

DATA SHEET

For a complete data sheet, please also download:

- The IC04 LOCMOS HE4000B Logic Family Specifications HEF, HEC
- The IC04 LOCMOS HE4000B Logic Package Outlines/Information HEF, HEC

HEF4519B

MSI

Quadruple 2-input multiplexer

Product specification
File under Integrated Circuits, IC04

January 1995

Quadruple 2-input multiplexer

HEF4519B MSI

DESCRIPTION

The HEF4519B provides four multiplexing circuits with common select inputs (S_A , S_B); each circuit contains two inputs (A_n , B_n) and one output (O_n). It may be used to select four bits of information from one of two sources.

The 'A' inputs are selected when S_A is HIGH, the 'B' inputs when S_B is HIGH. When S_A and S_B are HIGH, the output (O_n) is the logical EXCLUSIVE-NOR of the A_n and B_n inputs ($O_n = A_n \odot B_n$).

When S_A and S_B are LOW, the output (O_n) is LOW, independent of the multiplexer inputs (A_n and B_n).

The HEF4519B cannot be used to multiplex analogue signals. The outputs utilize standard buffers for best performance.

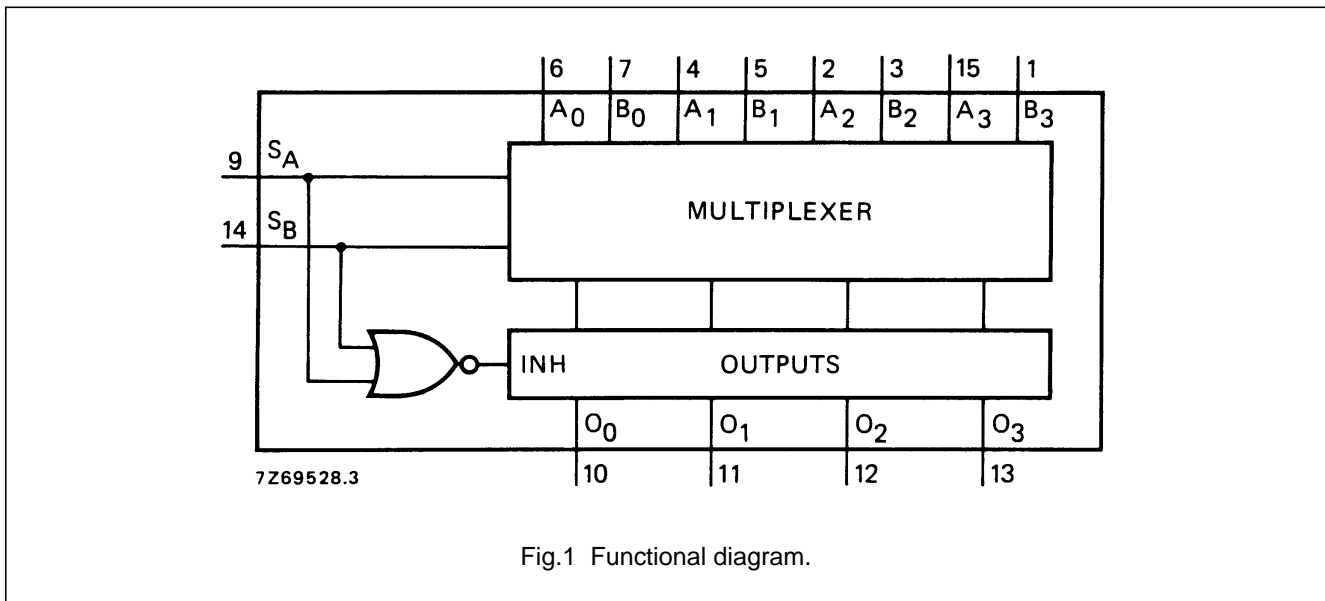


Fig.1 Functional diagram.

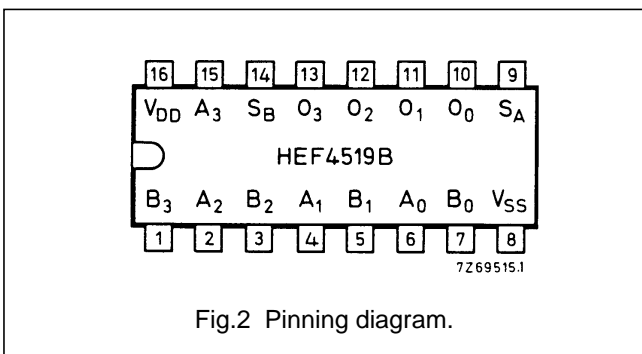


Fig.2 Pinning diagram.

PINNING

- S_A , S_B selects inputs (active HIGH)
- A_0 to A_3 multiplexer inputs
- B_0 to B_3 multiplexer inputs
- O_0 to O_3 multiplexer outputs

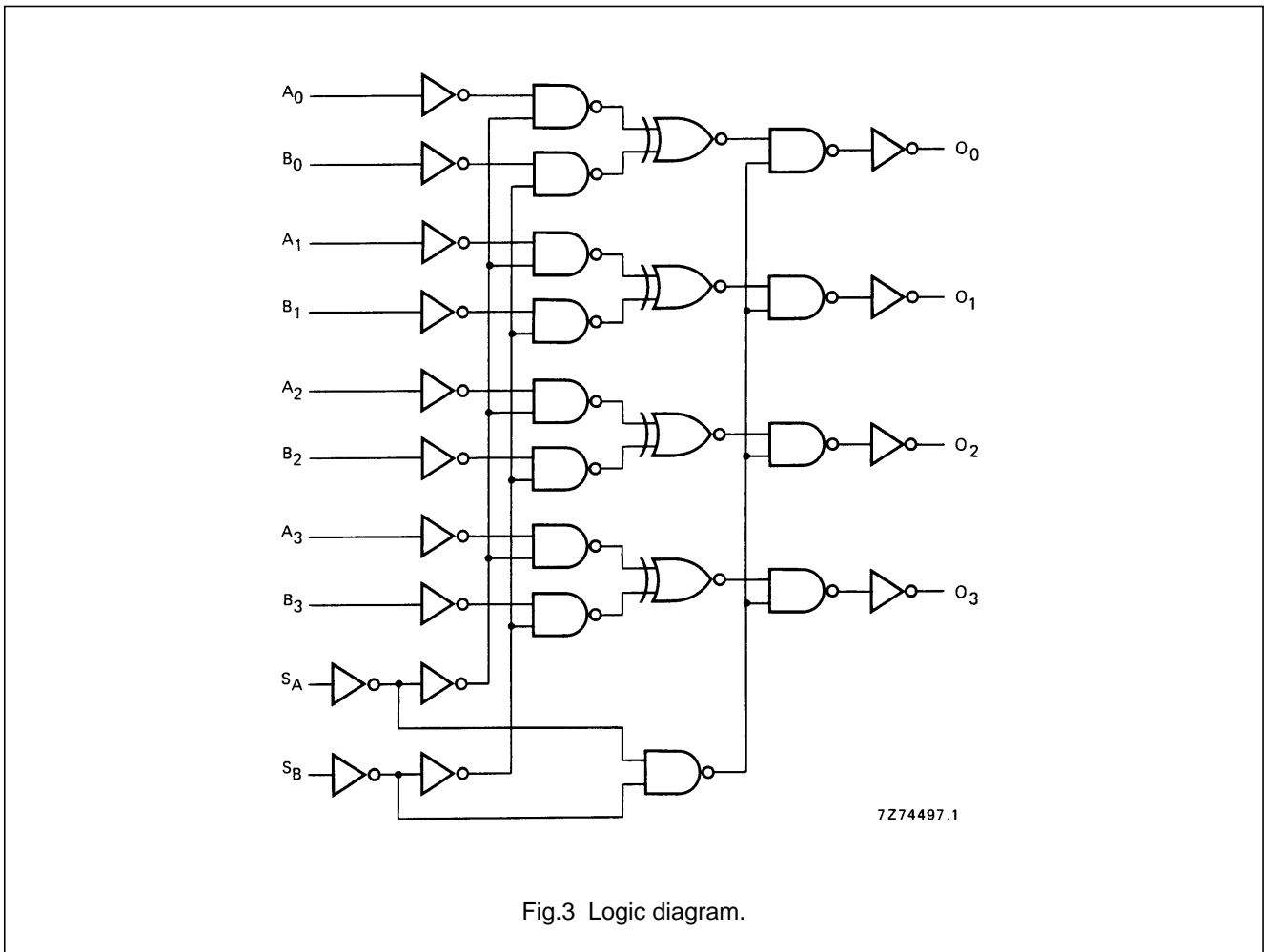
FAMILY DATA, I_{DD} LIMITS category MSI

See Family Specifications

- HEF4519BP(N): 16-lead DIL; plastic (SOT38-1)
- HEF4519BD(F): 16-lead DIL; ceramic (cerdip) (SOT74)
- HEF4519BT(D): 16-lead SO; plastic (SOT109-1)
- (): Package Designator North America

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FUNCTION TABLE

INPUTS				OUTPUT
S _A	S _B	A _n	B _n	O _n
L	L	X	X	L
H	L	A _n	X	A _n
L	H	X	B _n	B _n
H	H	L	L	H
H	H	H	L	L
H	H	L	H	L
H	H	H	H	H

Notes

1. H = HIGH state (the more positive voltage)
L = LOW state (the less positive voltage)
X = state is immaterial

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AC CHARACTERISTICS

$V_{SS} = 0\text{ V}$; $T_{amb} = 25\text{ °C}$; $C_L = 50\text{ pF}$; input transition times $\leq 20\text{ ns}$

	V_{DD} V	SYMBOL	TYP.	MAX.		TYPICAL EXTRAPOLATION FORMULA
Propagation delays $A_n, B_n \rightarrow O_n$ HIGH to LOW LOW to HIGH $S_A, S_B \rightarrow O_n$ HIGH to LOW LOW to HIGH	5	t_{PHL}	95	190	ns	$68\text{ ns} + (0,55\text{ ns/pF}) C_L$
	10		40	80	ns	$29\text{ ns} + (0,23\text{ ns/pF}) C_L$
	15		30	60	ns	$22\text{ ns} + (0,16\text{ ns/pF}) C_L$
	5	t_{PLH}	80	160	ns	$53\text{ ns} + (0,55\text{ ns/pF}) C_L$
	10		40	80	ns	$29\text{ ns} + (0,23\text{ ns/pF}) C_L$
	15		30	60	ns	$22\text{ ns} + (0,16\text{ ns/pF}) C_L$
	5	t_{PHL}	95	190	ns	$68\text{ ns} + (0,55\text{ ns/pF}) C_L$
	10		40	80	ns	$29\text{ ns} + (0,23\text{ ns/pF}) C_L$
	15		30	55	ns	$22\text{ ns} + (0,16\text{ ns/pF}) C_L$
	5	t_{PLH}	85	165	ns	$58\text{ ns} + (0,55\text{ ns/pF}) C_L$
	10		40	80	ns	$29\text{ ns} + (0,23\text{ ns/pF}) C_L$
	15		30	60	ns	$22\text{ ns} + (0,16\text{ ns/pF}) C_L$
Output transition times HIGH to LOW LOW to HIGH	5	t_{THL}	60	120	ns	$10\text{ ns} + (1,0\text{ ns/pF}) C_L$
	10		30	60	ns	$9\text{ ns} + (0,42\text{ ns/pF}) C_L$
	15		20	40	ns	$6\text{ ns} + (0,28\text{ ns/pF}) C_L$
	5	t_{TLH}	60	120	ns	$10\text{ ns} + (1,0\text{ ns/pF}) C_L$
	10		30	60	ns	$9\text{ ns} + (0,42\text{ ns/pF}) C_L$
	15		20	40	ns	$6\text{ ns} + (0,28\text{ ns/pF}) C_L$

	V_{DD} V	TYPICAL FORMULA FOR P (μW)	
Dynamic power dissipation per package (P)	5	$1000 f_i + \sum (f_o C_L) \times V_{DD}^2$	where f_i = input freq. (MHz) f_o = output freq. (MHz) C_L = load capacitance (pF) $\sum (f_o C_L)$ = sum of outputs V_{DD} = supply voltage (V)
	10	$6000 f_i + \sum (f_o C_L) \times V_{DD}^2$	
	15	$17\,000 f_i + \sum (f_o C_L) \times V_{DD}^2$	

APPLICATION INFORMATION

Some examples of applications for the HEF4519B are:

- 2-input multiplexers.
- True/complement selectors.