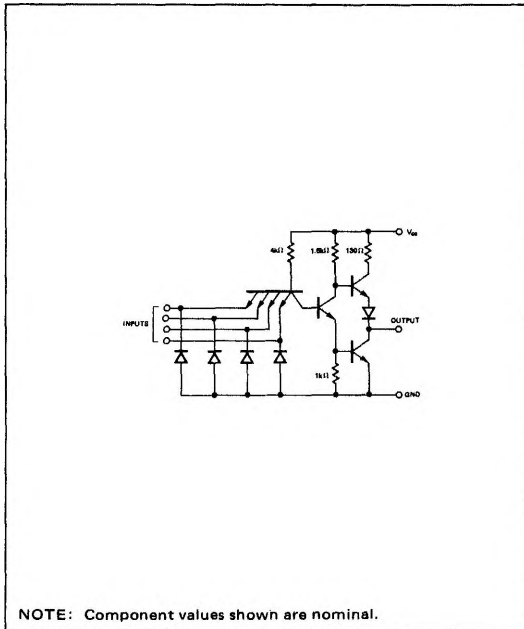


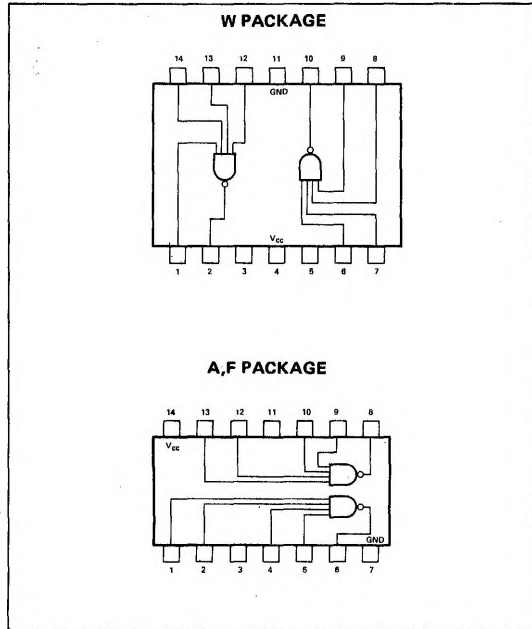
S5420-A,F,W • N7420-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC (each gate)



PIN CONFIGURATIONS



RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
	Supply Voltage V_{CC} : S5420 Circuits N7420 Circuits	4.5 4.75	5 5	5.5 5.25
Normalized Fan-Out from Output, N			10	
Operating Free-Air Temperature Range, T_A : S5420 Circuits N7420 Circuits	-55 0	25 25	125 70	$^{\circ}C$ $^{\circ}C$

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 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 level at output	$V_{CC} = \text{MIN}$				0.8	V
$V_{out(1)}$	Logical 1 output voltage	$V_{CC} = \text{MIN}$, $I_{load} = -400\mu A$	$V_{in} = 0.8V$,	2.4	3.3		V
$V_{out(0)}$	Logical 0 output voltage	$V_{CC} = \text{MIN}$, $I_{sink} = 16mA$	$V_{in} = 2V$,		0.22	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	μA mA
I_{OS}	Short circuit output current†	$V_{CC} = \text{MAX}$,		S5420 N7420	-20 -18	-55 -55	mA

ELECTRICAL CHARACTERISTICS (Cont'd)

PARAMETER		TEST CONDITIONS*		MIN	TYP**	MAX	UNIT
$I_{CC(0)}$	Logical 0 level supply current	$V_{CC} = \text{MAX.}$	$V_{in} = 5V$		6	11	mA
$I_{CC(1)}$	Logical 1 level supply current	$V_{CC} = \text{MAX.}$	$V_{in} = 0$		2	4	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	$C_L = 15pF$,	$R_L = 400\Omega$		8	15	ns
t_{pd1}	Propagation delay time to logical 1 level	$C_L = 15pF$,	$R_L = 400\Omega$		12	22	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.