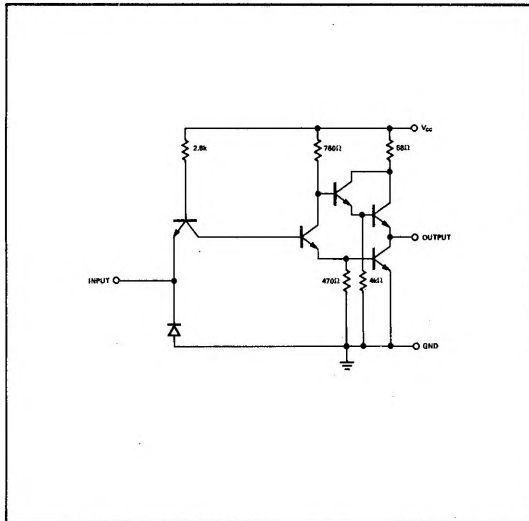


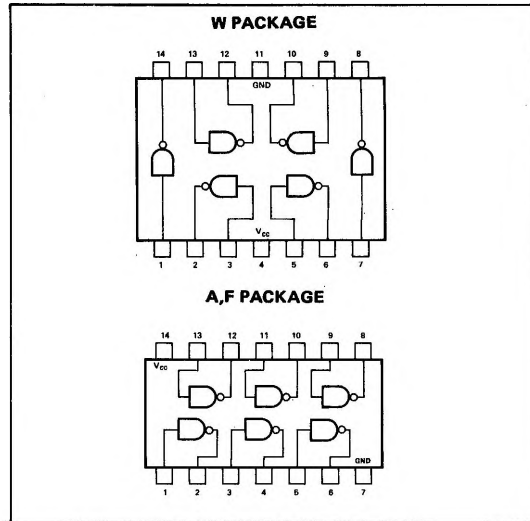
S54H04-A,F,W • N74H04-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC (each inverter)



PIN CONFIGURATIONS



RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
Supply Voltage V_{CC} : S54H04 Circuits	4.5	5	5.5	V
N74H04 Circuits	4.75	5	5.25	V
Normalized Fan-Out from each Output, N			10	
Operating Free-Air Temperature Range, T_A : S54H04 Circuits	-55	25	125	°C
N74H04 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 input terminal to ensure logical 0 level at output $V_{CC} = \text{MIN.}$	2			V
$V_{in(0)}$	Logical 0 input voltage required at input terminal to ensure logical 1 level at output $V_{CC} = \text{MIN.}$			0.8	V
$V_{out(1)}$	Logical 1 output voltage $V_{CC} = \text{MIN.}$ $I_{load} = -500\mu\text{A}$ $V_{in} = 0.8\text{V.}$	2.4			V
$V_{out(0)}$	Logical 0 output voltage $V_{CC} = \text{MIN.}$ $I_{sink} = 20\text{mA}$ $V_{in} = 2\text{V.}$			0.4	V
$I_{in(0)}$	Logical 0 level input current $V_{CC} = \text{MAX.}$ $V_{in} = 0.4\text{V}$			-2	mA
$I_{in(1)}$	Logical 1 level input current $V_{CC} = \text{MAX.}$ $V_{CC} = \text{MAX.}$ $V_{in} = 2.4\text{V}$ $V_{in} = 5.5\text{V}$			50 1	μA mA
I_{OS}	Short circuit output current † $V_{CC} = \text{MAX.}$	-40		-100	mA
$I_{CC(0)}$	Logical 0 level supply current $V_{CC} = \text{MAX.}$ $V_{in} = 4.5\text{V.}$		40.0	58.0	mA
$I_{CC(1)}$	Logical 1 level supply current $V_{CC} = \text{MAX.}$ $V_{in} = 0.$		16.0	26.0	mA

DIGITAL 54/74 TTL SERIES ■ S54H04, N74H04

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	$C_L = 25pF$,	$R_L = 280\Omega$		6.5	10	ns
t_{pd1}	Propagation delay time to logical 1 level	$C_L = 25pF$,	$R_L = 280\Omega$		9.0	13.0	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.