

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

HEF4030B

gates

Quadruple exclusive-OR gate

Product specification
File under Integrated Circuits, IC04

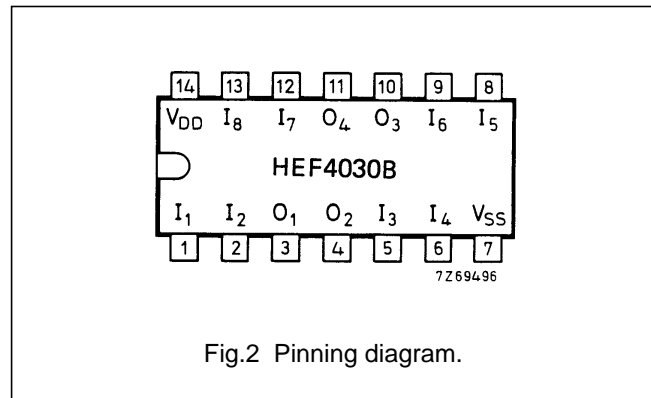
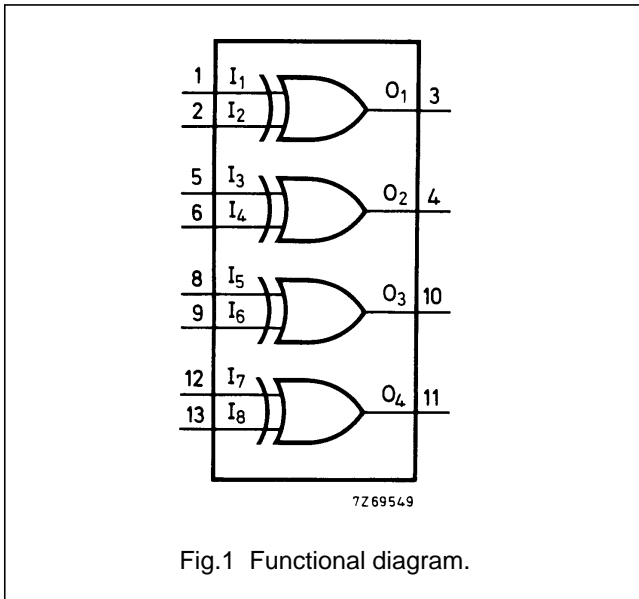
January 1995

Quadruple exclusive-OR gate

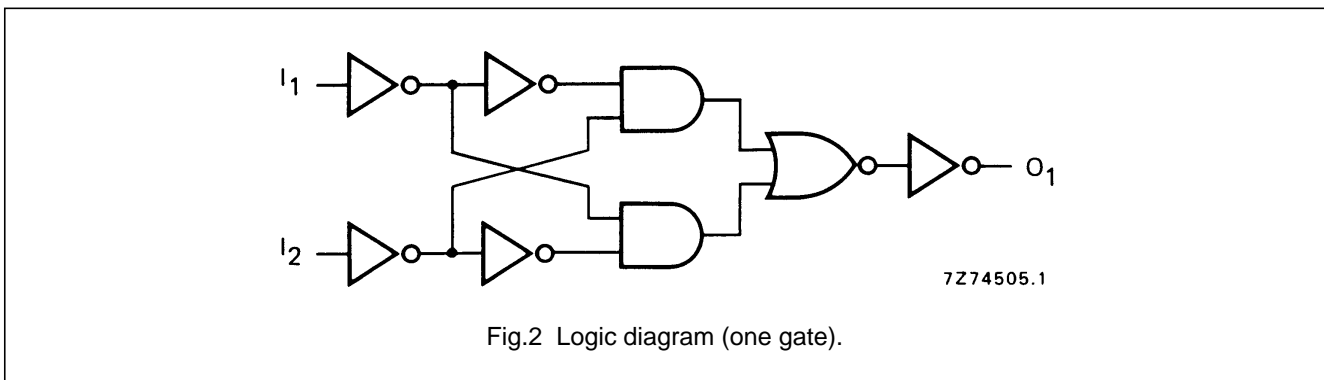
HEF4030B gates

DESCRIPTION

The HEF4030B provides the positive quadruple exclusive-OR function. The outputs are fully buffered for highest noise immunity and pattern insensitivity of output impedance.



- HEF4030BP(N): 14-lead DIL; plastic (SOT27-1)
- HEF4030BD(F): 14-lead DIL; ceramic (cerdip) (SOT73)
- HEF4030BT(D): 14-lead SO; plastic (SOT108-1)
- (): Package Designator North America



TRUTH TABLE

| I ₁ | I ₂ | O ₁ |
|----------------|----------------|----------------|
| L | L | L |
| H | L | H |
| L | H | H |
| H | H | L |

FAMILY DATA, I_{DD} LIMITS category GATES

See Family Specifications

Notes

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

Quadruple exclusive-OR gate

HEF4030B gates

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 $I_n \rightarrow O_n$ HIGH to LOW | 5 | t_{PHL} | 85 | 175 | ns | $57\text{ ns} + (0,55\text{ ns/pF}) C_L$ | |
| | 10 | | 35 | 75 | ns | $24\text{ ns} + (0,23\text{ ns/pF}) C_L$ | |
| | 15 | | 30 | 55 | ns | $22\text{ ns} + (0,16\text{ ns/pF}) C_L$ | |
| | LOW to HIGH | 5 | t_{PLH} | 75 | 150 | ns | $47\text{ ns} + (0,55\text{ ns/pF}) C_L$ |
| | | 10 | | 30 | 65 | ns | $19\text{ ns} + (0,23\text{ ns/pF}) C_L$ |
| | | 15 | | 25 | 50 | ns | $17\text{ ns} + (0,16\text{ ns/pF}) C_L$ |
| 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 | $1\ 100 f_i + \sum(f_o C_L) \times V_{DD}^2$ | 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 | $4\ 900 f_i + \sum(f_o C_L) \times V_{DD}^2$ | |
| | 15 | $14\ 400 f_i + \sum(f_o C_L) \times V_{DD}^2$ | |