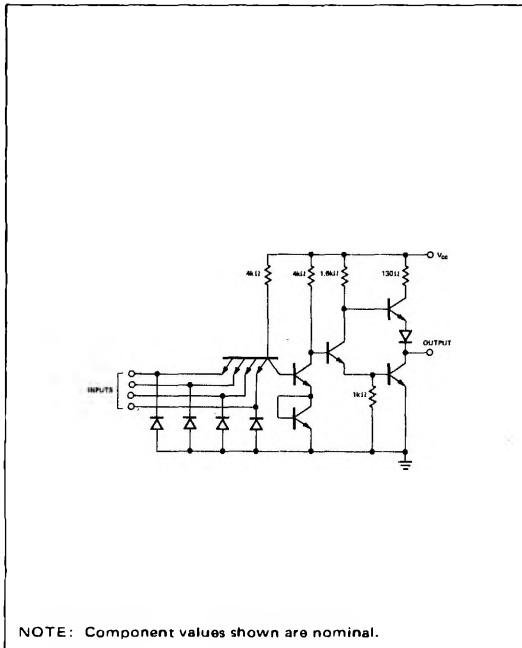


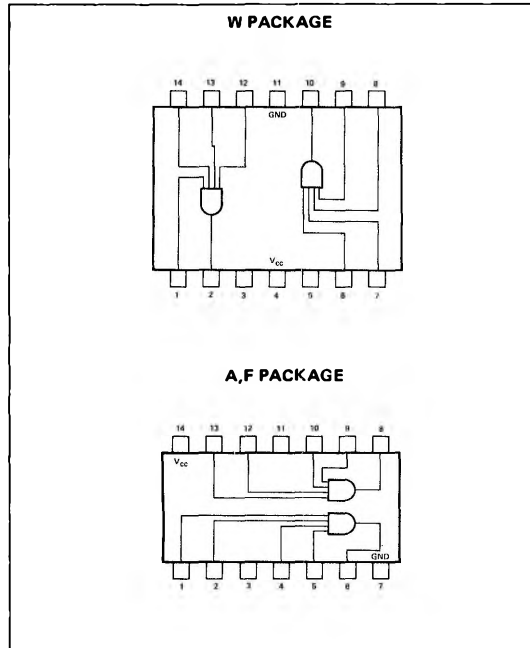
S5421-A,F,W • N7421-A,F

DIGITAL 54/74 TTL SERIES

### SCHEMATIC DIAGRAM



### PIN CONFIGURATIONS



### RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
	Supply Voltage $V_{CC}$ : S5421 Circuits N7421 Circuits	4.5	5	5.5
Normalized Fan-Out from Output, N	4.75	5	5.25	V
Operating Free-Air Temperature Range, $T_A$ : S5421 Circuits N7421 Circuits	-55	25	125	°C
	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	$V_{CC} = \text{MIN}$	2			V
$V_{in(0)}$	Logical 0 input voltage required at any input terminal to ensure logical 0 level at output	$V_{CC} = \text{MIN}$			0.8	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)	$V_{CC} = \text{MAX},$ $V_{in} = 2.4\text{V}$ $V_{in} = 5.5\text{V}$			40	$\mu\text{A}$
$I_{OS}$	Short circuit output	$V_{CC} = \text{MAX},$	S5421 N7421	-20 -18	-55 -55	mA

## 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.