

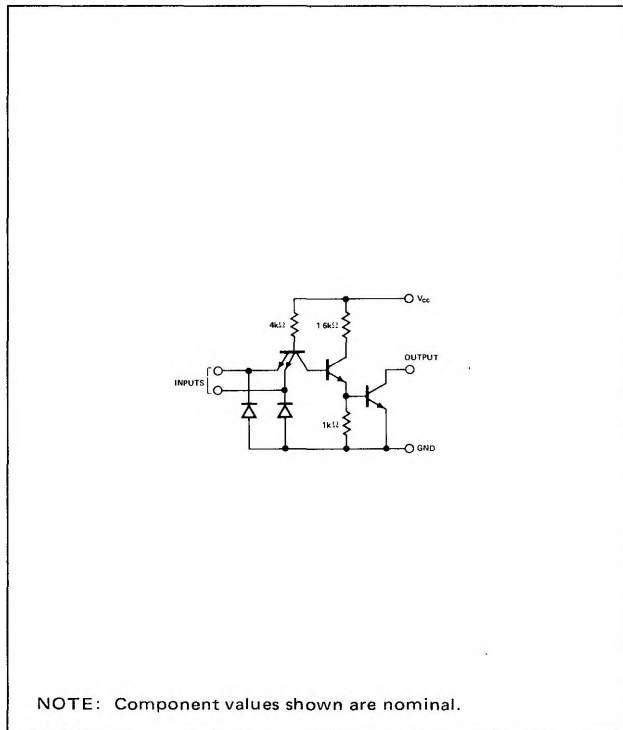
# QUADRUPLE 2-INPUT POSITIVE NAND GATE WITH OPEN COLLECTOR OUTPUT

# S5403 N7403

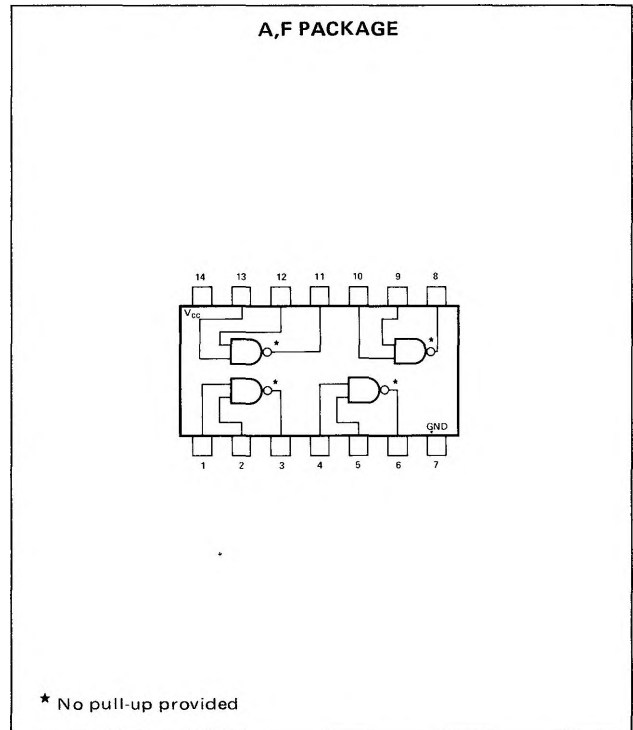
S5403-A,F • N7403-A,F

DIGITAL 54/74 TTL SERIES

**SCHEMATIC (each gate)**



**PIN CONFIGURATIONS**



**RECOMMENDED OPERATING CONDITIONS**

	MIN	NOM	MAX	UNIT
Supply Voltage $V_{CC}$ : S5403 Circuits	4.5	5	5.5	V
N7403 Circuits	4.75	5	5.25	V
Normalized Fan-Out from Output, N			10	
Operating Free-Air Temperature Range, $T_A$ : S5403 Circuits	-55	25	125	$^{\circ}C$
N7403 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 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	$V_{CC} = \text{MIN}$ ,	$V_{in} = 0.8V$	0.8	V
$I_{out(1)}$	Output reverse current	$V_{CC} = \text{MIN}$ , $V_{out(1)} = 5.5V$	$V_{in} = 2V$ ,	250	$\mu A$
$V_{out(0)}$	Logical 0 output voltage (on level)	$V_{CC} = \text{MIN}$ , $I_{sink} = 16mA$		0.4	V
$I_{in(0)}$	Logical 0 level input current (each input)	$V_{CC} = \text{MAX}$ ,	$V_{in} = 0.4V$	-1.6	mA
$I_{in(1)}$	Logical 1 level input current (each input)	$V_{CC} = \text{MAX}$ , $V_{CC} = \text{MAX}$ ,	$V_{in} = 2.4V$ $V_{in} = 5.5V$	40 1	$\mu A$ mA

**SIGNETICS DIGITAL 54/74 TTL SERIES - S5403 • N7403**

**ELECTRICAL CHARACTERISTICS (Cont'd)**

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

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