

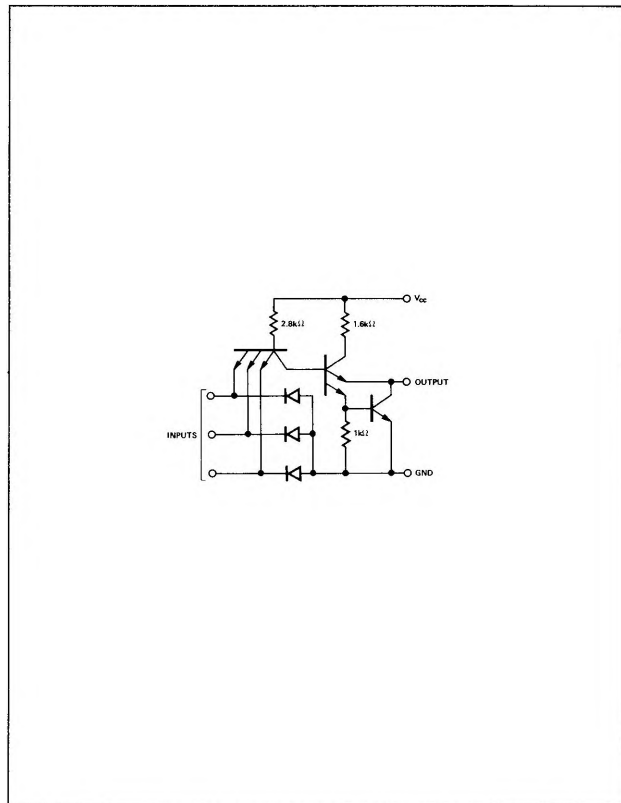
# TRIPLE 3-INPUT EXPANDER (FOR USE WITH S54H52, N74H52 CIRCUITS)

# S54H61 N74H61

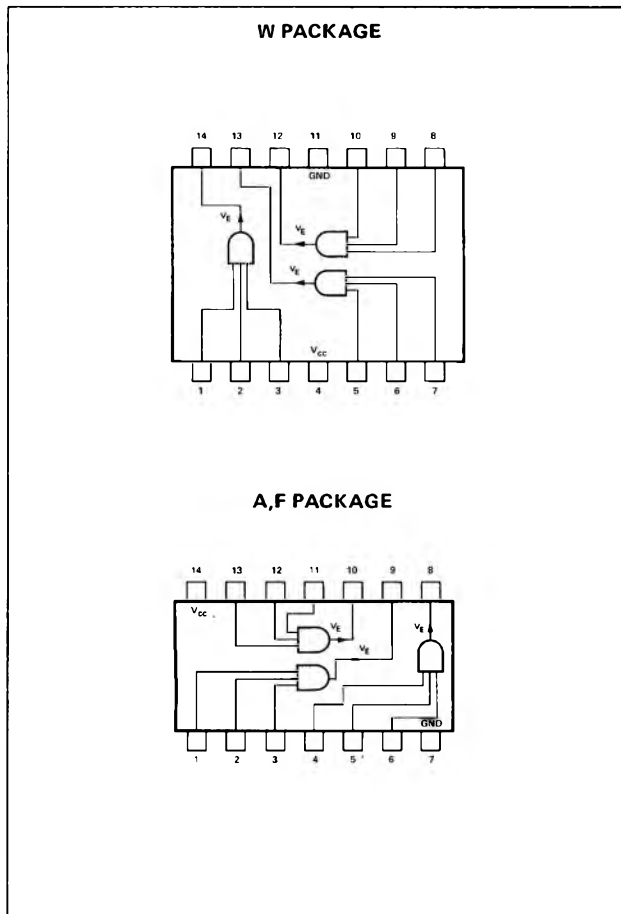
S54H61-A,F,W • N74H61-A,F

DIGITAL 54/74 TTL SERIES

SCHEMATIC (each expander)



PIN CONFIGURATIONS



NOTES:

- Component values shown are nominal.
- 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	4.5	5	5.5	V
	N74H61 Circuits	4.75	5	5.25	V
Operating Free-Air Temperature Range, $T_A$ :	S54H61 Circuits	-55	25	125	$^{\circ}C$
	N74H61 Circuits	0	25	70	$^{\circ}C$

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	$V_{CC} = \text{MIN}$ , $V_{off} = 2.2V$ ,	$V_{in(0)} = 0.8V$ , $T_A = \text{MAX}$			50	$\mu A$
$I_{in(0)}$	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)	$V_{CC} = \text{MAX}$ , $V_{in} = 2.4V$				50	$\mu A$
		$V_{CC} = \text{MAX}$ , $V_{in} = 5.5V$				1	mA
$I_{CC(on)}$	On-state supply current	$V_{CC} = \text{MAX}$ , $V_{in} = 4.5V$			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  $V_{CC} = 5V, T_A = 25^{\circ}C$