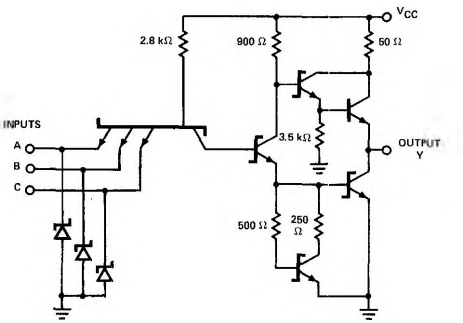
SCHEMATIC DIAGRAM



Component values shown are nominal.

RECOMMENDED OPERATING CONDITIONS

		S54S10			S74S10			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}		4.5	5	5.5	4.75	5	5.25	V
Normalized fan-out from each output, N	High logic level			20			20	
	Low logic level			10			10	
Operating free-air, T_A		-55		125	0		70	°C

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

PARAMETER		TEST CONDITIONS*			MIN	TYP**	MAX	UNIT
V_{IH}	High-level input voltage				2			V
V_{IL}	Low-level input voltage						0.8	V
V_I	Input Clamp Voltage	V_{CC} = MIN, I_I = −18 mA					−1.2	V
V_{OH}	High-level output voltage	V_{CC} = MIN, V_{IL} = 0.8 V, I_{OH} = −1 mA		Series 54S	2.5	3.4		V
				Series 74S	2.7	3.4		V
V_{OL}	Low-level output voltage	V_{CC} = MIN, V_{IH} = 2 V, I_{OL} = 20 mA					0.5	V
I_I	Input current at maximum input voltage	V_{CC} = MAX, V_I = 5.5 V					1	mA
I_{IH}	High-level input current (each input)	V_{CC} = MAX, V_I = 2.7 V					50	μA
I_{IL}	Low-level input current (each input)	V_{CC} = MAX, V_I = 0.5 V					−2	mA
I_{OS}	Short-circuit output current‡	V_{CC} = MAX			−40		−100	mA
I_{CCH}	Supply current, high-level output (average per gate)	V_{CC} = MAX, All inputs at 0 V				2.5	4	mA
I_{CCL}	Supply current, low-level output (average per gate)	V_{CC} = MAX, All inputs at 5 V				5	9	mA

*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} = 5 V, T_A = 25°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 V, T_A = 25°C, N = 10

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{PLH}	Propagation delay time, low-to-high-level output	C_L = 15 pF, R_L = 280 Ω	NOTE 1	2	3	4.5	ns
		C_L = 50 pF, R_L = 280 Ω			4.5		
t_{PHL}	Propagation delay time, high-to-low-level output	C_L = 15 pF, R_L = 280 Ω		2	3	5	ns
		C_L = 50 pF, R_L = 280 Ω			5		

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