

5400 / 7400 Quadruple 2-Input Positive-NAND Gate

	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																						
T. I.	SN54S00	J	(1)	N	(1)	W	(1)	SN54H00	J	(1)	N	(1)	W	(1)	SN54LS00	J	(1)	N	(1)	W	(1)	SN5400	J	(1)	N	(1)	W	(1)	SN54L00	J	(1)	N	(1)	W	(1)	SN74L00	J	(1)	N	(1)	W	(1)
	SN74S00	J	(1)	N	(1)	W	(1)	SN74H00	J	(1)	N	(1)	W	(1)	SN74LS00	J	(1)	N	(1)	W	(1)	SN7400	J	(1)	N	(1)	W	(1)	SN74L00	J	(1)	N	(1)	W	(1)							
FAIRCHILD	F54S00/F54S00	D	(1)				F54H00/F54H00	D	(1)				F54LS00/F54LS00	D	(1)			F5400/F5400	D	(1)			F54L00/F54L00	D	(1)																	
	FC74S00/FC9S00	D	(1)	P	(1)		FC74H00/FC9H00	D	(1)	P	(1)		FC74LS00/FC9LS00	D	(1)	P	(1)	FC7400/FC900	D	(1)	P	(1)	FC74L00/FC9L00	D	(1)	P	(1)															
MOTOROLA							MC3100	L	(1)			F	(2)						MC5400	L	(1)			F	(2)																	
							MC3000	L	(1)	P	(1)		F	(2)	SN74LS00					P	(1)	MC7400	L	(1)	P	(1)		F	(2)													
N. S. C.							DM54H00	J	(1)	N	(1)			DM54LS00	J	(1)	N	(1)		DM5400	J	(1)	N	(1)		DM54L00	J	(1)	N	(1)		DM74L00	J	(1)	N	(1)		F	(2)			
	DM74S00					N	(1)	DM74H00	J	(1)	N	(1)		DM74LS00						DM7400	J	(1)	N	(1)		DM74L00	J	(1)	N	(1)		F	(2)									
PHILIPS	N74S00					J	(1)	GJH131/74H00					(1)	N74LS00					(1)	FJH131/7400					(1)																	
SIGNETICS	N54S00	F	(1)	A	(1)	W	(1)	S54H00	F	(1)	A	(1)	W	(1)						S5400	F	(1)	A	(1)	W	(1)																
	N74S00	F	(1)	A	(1)	W	(1)	N74H00	F	(1)	A	(1)	W	(1)	N74LS00	A	(1)	N7400	F	(1)	A	(1)	W	(1)																		
SIEMENS																			FLH101					(1)																		
FUJITSU								MB601	(1)	M	(1)			74LS00	M	(1)	MB400	(1)	M	(1)																						
HITACHI	HD74S00	(1)	P	(1)									HD74LS00	P	(1)	HD7400/HD2503	(1)	P	(1)																							
MITSUBISHI	M5S00					P	(1)						M74LS00	P	(1)	M53200	P	(1)																								
NEC	μPB2S00	D	(1)										74LS00	C	(1)	μPB201	D	(1)	C	(1)																						
TOSHIBA																		T D3400 A					P	(1)																		

Electrical Characteristics SN54LS00/SN74LS00

absolute maximum ratings over operating free-air temperature range

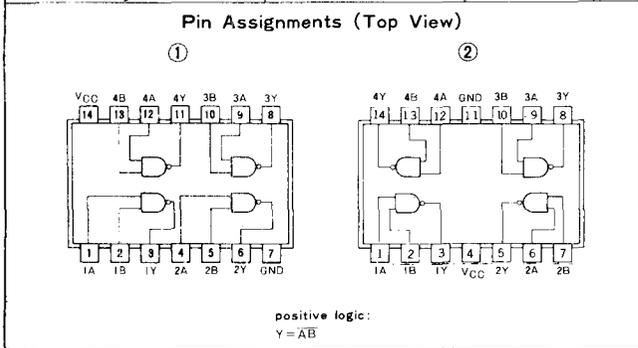
Supply voltage, V _{CC}	7V	Operating free-air temperature range	SN54LS	55°C to 125°C
Input voltage	7V	temperature range	SN74LS	0°C to 10°C
Interconnect voltage	5.5V	Storage temperature range		-65°C to 150°C

recommended operating conditions

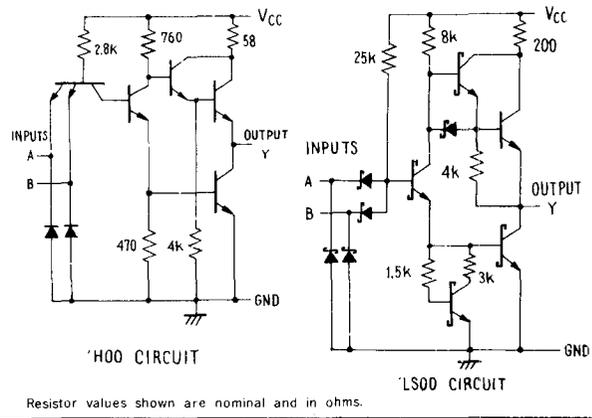
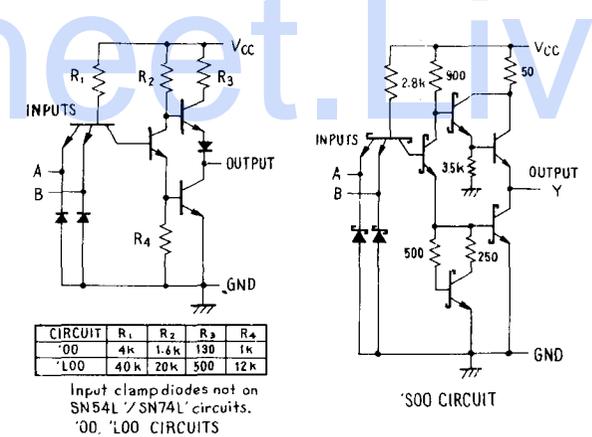
	SN54LS00			SN74LS00			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V _{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output current, I _{OH}			-400			-400	μA
Low-level output current, I _{OL}			4			8	mA
Operating free-air temperature, T _A	-55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range

PARAMETER	TEST CONDITIONS †	MIN	TYP ‡	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 = -18 mA		-1.5	V	
V _{OH}	High-level output voltage	V _{CC} = MIN, V _{IL} = V _{IL} max, I _{OH} = MAX	2.7	3.4	V	
V _{OL}	Low-level output voltage	V _{CC} = MIN, V _{IH} = 2V, I _{OL} = 4mA	0.2	0.4	V	
I _I	Input current at maximum input voltage	V _{CC} = MAX, V _I = 7V		0.1	mA	
I _{IH}	High-level input current	V _{CC} = MAX, V _{IH} = 2.7V		20	μA	
I _{IL}	Low-level input current	V _{CC} = MAX, V _{IL} = 0.4V		-0.4	mA	
I _{OS}	Short-circuit output current ♦	V _{CC} = MAX	54LS Family	-20	-100	mA
			74LS Family	-18	-100	
I _{CC} H	Supply current	V _{CC} = MAX	Total outputs high	4	8	mA
I _{CC} L	Supply current	V _{CC} = MAX	Total outputs low	12	22	mA
I _{CC}	Supply current	V _{CC} = 5V	Average per gate (50% duty cycle)	0.4		mA
t _{PLH}	Propagation delay time, low-to-high-level output	V _{CC} = 5V, T _A = 25°C, C _L = 15pF, R _L = 2kΩ		9	15	ns
t _{PHL}	Propagation delay time, high-to-low-level output			10	15	ns



Schematics (each gate)



† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values are at V_{CC} = 5V, T_A = 25°C.
♦ Not more than one output should be shorted at a time, and for SN54H/SN74H and SN54S/SN74S, duration of short-circuit should not exceed 1 second.