

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

HEF4539B

MSI

Dual 4-input multiplexer

Product specification
File under Integrated Circuits, IC04

January 1995

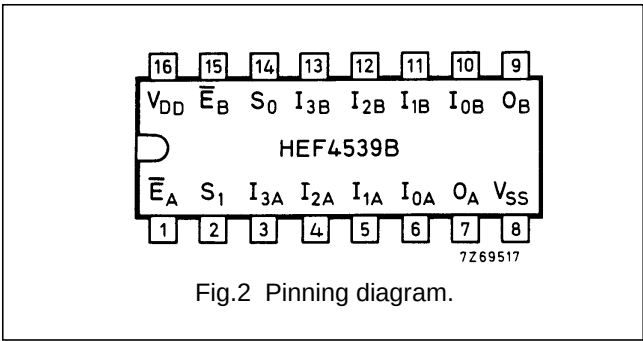
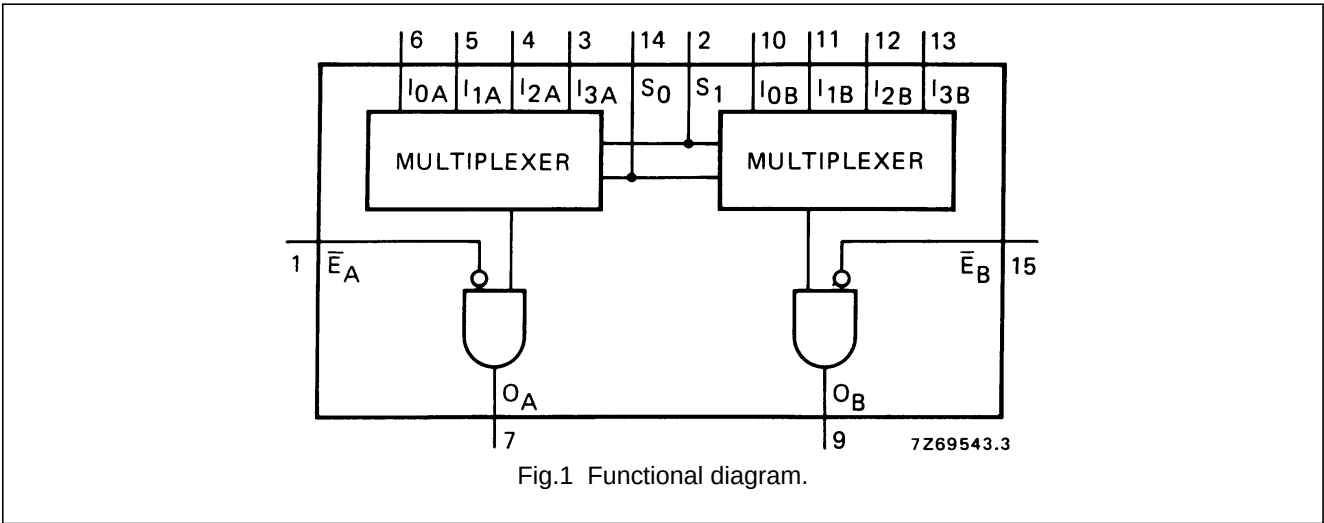
Dual 4-input multiplexer

HEF4539B

MSI

DESCRIPTION

The HEF4539B is a dual 4-input multiplexer with common select logic. Each multiplexer has four multiplexer inputs (I_0 and I_3), an active LOW enable input ($\bar{E}$) and a multiplexer output (O). When HIGH, $\bar{E}$ forces O of the respective multiplexer LOW, independent of the select inputs (S_0 to S_1) and I_0 to I_3 . When $\bar{E}$ is LOW, S_0 and S_1 determine which multiplexer input (I_0 to I_3) on each of the multiplexers is routed to the respective multiplexer output (O).



PINNING

$I_{0A}, I_{1A}, I_{2A}, I_{3A}$	multiplexer inputs
$I_{0B}, I_{1B}, I_{2B}, I_{3B}$	multiplexer inputs
S_0, S_1	select inputs
$\bar{E}_A, \bar{E}_B$	enable inputs (active LOW)
O_A, O_B	multiplexer outputs

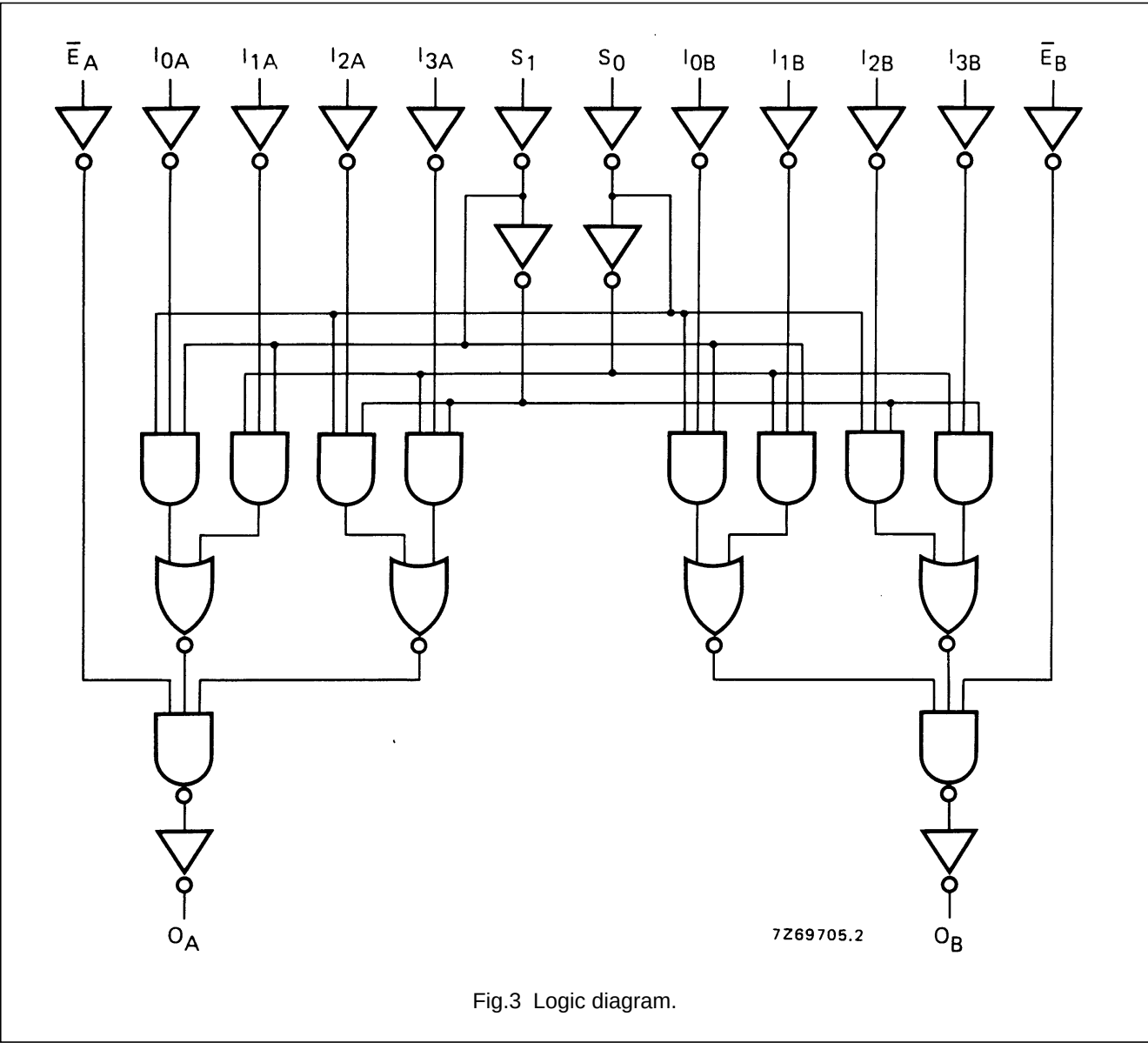
FAMILY DATA, I_{DD} LIMITS category MSI

See Family Specifications

- HEF4539BP(N): 16-lead DIL; plastic (SOT38-1)
- HEF4539BD(F): 16-lead DIL; ceramic (cerdip) (SOT74)
- HEF4539BT(D): 16-lead SO; plastic (SOT109-1)
- (): Package Designator North America

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FUNCTION TABLE

INPUTS			OUTPUT
S ₀	S ₁	$\bar{E}_n$	O _n
X	X	H	L
L	L	L	I ₀
H	L	L	I ₁
L	H	L	I ₂
H	H	L	I ₃

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

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

	V _{DD} V	SYMBOL	MIN.	TYP.	MAX.	TYPICAL EXTRAPOLATION FORMULA	
Propagation delays							
I _n → O _n	5			120	240	ns	93 ns + (0,55 ns/pF) C _L
HIGH to LOW	10	t _{PHL}		45	90	ns	34 ns + (0,23 ns/pF) C _L
	15			30	60	ns	22 ns + (0,16 ns/pF) C _L
LOW to HIGH	5	t _{PLH}		120	245	ns	93 ns + (0,55 ns/pF) C _L
	10			50	100	ns	39 ns + (0,23 ns/pF) C _L
	15			35	65	ns	27 ns + (0,16 ns/pF) C _L
S _n → O _n	5			165	330	ns	138 ns + (0,55 ns/pF) C _L
HIGH to LOW	10	t _{PHL}		65	125	ns	54 ns + (0,23 ns/pF) C _L
	15			40	80	ns	32 ns + (0,16 ns/pF) C _L
LOW to HIGH	5	t _{PLH}		155	310	ns	128 ns + (0,55 ns/pF) C _L
	10			60	120	ns	49 ns + (0,23 ns/pF) C _L
	15			40	80	ns	32 ns + (0,16 ns/pF) C _L
$\overline{E}_n \rightarrow O_n$	5			100	200	ns	73 ns + (0,55 ns/pF) C _L
HIGH to LOW	10	t _{PHL}		40	80	ns	29 ns + (0,23 ns/pF) C _L
	15			30	55	ns	22 ns + (0,16 ns/pF) C _L
LOW to HIGH	5	t _{PLH}		100	200	ns	73 ns + (0,55 ns/pF) C _L
	10			40	80	ns	29 ns + (0,23 ns/pF) C _L
	15			30	55	ns	22 ns + (0,16 ns/pF) C _L
Output transition times	5			60	120	ns	10 ns + (1,0 ns/pF) C _L
HIGH to LOW	10	t _{THL}		30	60	ns	9 ns + (0,42 ns/pF) C _L
	15			20	40	ns	6 ns + (0,28 ns/pF) C _L
LOW to HIGH	5	t _{TLH}		60	120	ns	10 ns + (1,0 ns/pF) C _L
	10			30	60	ns	9 ns + (0,42 ns/pF) C _L
	15			20	40	ns	6 ns + (0,28 ns/pF) C _L

	V_{DD} V	TYPICAL FORMULA FOR P (μW)	
Dynamic power dissipation per package (P)	5	$700 f_i + \sum (f_o C_L) \times V_{DD}^2$	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	$2900 f_i + \sum (f_o C_L) \times V_{DD}^2$	
	15	$8100 f_i + \sum (f_o C_L) \times V_{DD}^2$	

APPLICATION INFORMATION

Some examples of applications for the HEF4539B are: * Data selectors * Data multiplexers