

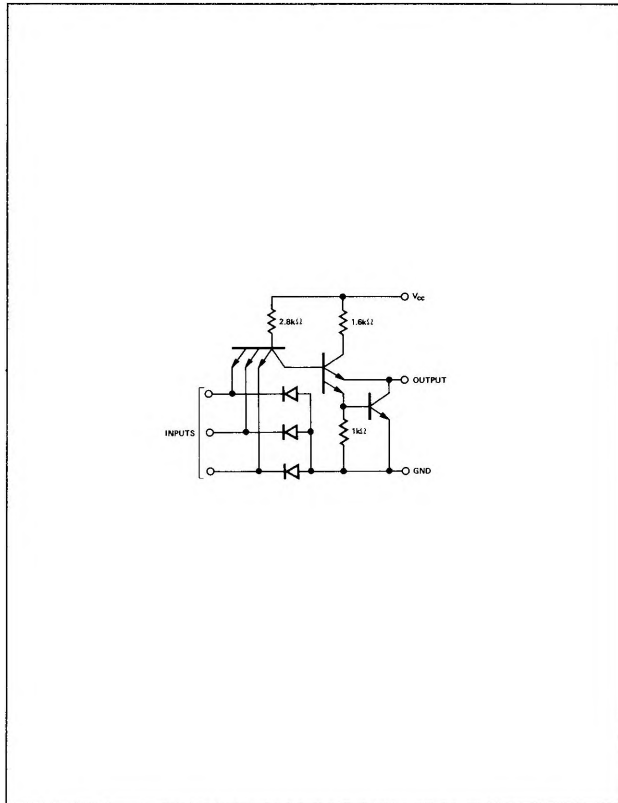
TRIPLE 3-INPUT EXPANDER (FOR USE WITH S54H52, N74H52 CIRCUITS)

S54H61 N74H61

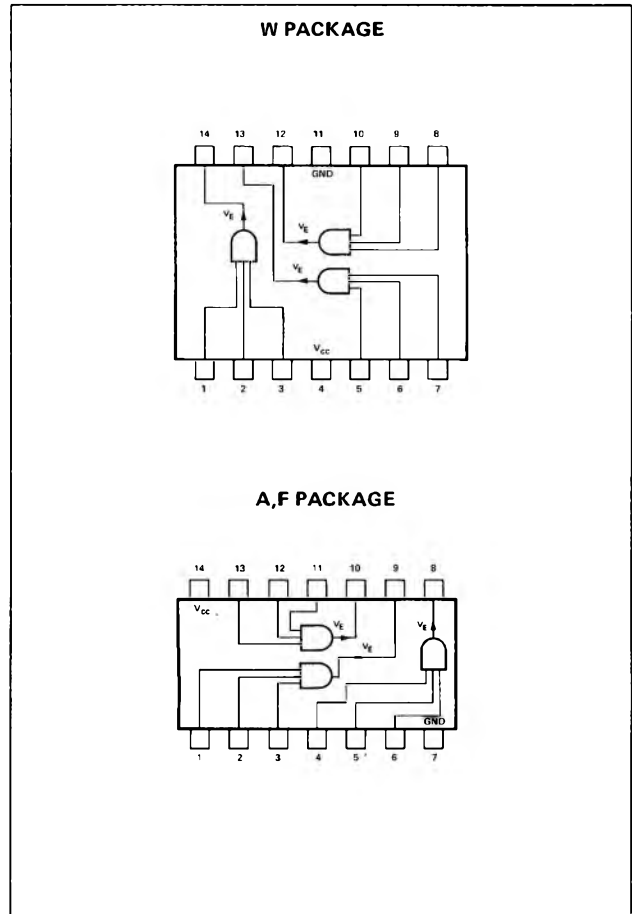
S54H61-A,F,W • N74H61-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC (each expander)



PIN CONFIGURATIONS



NOTES:

1. Component values shown are nominal.
2. A total of six expander gates may be connected to the S54H52/N74H52 expander input.

RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
	Supply Voltage V_{CC} : S54H61 Circuits N74H61 Circuits	4.5 4.75	5	5.5 5.25
Operating Free-Air Temperature Range, T_A : S54H61 Circuits N74H61 Circuits	-55 0	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		
$V_{in(0)}$	Logical 0 input voltage required at any input terminal to ensure output is in the off state	$V_{CC} = \text{MIN}$			0.8	V	
I_{off}	Off-state reverse current	$V_{CC} = \text{MIN}$, $V_{off} = 2.2\text{V}$, $V_{in(0)} = 0.8\text{V}$, $T_A = \text{MAX}$			50	μ A	
$I_{in(0)}$	Logical 0 level input current (each input)	$V_{CC} = \text{MAX}$, $V_{in} = 0.4\text{V}$			-2	mA	
$I_{in(1)}$	Logical 1 level input current (each input)	$V_{CC} = \text{MAX}$, $V_{CC} = \text{MAX}$, $V_{in} = 2.4\text{V}$, $V_{in} = 5.5\text{V}$			50 1	μ A mA	
$I_{CC(on)}$	On-state supply current	$V_{CC} = \text{MAX}$, $V_{in} = 4.5\text{V}$			7.2	12	mA
$I_{CC(off)}$	Off-state supply current	$V_{CC} = \text{MAX}$, $V_{in} = 0$			3	5	mA

SIGNETICS DIGITAL 54/74 TTL SERIES — S54H61 • N74H61

ELECTRICAL CHARACTERISTICS S54H61 circuits only

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{in(1)}$	Logical 1 input voltage required at all input terminals to ensure output is in the on state	$V_{CC} = 4.5V$	2			V
V_{on}	On-state output voltage	$V_{CC} = 4.5V,$ $I_{on} = 4.5mA,$ $V_{in(1)} = 2V,$ $T_A = -55^{\circ}C$			1	V

ELECTRICAL CHARACTERISTICS N74H61 circuits only

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{in(1)}$	Logical 1 input voltage required at all input terminals to ensure output is in the on state	$V_{CC} = 4.75V$	2			V
V_{on}	On-state output voltage	$V_{CC} = 4.75V,$ $I_{on} = 5.35mA,$ $V_{in(1)} = 2V,$ $T_A = 0^{\circ}C$			1	V

OUTPUT CAPACITANCE, V_{CC} and GND terminals open, $T_A = 25^{\circ}C$

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
C_x	Effective capacitance of output transistor Q_1	$f = 1\text{ MHz}$		1.3		pF

* 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 $V_{CC} = 5V, T_A = 25^{\circ}C$