

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

HEF4085B

gates

Dual 2-wide 2-input AND-OR-invert gate

Product specification
File under Integrated Circuits, IC04

January 1995

Dual 2-wide 2-input AND-OR-invert gate

HEF4085B gates

DESCRIPTION

The HEF4085B is a dual 2-wide 2-input AND-OR-invert gate, each with an additional input (A_4 or B_4) which can be used as either an expander input or an inhibit input. A HIGH on A_4 or B_4 forces the output (O_A or O_B) LOW independent of the other inputs (A_0 to A_3 or B_0 to B_3). The outputs O_A and O_B are fully buffered for highest noise immunity and pattern insensitivity of output impedance.

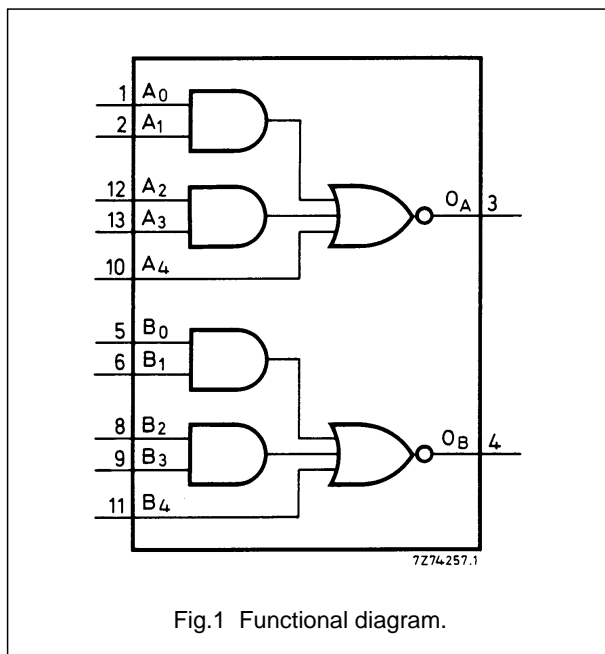


Fig.1 Functional diagram.

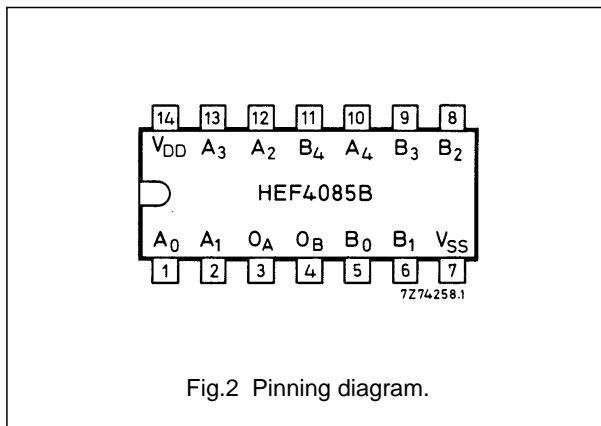


Fig.2 Pinning diagram.

- HEF4085BP(N): 14-lead DIL; plastic (SOT27-1)
- HEF4085BD(F): 14-lead DIL; ceramic (cerdip) (SOT73)
- HEF4085BT(D): 14-lead SO; plastic (SOT108-1)
- (): Package Designator North America

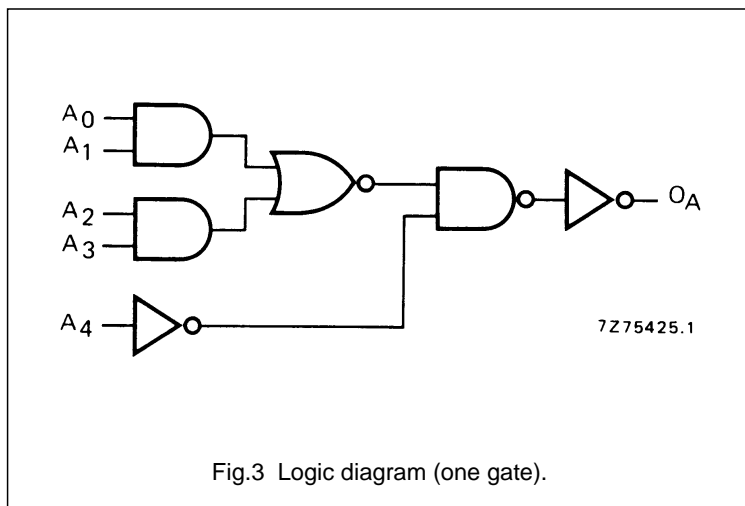


Fig.3 Logic diagram (one gate).

LOGIC FUNCTION

$$O_A = \overline{A_0 \cdot A_1 + A_2 \cdot A_3 + A_4}$$

$$O_B = \overline{B_0 \cdot B_1 + B_2 \cdot B_3 + B_4}$$

FAMILY DATA, I_{DD} LIMITS category GATES

See Family Specifications

Dual 2-wide 2-input AND-OR-invert gate

HEF4085B
gates**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	TYP.	MAX.	TYPICAL EXTRAPOLATION FORMULA	
Propagation delays $A_n, B_n \rightarrow O_n$ HIGH to LOW	5	t_{PHL}	75	155 ns	$48 \text{ ns} + (0,55 \text{ ns/pF}) C_L$	
	10		30	60 ns	$19 \text{ ns} + (0,23 \text{ ns/pF}) C_L$	
	15		20	40 ns	$12 \text{ ns} + (0,16 \text{ ns/pF}) C_L$	
	LOW to HIGH	5	t_{PLH}	65	135 ns	$38 \text{ ns} + (0,55 \text{ ns/pF}) C_L$
		10		30	55 ns	$19 \text{ ns} + (0,23 \text{ ns/pF}) C_L$
		15		20	40 ns	$12 \text{ ns} + (0,16 \text{ ns/pF}) C_L$
Output transition times HIGH to LOW	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	$6 \text{ ns} + (0,28 \text{ ns/pF}) C_L$	
	LOW to HIGH	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	$750 f_i + \sum (f_o C_L) \times V_{DD}^2$	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	$3200 f_i + \sum (f_o C_L) \times V_{DD}^2$	
	15	$9200 f_i + \sum (f_o C_L) \times V_{DD}^2$	