporate automatic leading and/or traiiing*edae zero-blanking control (RBI and RBO). Lamp test (CT) of these types may be performed at any time when the bF/RBO node Is at a high level.AH types contain an overriding blanking input (BO which can be used to control tile lamp intensity by pulsing or to inhibit the outputs. Inputs and outputs are entirely compatible for use with TTL logic outputs. Series 74 and Series 74LS devices are characterized for operation from 0°C to 70°C



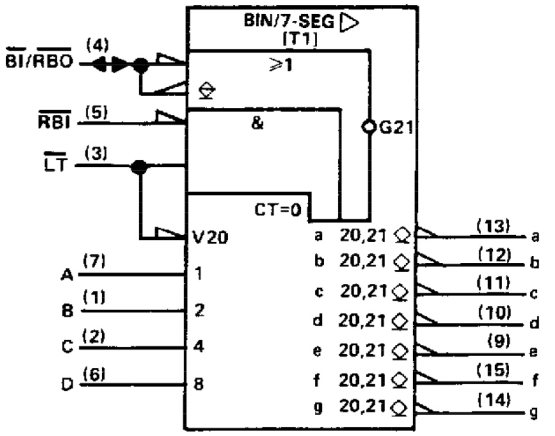
SEGMENT IDENTIFICATION



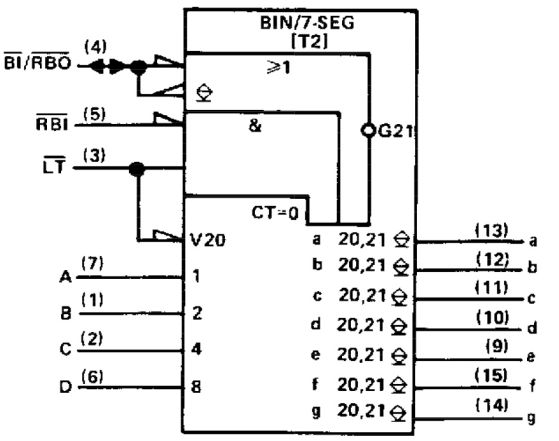
NUMERICAL DESIGNATIONS AND RESULTANT DISPLAYS

logic symbols†

74LS247



74LS248



74LS247

DECIMAL OR FUNCTION	INPUTS						$\overline{BI}/\overline{RBO}$†	OUTPUTS							NOTE
	LT	RBI	D	C	B	A		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	ON	OFF	ON	ON	ON	ON	ON	
7	H	X	L	H	H	H	H	ON	ON	ON	OFF	OFF	OFF	OFF	1
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	ON	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	
$\overline{BI}$	X	X	X	X	X	X	L	OFF	OFF	OFF	OFF	OFF	OFF	OFF	2
$\overline{RBI}$	H	L	L	L	L	L	L	OFF	OFF	OFF	OFF	OFF	OFF	OFF	3
$\overline{LT}$	L	X	X	X	X	X	H	ON	ON	ON	ON	ON	ON	ON	4

74LS248

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

H = high level, L = low level, X = irrelevant

NOTES: 1.The blanking input ($\overline{BI}$) must be open or held at a high logic tevel when output functions 0 through 15 are desired. The ripple-blanking input ($\overline{RBI}$) must be open or high if 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 low regardless of the level of any other input.

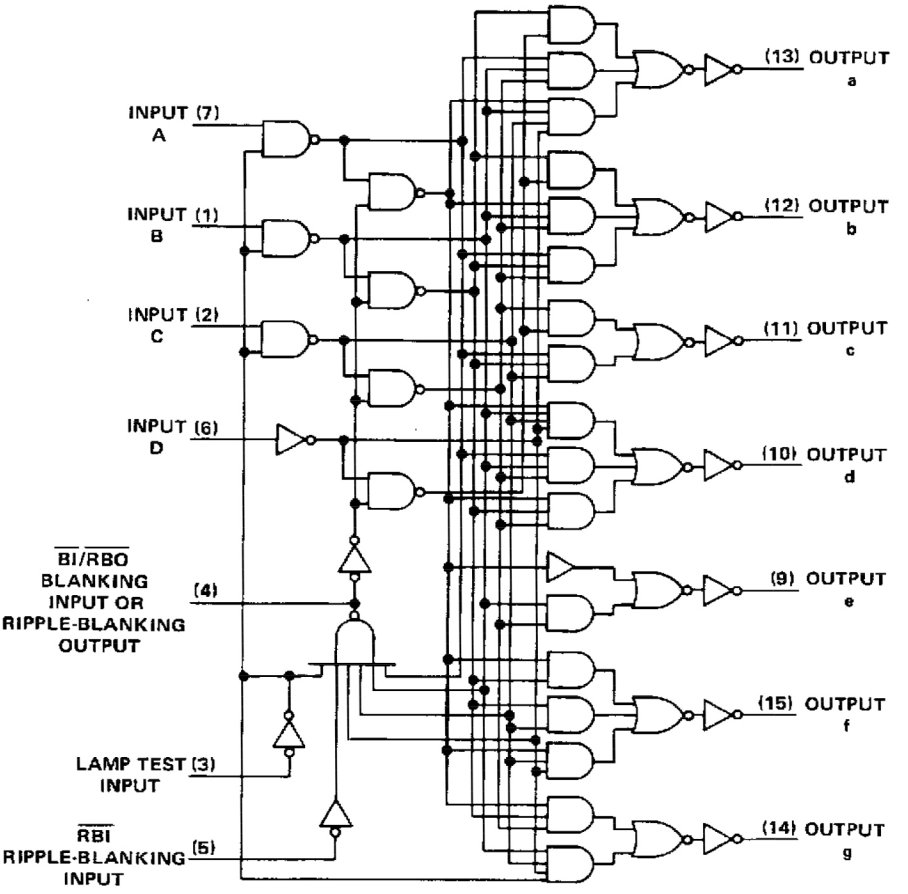
3.When ripple-blanking input($\overline{RBI}$) and inputs A, B, C, and D are at a low level with the larmp test input high, all segment outputs go low and the ripple-blanking output ($\overline{RBO}$) goes to a low lavel (response condition).

4.When the blanking input/ripple-blanking output ($\overline{BI}/\overline{RBO}$) is open or held high and a low is applied to the lamp-test input, all segment outputs are high .

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

logic diagram (positive logic)

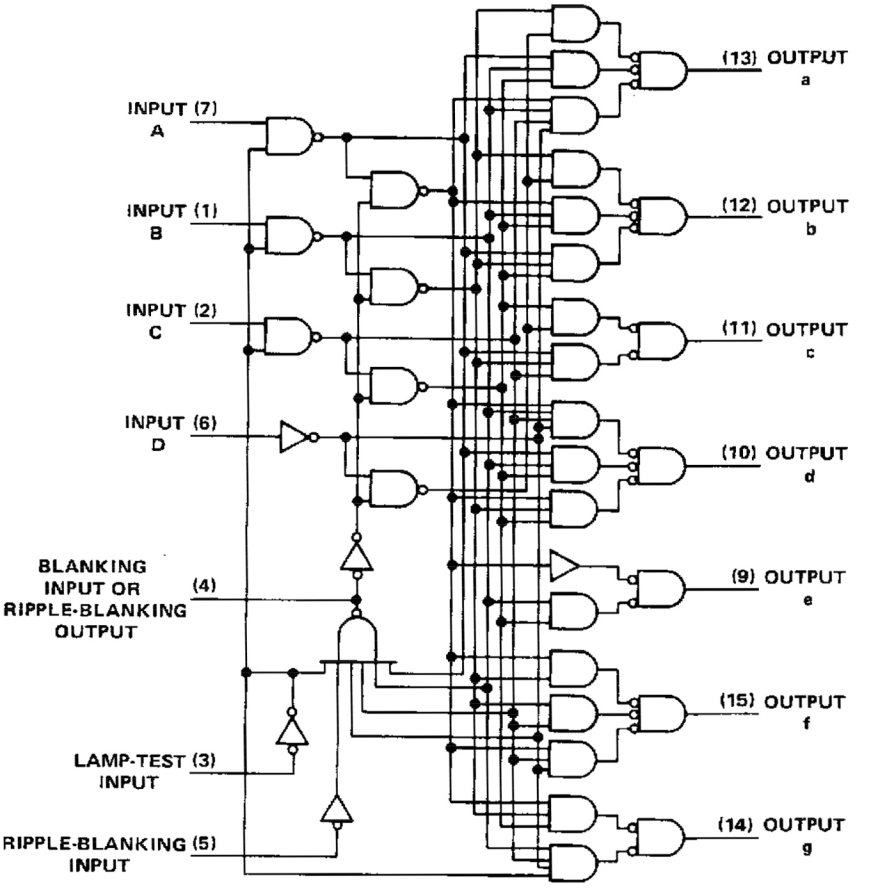
74LS247



Pin numbers shown are for D, J, N, and W packages.

logic diagram (positive logic)

74LS248

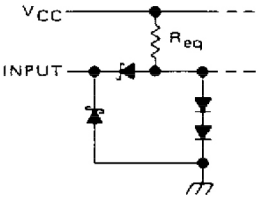


Pin numbers shown are for D, J, N, and W packages.

schematics of inputs and outputs

74LS247 74LS248

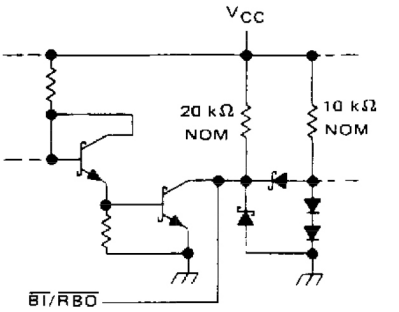
EQUIVALENT OF EACH INPUT EXCEPT $\overline{BI}/\overline{RBO}$



$\overline{LT}$ and $\overline{RBI}$: R_{eq} = 20 kΩ NOM
A, B, C, and D: R_{eq} = 25 kΩ NOM

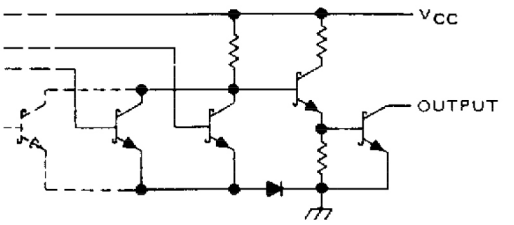
74LS247 74LS248

EQUIVALENT OF $\overline{BI}/\overline{RBO}$



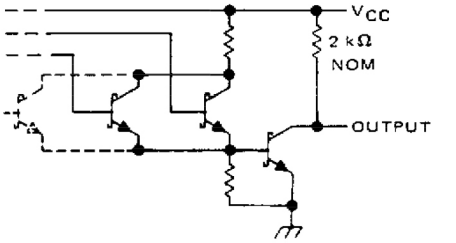
74LS247

TYPICAL OF OUTPUTS a THRU g



74LS248

TYPICAL OF OUTPUTS a THRU g



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC} (see Note1) 7V
Input voltage 7V
Peak output current (tw ≤ 1 ms, duty cycle ≤ 10%) 200mA
Current forced into any output in the off state. 1mA
Operating free-air temperature range: 74LS247 74LS248 . . . . . 0 ℃ to 70 ℃
Storage temper ature range . . . . . -65 °C to 150 °C

NOTE 1: Voltage values are with respect to network ground terminal.

recommended o perating conditions

		74LS247 74LS248			UNIT
		MIN	NOM	MAX	
Supply voltage, V_{CC}		4.75	5	5.25	V
Off-state output voltage, VO(off)	a thru g			15	V
On-state output current, IO(on)	a thru g			24	mA
High-level output current, IOH	$\overline{BI}/\overline{RBO}$			-50	μ
Low-level output current, IOL	$\overline{BI}/\overline{RBO}$			3.2	mA
Operating free-air temperature, TA		0		70	°C

electrical characteristics over recommended operating free-air temperature range (untess otherwise noted)

PARAMETER			TEST CONDITIONS †		74LS247 74LS248 MIN	TYP‡	MAX	UNIT
V_{IH}	High-level input voltage				2			V
V_{IL}	Low-level input voltage						0.8	V
V_{IK}	Input clamp voltage		V_{CC} = MIN,	I_I = -18mA			-1.5	V
V_{OH}	High-level putput voltage	$\overline{BI}/\overline{RBO}$	V_{CC} = MIN, V_{IL} = V_{IL} max,	V_{IH} = 2V, I_{OH} = -50μA	2.4	4.2		V
V_{OL}	Low-level output voltage	$\overline{BI}/\overline{RBO}$	V_{CC} = MIN, V_{IH} = 2V, V_{IL} = V_{IL} max	I_{OL} = 1.6mA		0.25	0.4	V
				I_{OL} = 3.2mA		0.35	0.5	
$I_{O(off)}$	Off-state output current	a thru g	V_{CC} = MAX, V_{IL} = V_{IL} max,	V_{IH} = 2V, $V_{O\ (off)}$ = 15V			250	μA
$V_{O(on)}$	On-state output voltage	a thru g	V_{CC} = MIN, V_{IH} = 2V, V_{IL} = V_{IL} max	$I_{IO(on)}$ = 12mA		0.25	0.4	V
				$I_{IO(on)}$ = 24mA		0.35	0.5	
I_I	Input current at maximum input voltege		V_{CC} = MAX,	V_I = 7V			0.1	mA
I_{IH}	High-level input current		V_{CC} = MAX,	V_I = 2.7V			20	μA
I_{IL}	Low-level input current	Any input except $\overline{BI}/\overline{RBO}$	V_{CC} = MAX,	V_I = 0.4V			-0.4	mA
		$\overline{BI}/\overline{RBO}$					-1.2	
I_{OS}	Short-circuit output current	$\overline{BI}/\overline{RBO}$	VCC = MAX		-0.3		-2	mA
I_{CC}	Supply current		V_{CC} = MAX,	See Note 2		7	13	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values areat Vcc=5 V,TA =25°C.

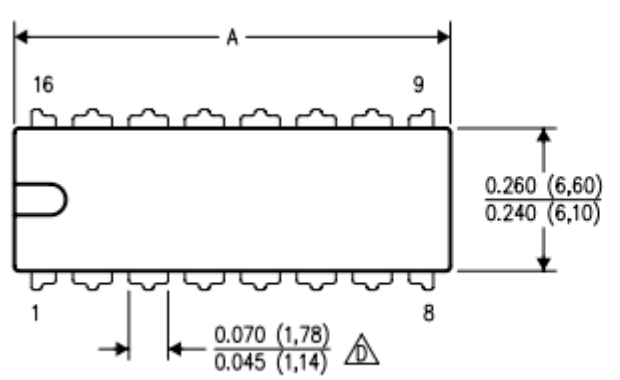
NOTE 2: Icc is measured with al outputs open and all inputs at 4.5 V.

switching characteristics, V_{CC}= 5V, T_A= 25° C .

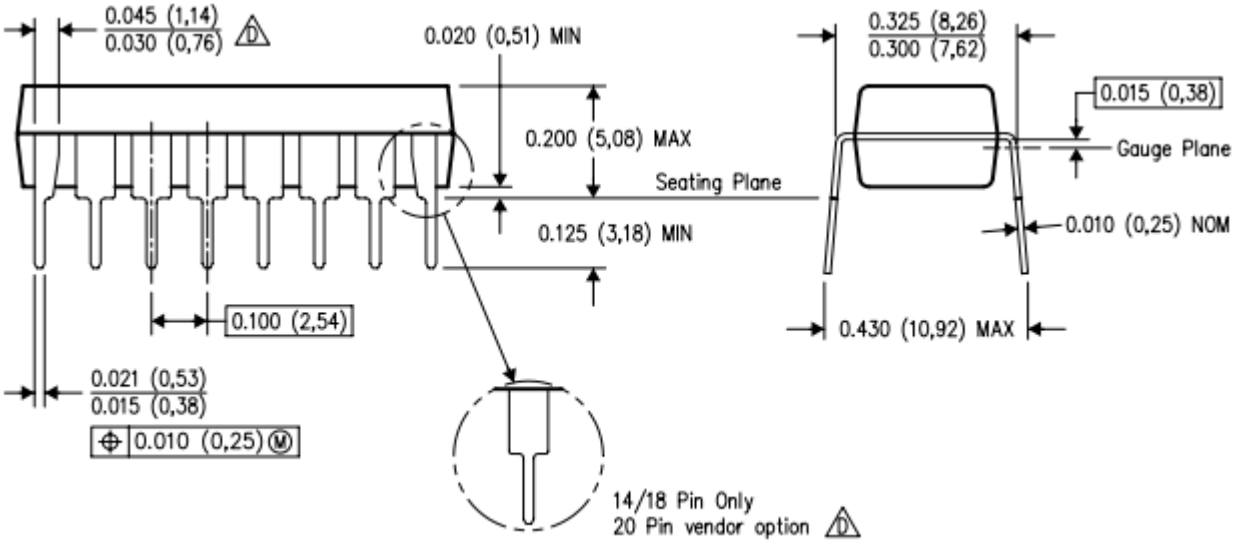
PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{off}	Turn-off time from A input	C_L = 15 pF, R_L = 665 Ω, See Note 3			100	ns
t_{on}	Turn-on time from A input				100	
t_{off}	Turn-off time from $\overline{RBI}$ input				100	ns
t_{on}	Turn-on time from $\overline{RBI}$ input				100	

NOTE3: Load circuits and voltage waveforms are shown in Section 1.

DIP



DIM \ PINS **	14	16	18	20
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS-001 VARIATION	AA	BB	AC	AD



以上信息仅供参考.如需帮助联系客服人员。谢谢 XINLUDA