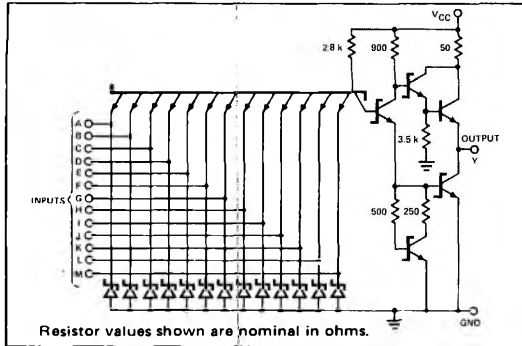
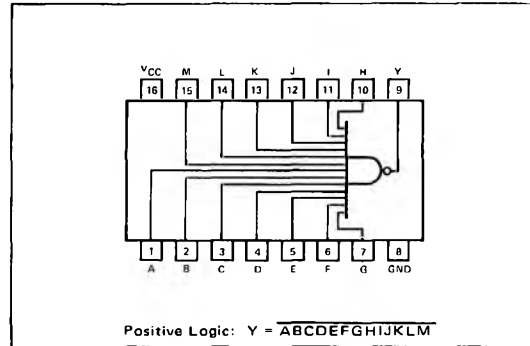


#### SCHEMATIC



#### PIN CONFIGURATION



#### RECOMMENDED OPERATING CONDITIONS

	S54S133			N74S133			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	Low logic level		10	
	Low logic level		10	High logic level		20	
Operating free-air temperature, $T_A$	-55		125	0		70	$^{\circ}C$

#### 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	$V_{CC} = \text{MIN}, I_I = -18 \text{ mA}$			-1.2	V
$V_{OH}$ High-level output voltage	$V_{CC} = \text{MIN}, V_{IL} = 0.8 \text{ V}, I_{OH} = -1 \text{ mA}$	S54S133	2.5	3.4	V
		N74S133	2.7	3.4	V
$V_{OL}$ Low-level output voltage	$V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V}, I_{OL} = 20 \text{ mA}$			0.5	V
$I_I$ Input current at maximum input voltage	$V_{CC} = \text{MAX}, V_I = 5.5 \text{ V}$			1	mA
$I_{IH}$ High-level input current (each input)	$V_{CC} = \text{MAX}, V_I = 2.7 \text{ V}$			50	$\mu\text{A}$
$I_{IL}$ Low-level input current (each input)	$V_{CC} = \text{MAX}, V_I = 0.5 \text{ V}$			-2	mA
$I_{OS}$ Short-circuit output current ‡	$V_{CC} = \text{MAX}$	-40		-100	mA
$I_{CCH}$ Supply current, high-level output	$V_{CC} = \text{MAX},$ All inputs at 0 V		3	5	mA
$I_{CCL}$ Supply current, low-level output	$V_{CC} = \text{MAX},$ All inputs at 5 V		5.5	10	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  $V_{CC} = 5 \text{ V}, T_A = 25^{\circ}C$ .

‡The duration of the short-circuit test should not exceed one second.

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

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{pLH}$ Propagation delay time, low-to-high-level output	$C_L = 15 \text{ pF}, R_L = 280 \Omega$	2	4	6	ns
	$C_L = 50 \text{ pF}, R_L = 280 \Omega$		5.5		
$t_{pHL}$ Propagation delay time, high-to-low-level output	$C_L = 15 \text{ pF}, R_L = 280 \Omega$	2	4.5	7	ns
	$C_L = 50 \text{ pF}, R_L = 280 \Omega$		6.5		

See Note 1

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