

FEATURES

N74S11 ACTIVE PULL-UP

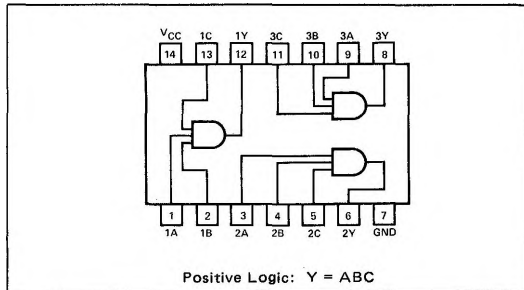
- TYPICAL PROPAGATION TIME
- TYPICAL POWER DISSIPATION AT 50% DUTY CYCLE

5 ns at $C_L = \text{pF}$
32 mW PER GATE

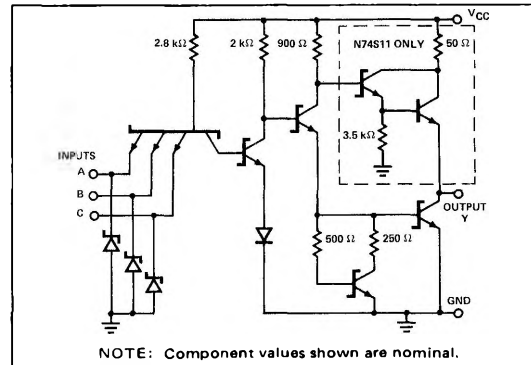
N74S15 OPEN-COLLECTOR

- TYPICAL PROPAGATION TIME
- TYPICAL POWER DISSIPATION AT 50% DUTY CYCLE

6 ns at $C_L = 15 \text{ pF}$
29 mW PER GATE



SCHEMATIC (each gate)



RECOMMENDED MAXIMUM FAN-OUT FROM EACH OUTPUT

	N74S11	N74S15
Loads at a high logic level	20	10
Loads at a low logic level	10	10

ELECTRICAL CHARACTERISTICS (over operating free-air temperature range unless otherwise noted)

PARAMETER	TEST CONDITIONS*	N74S11			N74S15			UNIT
		MIN	TYP**	MAX	MIN	TYP**	MAX	
V_{IH} High-level input voltage		2			2			V
V_{IL} Low-level input voltage				0.8			0.8	V
V_I Input clamp voltage	$V_{CC} = \text{MIN}, I_I = -18 \text{ mA}$			-1.2			-1.2	V
V_{OH} High-level output voltage	$V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V}, I_{OH} = -1 \text{ mA}$	2.7	3.4					V
I_{OH} High-level output current	$V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V}, V_{OH} = 5.5 \text{ V}$					250		μA
V_{OL} Low-level output voltage	$V_{CC} = \text{MIN}, V_{IL} = 0.8 \text{ V}, I_{OL} = 20 \text{ mA}$			0.5		0.5		V
I_I Input current at maximum input voltage	$V_{CC} = \text{MAX}, V_I = 5.5 \text{ V}$			1		1		mA
I_{IH} High-level input current (each input)	$V_{CC} = \text{MAX}, V_I = 2.7 \text{ V}$			50		50		μA
I_{IL} Low-level input current (each input)	$V_{CC} = \text{MAX}, V_I = 0.5 \text{ V}$			-2		-2		mA
I_{OS} Short-circuit output current ‡	$V_{CC} = \text{MAX}$	-40		-100				mA
I_{CCH} Supply current, high-level output (average per gate)	$V_{CC} = \text{MAX}, \text{ All inputs at } 5 \text{ V}$	4.5	8		3.5	6.5		mA
I_{CCL} Supply current, low-level output (Average per gate)	$V_{CC} = \text{MAX}, \text{ All inputs at } 0 \text{ V}$	8	14		8	14		mA

*For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable series on the second page of this section.

**All typical values are at $V_{CC} = 5 \text{ V}, T_A = 25^\circ \text{C}$.

‡Not more than one output should be shorted at a time, and duration of the short-circuit test should not exceed one second.

SWITCHING CHARACTERISTICS, $V_{CC} = 5 \text{ V}, T_A = 25^\circ \text{C}, N = 10$

PARAMETER	TEST CONDITIONS NOTE 1	N74S11			N74S15			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
t_{PLH} Propagation delay time, low-to-high-level output	$C_L = 15 \text{ pF}, R_L = 280 \Omega$	2.5	4.5	7	2.5	5.5	8.5	ns
	$C_L = 50 \text{ pF}, R_L = 280 \Omega$		6			8.5		
t_{PHL} Propagation delay time, high-to-low-level output	$C_L = 15 \text{ pF}, R_L = 280 \Omega$	2.5	5	7.5	2.5	6	9	ns
	$C_L = 50 \text{ pF}, R_L = 280 \Omega$		7.5			8		

NOTE 1: Load circuits and waveforms are shown on page 2-293