

DIGITAL 8000 SERIES SCHOTTKY TTL/MSI

DESCRIPTION

The 8-Input Digital Multiplexer is the logical equivalent of a single-pole, 8 position switch whose position is specified by a 3-bit input address.

The 82S30 incorporates an INHIBIT input which, when low, allows the one-of-eight inputs selected by the address to appear on the f output and, in complement, on the \bar{f} output. With the INHIBIT input high, the f output is unconditionally low and the \bar{f} output is unconditionally high.

FEATURES

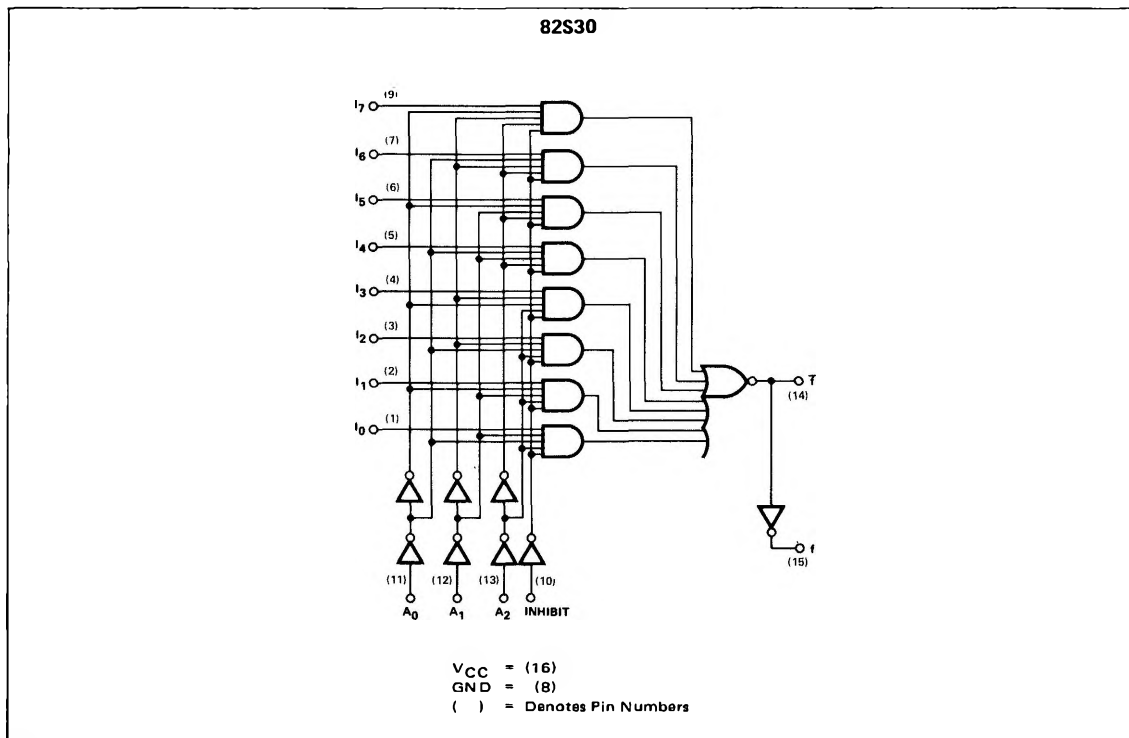
- SCHOTTKY-CLAMPED TTL STRUCTURE
- PNP INPUTS
- DIRECT OUTPUT INHIBIT
- 82S80 REPLACES 9312 FOR HIGHER SPEED

TRUTH TABLE

ADDRESS			DATA INPUT								OUTPUT		
A ₂	A ₁	A ₀	I ₇	I ₆	I ₅	I ₄	I ₃	I ₂	I ₁	I ₀	INH	f	\bar{f}
0	0	0	x	x	x	x	x	x	x	1	0	1	0
0	0	1	x	x	x	x	x	x	1	x	0	1	0
0	1	0	x	x	x	x	x	1	x	x	0	1	0
0	1	1	x	x	x	x	1	x	x	x	0	1	0
1	0	0	x	x	x	1	x	x	x	x	0	1	0
1	0	1	x	x	1	x	x	x	x	x	0	1	0
1	1	0	x	1	x	x	x	x	x	x	0	1	0
1	1	1	1	x	x	x	x	x	x	x	0	1	0
0	0	0	x	x	x	x	x	x	x	0	0	0	1
0	0	1	x	x	x	x	x	x	0	x	0	0	1
0	1	0	x	x	x	x	x	0	x	x	0	0	1
0	1	1	x	x	x	x	0	x	x	x	0	0	1
1	0	0	x	x	x	0	x	x	x	x	0	0	1
1	0	1	x	x	0	x	x	x	x	x	0	0	1
1	1	0	x	0	x	x	x	x	x	x	0	0	1
1	1	1	0	x	x	x	x	x	x	x	0	0	1
x	x	x	x	x	x	x	x	x	x	x	1	0	1

x = don't care

LOGIC DIAGRAM



ELECTRICAL CHARACTERISTICS (Over Recommended Operating Temperature and Voltage)

CHARACTERISTICS	LIMITS				TEST CONDITIONS							NOTES
	MIN	TYP	MAX	UNITS	A ₁	A ₂	A ₃	INH	DATA INPUT I _n	OUTPUTS		
"1" Output Voltage	2.7			V	*	*	*	*	*		-1.0mA	6
"0" Output Voltage			0.5	V	*	*	*	*	*		20mA	7
"1" Input Current Inputs A _n , I _n , I _{nH}			10	μA	4.5V	4.5V	4.5V	4.5V	4.5V	4.5V		
"0" Input Current A _n , I _n , I _{nH}			-400	μA	0.5V	0.5V	0.5V	0.5V	0.5V	0.5V		

T_A = 25°C and V_{CC} = 5.0V

CHARACTERISTICS	LIMITS				TEST CONDITIONS							NOTES
	MIN	TYP	MAX	UNITS	A	A	A	INH	DATA INPUT I _n	OUTPUTS f f̄		
Propagation Delay A _n to f A _n to f̄ I _n to f̄ INH to f̄			20 17 12 16	ns ns ns ns								8 8 8 8
Power Consumption/Supply Current			325/62	mW/mA	4.5V	4.5V	4.5V	4.5V	0V			9, 11
Output Short Circuit Current Output f Output f̄	-40 -40		-100 -100	mA mA	0V 0V	0V 0V	0V 0V	0V 0V	4.5V 0V	0V	0V	
Input Clamp Voltage	-1.2			V	-18 mA	-18 mA	-18 mA	-18 mA				

*See Truth Table for Logical Conditions
NOTES:

- All voltage measurements are referenced to the ground terminal. Terminals not specifically referenced are left electrically open.
- All measurements are taken with ground pin tied to zero volts.
- Positive current is defined as into the terminal referenced.
- Positive logic definition: "UP" Level = "1", "DOWN" Level = "0".
- Precautionary measures should be taken to ensure current limiting in accordance with Absolute Maximum Ratings should the isolation diodes become forward biased.
- Output source current is supplied through a resistor to ground.
- Output sink current is supplied through a resistor to V_{CC}.
- Refer to AC Test Figures.
- V_{CC} = 5.25V
- By DC tests per the truth table, all inputs have guaranteed thresholds at 0.8V for logical "0" and 2.0V for logical "1".
- All I_n data inputs are at 0V, V_{CC} = 5.25V.

AC TEST FIGURE AND WAVEFORMS

