

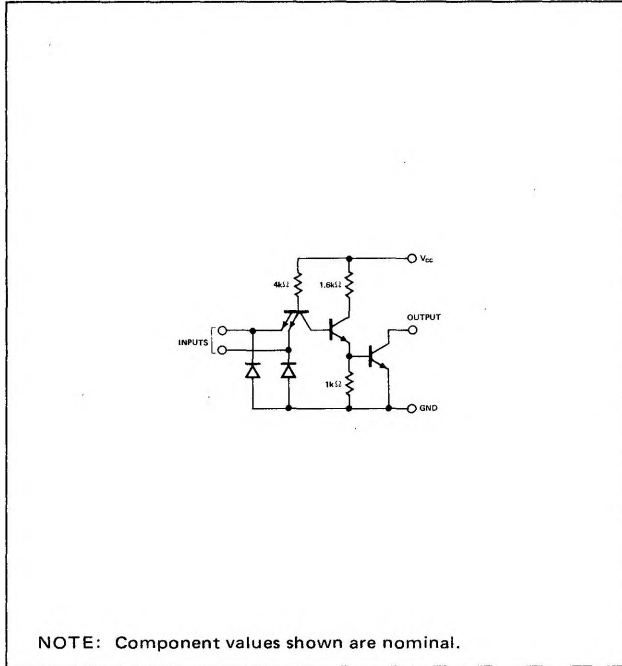
QUADRUPLE 2-INPUT POSITIVE NAND GATE WITH OPEN COLLECTOR OUTPUT

S5401 N7401

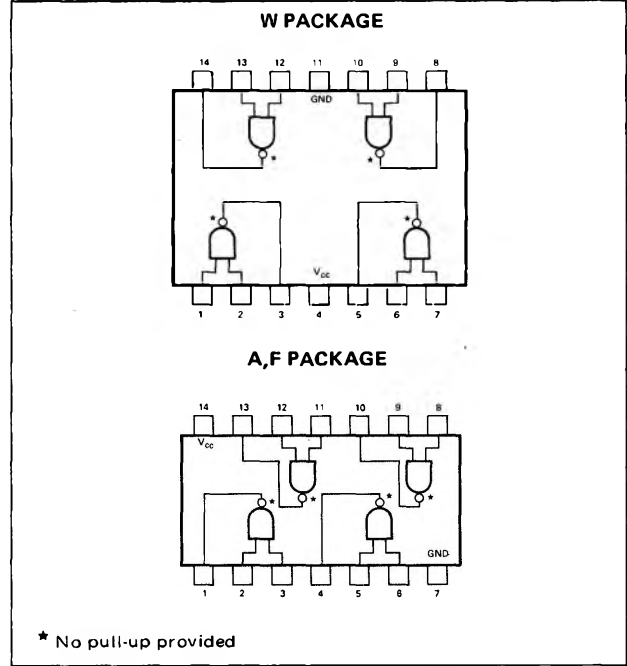
S5401-A,F,W • N7401-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC (each gate)



PIN CONFIGURATIONS



RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
Supply Voltage V_{CC} : S5401 Circuits	4.5	5	5.5	V
N7401 Circuits	4.75	5	5.25	V
Normalized Fan-Out from each Output, N			10	
Operating Free-Air Temperature Range, T_A : S5401 Circuits	-55	25	125	$^{\circ}\text{C}$
N7401 Circuits	0	25	70	$^{\circ}\text{C}$

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 (on) level at output	$V_{CC} = \text{MIN}$			2	V
$V_{in(0)}$	Logical 0 input voltage required at either input terminal to ensure logical 1 (off) level at output	$V_{CC} = \text{MIN}$			0.8	V
$I_{out(1)}$	Output reverse current	$V_{CC} = \text{MIN}$, $V_{out(1)} = 5.5\text{V}$	$V_{in(0)} = 0.8\text{V}$	250	μA	
$V_{out(0)}$	Logical 0 output voltage (on level)	$V_{CC} = \text{MIN}$, $I_{sink} = 16\text{mA}$	$V_{in} = 2\text{V}$,	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 (each input)	$V_{CC} = \text{MAX}$,	$V_{in} = 2.4\text{V}$	40	μA	
		$V_{CC} = \text{MAX}$,	$V_{in} = 5.5\text{V}$	1	mA	
$I_{CC(0)}$	Logical 0 level supply current	$V_{CC} = \text{MAX}$,	$V_{in} = 5\text{V}$	12	22	mA
$I_{CC(1)}$	Logical 1 level supply current	$V_{CC} = \text{MAX}$	$V_{in} = 0$	4	8	mA

SIGNETICS DIGITAL 54/74 TTL SERIES - S5401 • N7401

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

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	$C_L = 15pF$,	$R_L = 4 k\Omega$		35	45	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 $V_{CC} = 5V$, $T_A = 25^\circ C$