

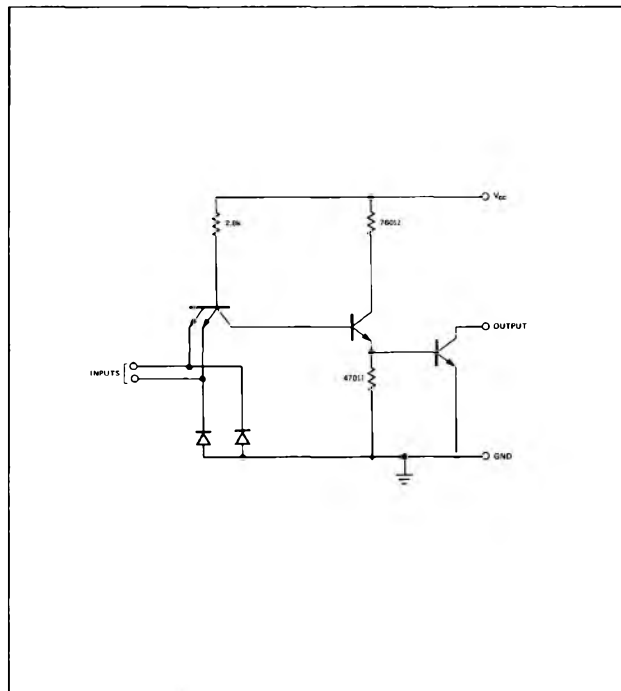
QUADRUPLE 2-INPUT POSITIVE NAND GATE WITH OPEN COLLECTOR OUTPUT

S54H01 N74H01

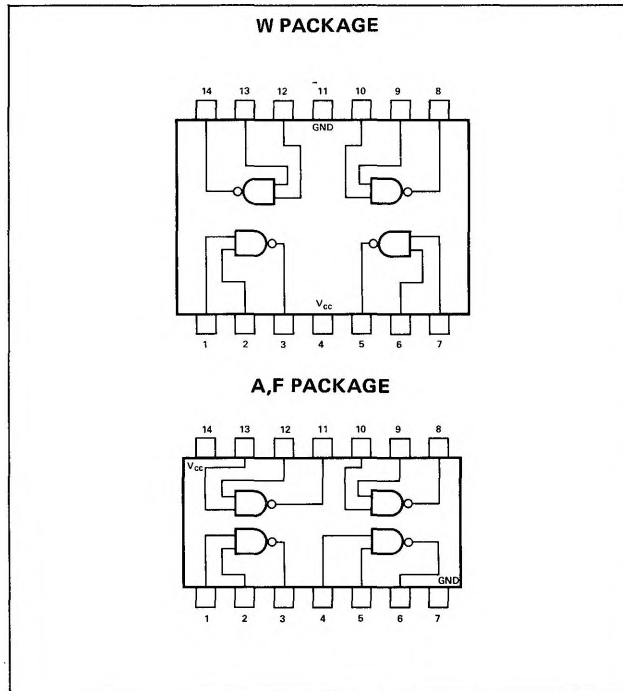
S54H01-A,F,W • N74H01-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC (each gate)



PIN CONFIGURATIONS



RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
Supply Voltage V_{CC} : S54H01 Circuits	4.5	5	5.5	V
N74H01 Circuits	4.75	5	5.25	V
Normalized Fan-Out from each Output, N			10	
Operating Free-Air Temperature Range, T_A : S54H01 Circuits	-55	25	125	$^{\circ}C$
N74H01 Circuits	0	25	70	$^{\circ}C$

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 all input terminals to ensure logical 0(on) 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(off) level at output	$V_{CC} = \text{MIN},$		0.8	V
$I_{out(1)}$	Output reverse current	$V_{CC} = \text{MIN},$ $V_{out(1)} = 5.5V$	$V_{in} = 0.8V,$	250	μA
$V_{out(0)}$	Logical 0 output voltage (on level)	$V_{CC} = \text{MIN},$ $I_{sink} = 20mA$	$V_{in} = 2V,$	0.4	V
$I_{in(0)}$	Logical 0 level input current (each input)	$V_{CC} = \text{MAX},$	$V_{in} = 0.4V$	-2	mA
$I_{in(1)}$	Logical 1 level input current (each input)	$V_{CC} = \text{MAX},$ $V_{CC} = \text{MAX},$	$V_{in} = 2.4V$ $V_{in} = 5.5V$	50 1	μA mA
$I_{CC(0)}$	Logical 0 level supply current	$V_{CC} = \text{MAX},$	$V_{in} = 4.5V$	26 40	mA
$I_{CC(1)}$	Logical 1 level supply current	$V_{CC} = \text{MAX}$	$V_{in} = 0$	6.8 10.0	mA

SIGNETICS DIGITAL 54/74 TTL SERIES — S54H01 • N74H01

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	$C_L = 25pF$,	$R_L = 280\Omega$		7.5	12.0	ns
t_{pd1}	Propagation delay time to logical 1 level	$C_L = 25pF$,	$R_L = 280\Omega$		10.0	15.0	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 $V_{CC} = 5V$, $T_A = 25^\circ C$.

† Load resistor R_L is connected from V_{CC} to the output, and load capacitor C_L is connected from the output to ground.