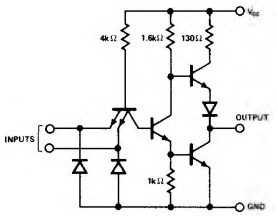
QUADRUPLE 2-INPUT POSITIVE NAND GATE

S5400 N7400

S5400—A,F,W • N7400—A,F

DIGITAL 54/74 TTL SERIES

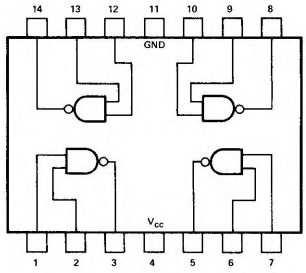
SCHEMATIC (each gate)



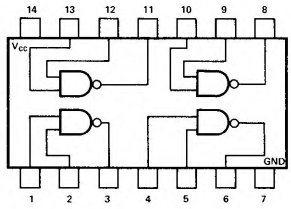
NOTE: Component values shown are nominal.

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
$V_{in(1)}$	Logical 1 input voltage required at both input terminals to ensure logical 0 level at output	V_{CC} = MIN			2			V
$V_{in(0)}$	Logical 0 input voltage required at either input terminal to ensure logical 1 level at output	V_{CC} = MIN					0.8	V
$V_{out(1)}$	Logical 1 output voltage	V_{CC} = MIN, I_{load} = −400μA	V_{in} = 0.8V,		2.4	3.3		V
$V_{out(0)}$	Logical 0 output voltage	V_{CC} = MIN, I_{sink} = 16mA	V_{in} = 2V,			0.22	0.4	V
$I_{in(0)}$	Logical 0 level input current (each input)	V_{CC} = MAX,	V_{in} = 0.4V				−1.6	mA
$I_{in(1)}$	Logical 1 level input current (each input)	V_{CC} = MAX,	V_{in} = 2.4V				40	μA
		V_{CC} = MAX,	V_{in} = 5.5V				1	mA
I_{OS}	Short circuit output current†	V_{CC} = MAX		S5400	−20		−55	mA
				N7400	−18		−55	

ELECTRICAL CHARACTERISTICS (Cont'd)

PARAMETER		TEST CONDITIONS *		MIN	TYP **	MAX	UNIT
$I_{CC(0)}$	Logical 0 level supply current	V_{CC} = MAX,	V_{in} = 5V		12	22	mA
$I_{CC(1)}$	Logical 1 level supply current	V_{CC} = MAX,	V_{in} = 0		4	8	mA

SWITCHING CHARACTERISTICS, V_{CC} = 5V, T_A = 25°C, N = 10

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
$t_{pd(0)}$	Propagation delay time to logical 0 level	C_L = 15pF,	R_L = 400Ω		7	15	ns
$t_{pd(1)}$	Propagation delay time to logical 1 level	C_L = 15pF,	R_L = 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_{CC} = 5V, T_A = 25°C

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