

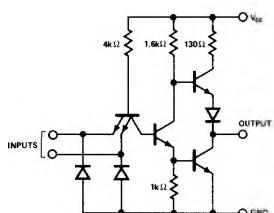
# QUADRUPLE 2-INPUT POSITIVE NAND GATE

**S5400  
N7400**

S5400-A,F,W • N7400-A,F

DIGITAL 54/74 TTL SERIES

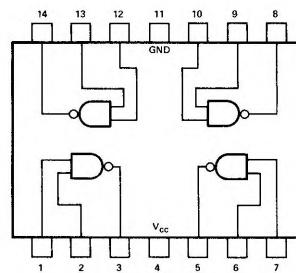
## SCHEMATIC (each gate)



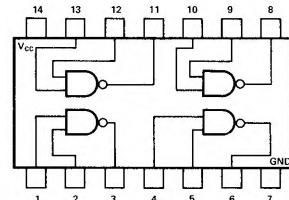
NOTE: Component values shown are nominal.

## PIN CONFIGURATIONS

### W PACKAGE



### A,F PACKAGE



## RECOMMENDED OPERATING CONDITIONS

		MIN	NOM	MAX	UNIT
Supply Voltage $V_{CC}$ :	S5400 Circuits	4.5	5	5.5	V
	N7400 Circuits	4.75	5	5.25	V
Normalized Fan-Out from each Output, N				10	
Operating Free-Air Temperature Range, $T_A$ :	S5400 Circuits	-55	25	125	°C
	N7400 Circuits	0	25	70	°C

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

PARAMETER	TEST CONDITIONS*	MIN	TYP**	MAX	UNIT
$V_{in(1)}$	$V_{CC} = \text{MIN}$		2		V
$V_{in(0)}$	$V_{CC} = \text{MIN}$			0.8	V
$V_{out(1)}$	$V_{CC} = \text{MIN}$ , $I_{load} = -400\mu\text{A}$		2.4	3.3	V
$V_{out(0)}$	$V_{CC} = \text{MIN}$ , $I_{sink} = 16\text{mA}$		0.22	0.4	V
$I_{in(0)}$	$V_{CC} = \text{MAX}$ ,			-1.6	$\text{mA}$
$I_{in(1)}$	$V_{CC} = \text{MAX}$ , $V_{CC} = \text{MAX}$ , $V_{in} = 0.4\text{V}$			40	$\mu\text{A}$
$I_{OS}$	$V_{CC} = \text{MAX}$	$S5400$ $N7400$	-20 -18	-55 -55	$\text{mA}$

SIGNETICS DIGITAL 54/74 TTL SERIES - S5400 • N7400

ELECTRICAL CHARACTERISTICS (Cont'd)

PARAMETER	TEST CONDITIONS *	MIN	TYP**	MAX	UNIT
I <sub>CC(0)</sub> Logical 0 level supply current	V <sub>CC</sub> = MAX, V <sub>in</sub> = 5V		12	22	mA
I <sub>CC(1)</sub> Logical 1 level supply current	V <sub>CC</sub> = MAX, V <sub>in</sub> = 0		4	8	mA

SWITCHING CHARACTERISTICS, V<sub>CC</sub> = 5V, T<sub>A</sub> = 25°C, N = 10

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t <sub>pd(0)</sub> Propagation delay time to logical 0 level	C <sub>L</sub> = 15pF, R <sub>L</sub> = 400Ω		7	15	ns
t <sub>pd(1)</sub> Propagation delay time to logical 1 level	C <sub>L</sub> = 15pF, R <sub>L</sub> = 400Ω		11	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<sub>CC</sub> = 5V, T<sub>A</sub> = 25°C

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