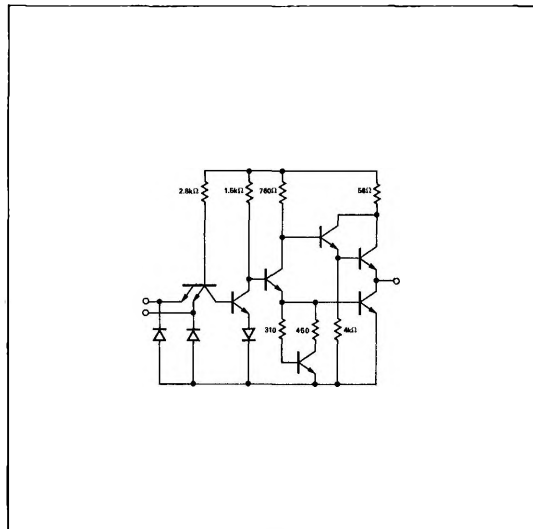


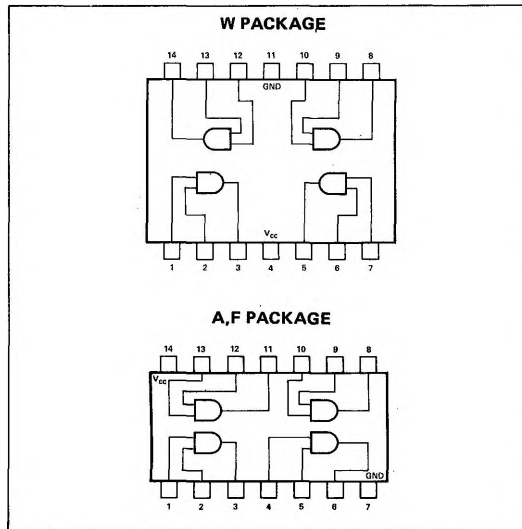
S54H08-A,F,W • N74H08-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC (each gate)



PIN CONFIGURATIONS



RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
Supply Voltage V_{CC} :				
S54H08 Circuits	4.5	5	5.5	V
N74H08 Circuits	4.75	5	5.25	V
Normalized Fan-Out from each Output, N			10	
Operating Free-Air Temperature Range, T_A :				
S54H08 Circuits	-55	25	125	°C
N74H08 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 $V_{CC} = \text{MIN}, V_{out(1)} \geq .4V$	2			V
$V_{in(0)}$	Logical 0 input voltage required of any input terminal to ensure logical 0 level at output $V_{CC} = \text{MIN}, V_{out(0)} \leq 2.4V$			0.8	V
$V_{out(1)}$	Logical 1 output voltage $V_{CC} = \text{MIN}, I_{load} = 500\mu A$	2.4			V
$V_{out(0)}$	Logical 0 output voltage $V_{CC} = \text{MIN}, I_{sink} = 20mA$			0.4	V
$I_{in(0)}$	Logical 0 level input current (each input) $V_{CC} = \text{MAX}, V_{in} = 0.4V$			-2	mA
$I_{in(1)}$	Logical 1 level input current (each input) $V_{CC} = \text{MAX}, V_{in} = 2.4V$ $V_{CC} = \text{MAX}, V_{in} = 5.5V$			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 $V_{CC} = \text{MAX}, V_{in} = 4.5V$		40	64	mA
$I_{CC(1)}$	Logical 1 level supply current $V_{CC} = \text{MAX}, V_{in} = 0$		24	40	mA

DIGITAL 54/74 TTL SERIES ■ S54H08, N74H08**ELECTRICAL CHARACTERISTICS (Cont'd)**

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
V_{CI}	Input negative clamp voltage	$V_{CC} = 5V$ $T_A = 25^\circ C$	$I_{in} = -12.0mA$			-1.5	V

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	$C_L = 25pF$, $R_L = 280\Omega$			8.8	12	ns
t_{pd1}	Propagation delay time to logical 1 level	$C_L = 25pF$, $R_L = 280\Omega$			7.6	12	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 at: $V_{CC} = 5V$, $T_A = 25^\circ C$.

† Not more than one output should be shorted at a time and duration of short circuit test should not exceed 1 second.