

5404 / 7404 Hex Inverter

	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.	SN54S04	J	⓪	W	SN54H04	J	⓪	W	SN54LS04	J	⓪	W	SN5404	J	⓪	W	SN54L04	J	⓪	T	2	
FAIRCHILD	SN74S04	J	⓪	N	SN74H04	J	⓪	N	SN74LS04	J	⓪	N	SN7404	J	⓪	N	SN74L04	J	⓪	N	T	2
	FM54S04/FM9S04	D	⓪		FM54H04/FM9H04	D	⓪	F	FM54LS04/FM9LS04	D	⓪	F	FM5404/FM9N04	D	⓪	F						
	FC74S04/FC9S04	D	⓪	P	FC74H04/FC9H04	D	⓪	P	FC74LS04/FC9LS04	D	⓪	P	FM7404/FC9N04	D	⓪	P						
MOTOROLA					MC3108	L	⓪	F				MC5404	L	⓪	F							
					MC3008	L	⓪	P	SN74LS04	P	⓪	MC7404	L	⓪	P							
N.S.C.					DM54H04	J	⓪	N	DM54LS04	J	⓪	N	DM5404	J	⓪	N	DM54L04	J	⓪	N	F	2
	DM74S04	N	⓪		DM74H04	J	⓪	N	DM74LS04	J	⓪	N	DM7404	J	⓪	N	DM74L04	J	⓪	N	F	2
PHILIPS					N74H04	⓪			N74LS04	⓪			FJH241/7404	⓪								
SIGNETICS	S54S04	F	⓪	A	S54H04	F	⓪	A	S54LS04	F	⓪	A	S5404	F	⓪	A	S54L04	F	⓪	A	W	2
	N74S04	F	⓪	A	N74H04	F	⓪	A	N74LS04	F	⓪	A	N7404	F	⓪	A						
SIEMENS													FLH211	⓪								
FUJITSU									74LS04	M	⓪		MB418	⓪	M							
HITACHI	HD74S04	⓪	P	⓪					HO74LS04	P	⓪		HD7404/HD2522	⓪	P	⓪						
MITSUBISHI	M55004		P	⓪					M74LS04	P	⓪		M53204		P	⓪						
NEC	74S04	C	⓪						74LS04	C	⓪		μPB235	D	⓪							
TOSHIBA													TD3404A	P	⓪							

Electrical Characteristics SN54LS04/SN74LS04
absolute maximum ratings over operating free-air temperature range

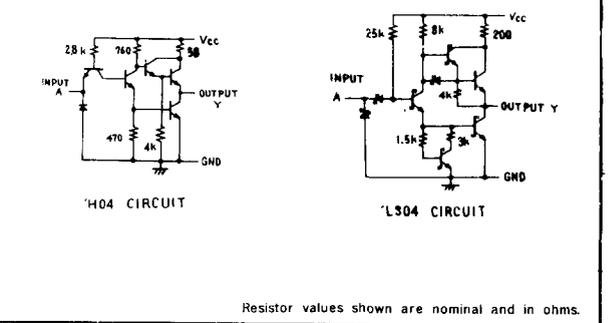
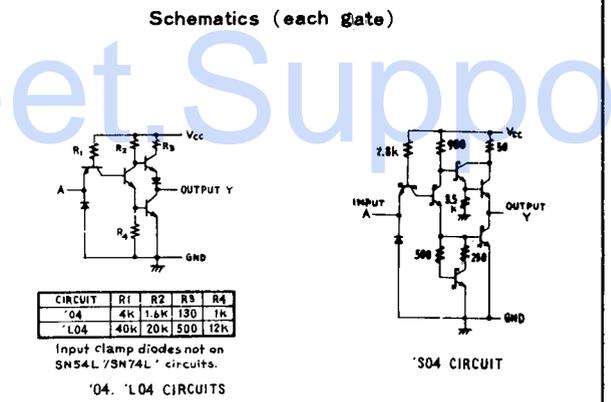
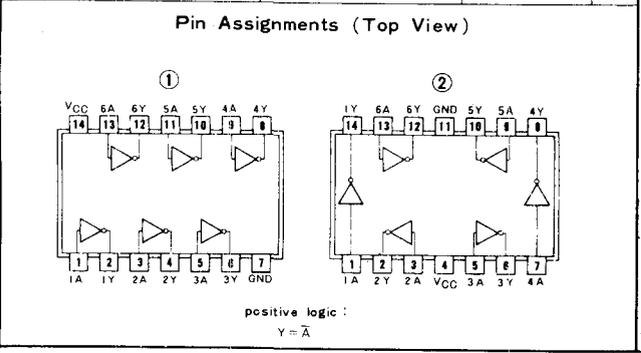
Supply voltage, V _{CC}	7V	Operating free-air temperature range	SN54LS	-55°C to 125°C
Input voltage	7V		SN74LS	0°C to 70°C
		Storage temperature range		-65°C to 150°C

recommended operating conditions

	SN54LS04			SN74LS04			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 = -18mA		-1.5	V
V _{OH}	High-level output voltage	V _{CC} = MIN, I _{OH} = MAX, V _{IL} = V _{IL} max.	2.7	3.4	V
V _{OL}	Low-level output voltage	V _{CC} = MIN, I _{OL} = 4mA, V _{IH} = 2V.		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	mA
			74LS Family	-20	mA
I _{CC} H	Supply current	V _{CC} = MAX	Total, outputs high	1.2	mA
I _{CC} L	Supply current	V _{CC} = MAX	Total, outputs low	3.6	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, C _L = 15PF, R _L = 2KΩ		9	ns
t _{PHL}	Propagation delay time, high-to-low-level output			10	ns



† 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.