

QUADRUPLE 2-INPUT MULTIPLEXER



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.

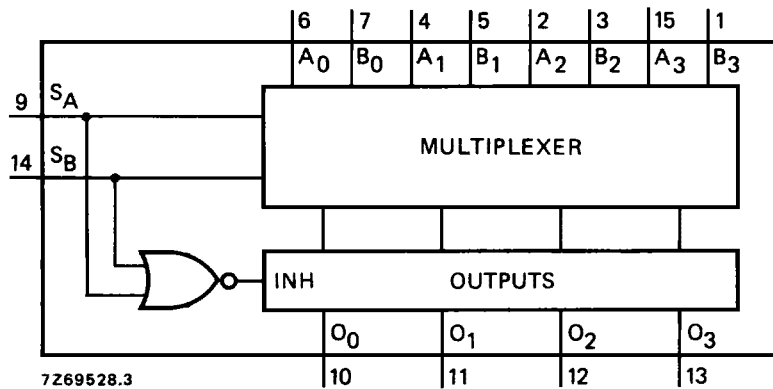


Fig. 1 Functional diagram.

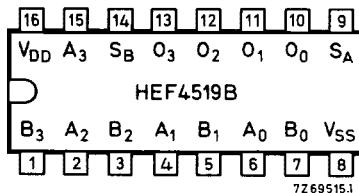


Fig. 2 Pinning diagram.

HEF4519BP : 16-lead DIL; plastic (SOT-38Z).
HEF4519BD : 16-lead DIL; ceramic (cerdip) (SOT-74).
HEF4519BT : 16-lead mini-pack; plastic (SO-16; SOT-109A).

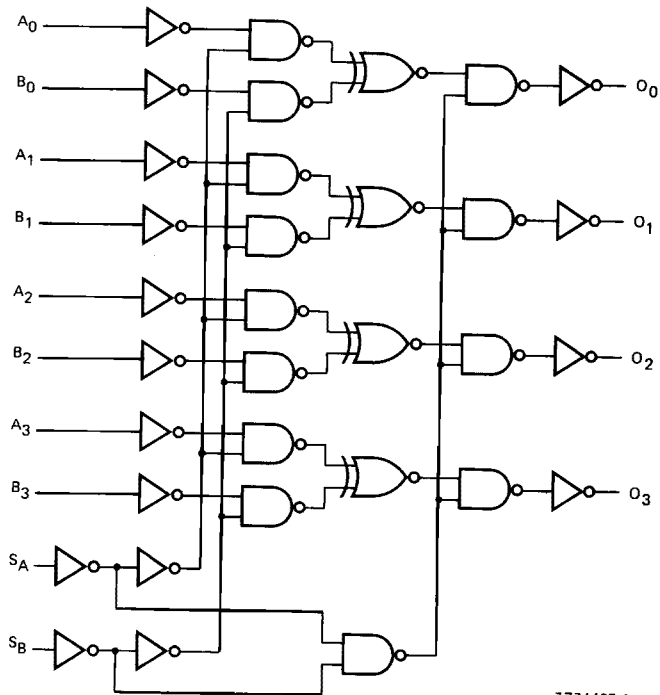
PINNING

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



7Z74497.1

Fig. 3 Logic diagram.

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

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

A.C. 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	typ.	max.		typical extrapolation formula
Propagation delays $A_n, B_n \rightarrow O_n$ HIGH to LOW	5	tPHL	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	$22\text{ ns} + (0,16\text{ ns/pF})C_L$
LOW to HIGH	5	tPLH	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	$22\text{ ns} + (0,16\text{ ns/pF})C_L$
$S_A, S_B \rightarrow O_n$ HIGH to LOW	5	tPHL	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	$22\text{ ns} + (0,16\text{ ns/pF})C_L$
LOW to HIGH	5	tPLH	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	5	tTHL	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	$6\text{ ns} + (0,28\text{ ns/pF})C_L$
LOW to HIGH	5	tTLH	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)	where f_i = input freq. (MHz) f_o = output freq. (MHz) C_L = load capacitance (pF) $\Sigma(f_o C_L)$ = sum of outputs V_{DD} = supply voltage (V)
Dynamic power dissipation per package (P)	5	$1000 f_i + \Sigma(f_o C_L) \times V_{DD}^2$	
	10	$6000 f_i + \Sigma(f_o C_L) \times V_{DD}^2$	
	15	$17\,000 f_i + \Sigma(f_o C_L) \times V_{DD}^2$	

APPLICATION INFORMATION

Some examples of applications for the HEF4519B are:

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

