

HEX INVERTER

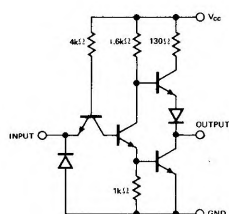
S5404

N7404

S5404—A,F,W • N7404—A,F

DIGITAL 54/74 TTL SERIES

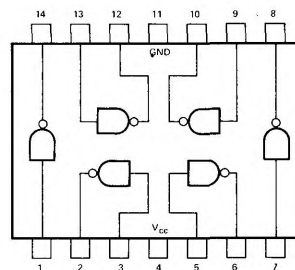
SCHEMATIC (each inverter)



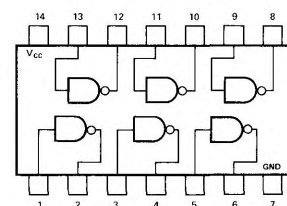
NOTE: Component values shown are nominal.

PIN CONFIGURATIONS

W PACKAGE



A,F PACKAGE



RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
Supply Voltage V_{CC} : S5404 Circuits	4.5	5	5.5	V
N7404 Circuits	4.75	5	5.25	V
Normalized Fan-Out from Output, N			10	
Operating Free-Air Temperature Range, T_A : S5404 Circuits	-55	25	125	°C
N7404 Circuits	0	25	70	°C

ELECTRICAL CHARACTERISTICS (over recommended operating free-air temperature range unless otherwise noted)

PARAMETER	TEST CONDITIONS*	MIN	TYP**	MAX	UNIT
$V_{in(1)}$ Logical 1 input voltage required at input terminal to ensure logical 0 level at output	$V_{CC} = \text{MIN}$	2			V
$V_{in(0)}$ Logical 0 input voltage required at any input terminal to ensure logical 1 level at output	$V_{CC} = \text{MIN}$			0.8	V
$V_{out(1)}$ Logical 1 output voltage	$V_{CC} = \text{MIN}$, $I_{load} = -400\mu\text{A}$	2.4	3.3		V
$V_{out(0)}$ Logical 0 output voltage	$V_{CC} = \text{MIN}$, $I_{sink} = 16\text{mA}$		0.22	0.4	V
$I_{in(0)}$ Logical 0 level input current (each input)	$V_{CC} = \text{MAX}$, $V_{in} = 0.4\text{V}$			-1.6	mA
$I_{in(1)}$ Logical 1 level input current	$V_{CC} = \text{MAX}$, $V_{CC} = \text{MAX}$, $V_{in} = 2.4\text{V}$, $V_{in} = 5.5\text{V}$			40 1	μA mA
I_{OS} Short circuit output current†	$V_{CC} = \text{MAX}$	S5404 N7404 -20 -18		-55 -55	mA

SIGNETICS DIGITAL 54/74 TTL SERIES - S5404 • N7404

ELECTRICAL CHARACTERISTICS (Cont'd)

PARAMETER		TEST CONDITIONS *		MIN	TYP	MAX	UNIT
$I_{CC(0)}$	Logical 0 level supply current	$V_{CC} = \text{MAX},$	$V_{in} = 5V$		18	33	mA
$I_{CC(1)}$	Logical 1 level supply current	$V_{CC} = \text{MAX},$	$V_{in} = 0$		6	12	mA

SWITCHING CHARACTERISTICS, $V_{CC} = 5V, T_A = 25^\circ C, N = 10$

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{pd0}	Propagation delay time to logical 0 level	$C_L = 15pF,$	$R_L = 400\Omega$		8	15	ns
t_{pd1}	Propagation delay time to logical 1 level	$C_L = 15pF,$	$R_L = 400\Omega$		12	22	ns

* For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.

** All typical values are at $V_{CC} = 5V, T_A = 25^\circ C$.

† Not more than one output should be shorted at a time.