

54248/74248 BCD-to-Seven-Segment Decoder / Driver

	Schottky TTL					High-Speed TTL					Low-power Schottky TTL					Standard TTL					Low-Power TTL				
	Device Type		Package			Device Type		Package			Device Type		Package			Device Type		Package			Device Type		Package		
	C	P	M	CF	C	P	M	CF	C	P	M	CF	C	P	M	CF	C	P	M	CF	C	P	M	CF	
T.I.																									
FAIRCHILD																									
MOTOROLA																									
N. S. C.																									
PHILIPS																									
SIGNETICS																									
SIEMENS																									
FUJITSU																									
HITACHI																									
NITSUBISHI																									
NEC																									
TOSHIBA																									

Electrical Characteristics SN54LS248/SN74LS248

absolute maximum ratings over operating free-air temperature range

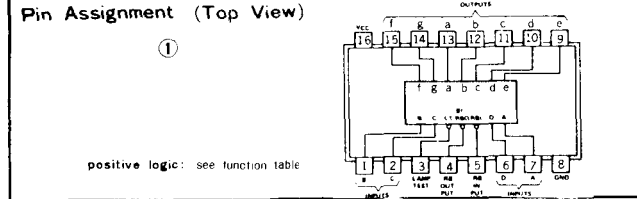
Supply voltage, V _{CC}	7V	Operating free-air temperature range	SN54LS -55°C to 125°C
Input voltage	7V	temperature range	SN74LS 0°C to 70°C
		Storage temperature range	-65°C to 150°C

recommended operating conditions

	SN54248			SN74248			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V _{CC}	4.5	5	5.25	4.75	5	5.25	V
High-level output current, I _{OH}	a thru g		-100			-100	μA
	BI/RBO		-50			-50	
Low-level output current, I _{OL}	a thru g		2			6	mA
	BI/RBO		1.6			3.2	
Operating free-air temperature, T _A		-55	125	0		70	°C

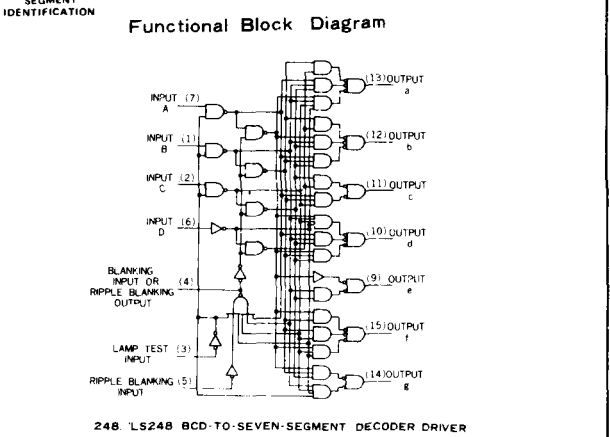
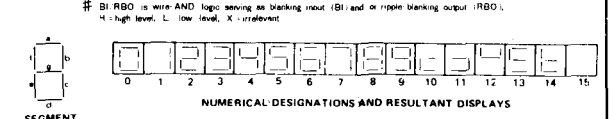
electrical characteristics over recommended operating free-air temperature range

PARAMETER*	TEST CONDITIONS†	MIN	NOM‡	MAX	UNIT
V _{IH} High-level input voltage			2		V
V _{IL} Low-level input voltage				0.8	V
V _I Input clamp voltage	V _{CC} = MIN, I _I = -18mA			-1.5	V
V _{OH} High-level output voltage	a thru g V _{CC} = MIN, V _{IH} = 2V, V _{IL} = 0.8V, I _{OH} = MAX	2.4	4.2		V
	BI/RBO	2.4	4.2		
I _O Output current	a thru g V _{CC} = MIN, V _O = 0.85V, Input conditions as for V _{OH}	-1.3	-2		mA
V _{OL} Low-level output voltage	V _{CC} = MIN, V _{IH} = 2V, V _{IL} = 0.8V, I _{OL} = MAX	0.35	0.5		V
I _I Input current at maximum input voltage	Any input except BI/RBO V _{CC} = MAX, V _I = 7V	0.1			mA
I _{IH} High-level input current	Any input except BI/RBO V _{CC} = MAX, V _I = 2.7V	20			μA
I _{IL} Low-level input current	Any input except BI/RBO V _{CC} = MAX, V _I = 0.4V	0.4			mA
I _{OS} Short-circuit output current	BI/RBO V _{CC} = MAX	0.3	2		mA
I _{CC} Supply current	V _{CC} = MAX. See Note 1	25	38		mA
t _{PHL} from A input	V _{CC} = 5V, T _A = 25°C, C _L = 15pF, R _L = 4kΩ		100		ns
t _{PLH} from A input	V _{CC} = 5V, T _A = 25°C, C _L = 15pF, R _L = 6kΩ		100		ns
t _{PHL} from RBI input	V _{CC} = 5V, T _A = 25°C, C _L = 15pF, R _L = 6kΩ		100		ns
t _{PLH} from RBI input	V _{CC} = 5V, T _A = 25°C, C _L = 15pF, R _L = 6kΩ		100		ns



248 LS248 Function Table

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



- NOTES
- I_{CC} is measured with all outputs open and all inputs at 4.5V.
 - The blanking input (BI) must be open or held at a high logic level when output functions 0 through 15 are desired. The ripple blanking input (RBI) must be open or high if blanking of a decimal zero is not desired.
 - When a low logic level is applied directly to the blanking input (BI), all segment outputs are low regardless of the level of any other input.
 - When ripple blanking input (RBI) and inputs A, B, C, and D are at a low level with the lamp test input high, all segment outputs go low and the ripple blanking output (RBO) goes to a low level response condition.
 - When the blanking input (ripple blanking output) (BI/RBO) is open or held to high and a low is applied to the lamp test input, all segment outputs are high.

† For conditions shown as MIN or MAX, use appropriate value specified under recommended operating conditions.
 ‡ All typical values are at V_{CC} = 5V, T_A = 25°C.
 * t_{PLH} = propagation delay time, low to high-level output
 t_{PHL} = propagation delay time, high to low-level output