

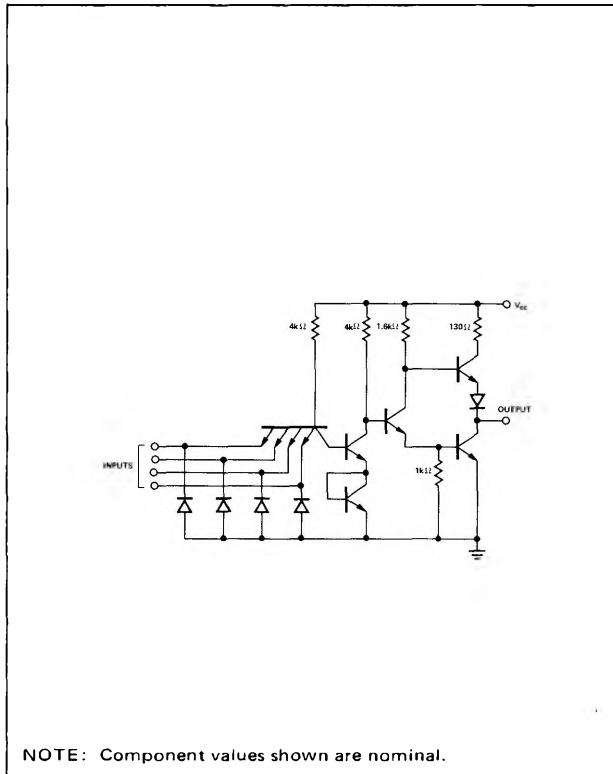
DUAL 4-INPUT POSITIVE AND GATE

S5421 N7421

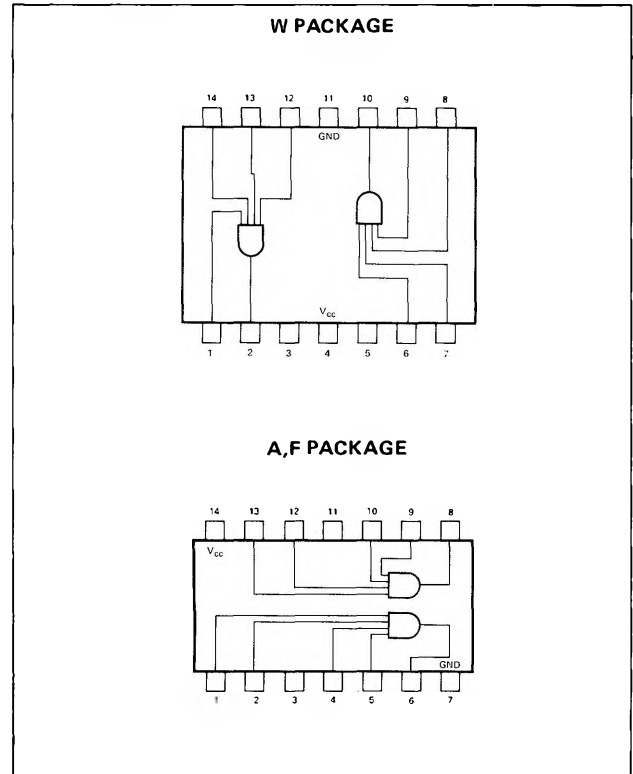
S5421-A,F,W • N7421-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC DIAGRAM



PIN CONFIGURATIONS



RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
Supply Voltage V_{CC} : S5421 Circuits	4.5	5	5.5	V
N7421 Circuits	4.75	5	5.25	V
Normalized Fan-Out from Output, N			10	
Operating Free-Air Temperature Range, T_A : S5421 Circuits	-55	25	125	°C
N7421 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 all input terminals to ensure logical 1 level at output	$V_{CC} = \text{MIN}$			V
$V_{in(0)}$	Logical 0 input voltage required at any input terminal to ensure logical 0 level at output	$V_{CC} = \text{MIN}$			V
$V_{out(1)}$	Logical 1 output voltage	$V_{CC} = \text{MIN}$, $I_{load} = -800\mu\text{A}$	$V_{in} = 2.0\text{V}$, 2.4	3.3	V
$V_{out(0)}$	Logical 0 output voltage	$V_{CC} = \text{MIN}$, $I_{sink} = 16\text{mA}$	$V_{in} = 0.8\text{V}$, 0.22	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
I_{OS}	Short circuit output	$V_{CC} = \text{MAX}$, $V_{in} = 5.5\text{V}$		1	mA
		S5421	-20	-55	mA
		N7421	-18	-55	mA

SIGNETICS DIGITAL 54/74 TTL SERIES - S5421 • N7421

ELECTRICAL CHARACTERISTICS (Cont'd)

PARAMETER		TEST CONDITIONS *	MIN	TYP**	MAX	UNIT
$I_{CC(1)}$	Logical 1 level supply current	$V_{CC} = \text{MAX},$ $V_{in} = 5V$		5	8	mA
$I_{CC(0)}$	Logical 0 level supply current	$V_{CC} = \text{MAX},$ $V_{in} = 0$		9	13	mA

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	$C_L = 15pF,$ $R_L = 400\Omega$		12	19	ns
t_{pd1}	Propagation delay time to logical 1 level	$C_L = 15pF,$ $R_L = 400\Omega$		17.5	27	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 $V_{CC} = 5V, T_A = 25^\circ C.$
- † Not more than one output should be shorted at a time.