

QUADRUPLE 2-INPUT AND GATE



The HEF4081B provides the positive quadruple 2-input AND function. The outputs are fully buffered for highest noise immunity and pattern insensitivity of output impedance.

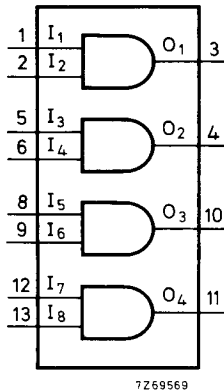


Fig.1 Functional diagram.

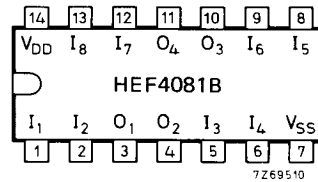


Fig.2 Pinning diagram.

HEF4081BP : 14-lead DIL; plastic (SOT-27).
 HEF4081BD : 14-lead DIL; ceramic (cerdip) (SOT-73).
 HEF4081BT : 14-lead mini-pack; plastic (SO-14; SOT-108A).

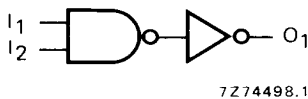


Fig.3 Logic diagram (one gate).

FAMILY DATA

I_{DD} LIMITS category GATES

} see Family Specifications

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 $I_n \rightarrow O_n$ HIGH to LOW	5	tPHL	55	110	ns	$28 \text{ ns} + (0,55 \text{ ns/pF}) C_L$
	10		25	50	ns	$14 \text{ ns} + (0,23 \text{ ns/pF}) C_L$
	15		20	40	ns	$12 \text{ ns} + (0,16 \text{ ns/pF}) C_L$
LOW to HIGH	5	tPLH	45	90	ns	$18 \text{ ns} + (0,55 \text{ ns/pF}) C_L$
	10		20	40	ns	$9 \text{ ns} + (0,23 \text{ ns/pF}) C_L$
	15		15	30	ns	$7 \text{ ns} + (0,16 \text{ ns/pF}) C_L$
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
Dynamic power dissipation per package (P)	5	$450 f_i + \Sigma(f_o C_L) \times V_{DD}^2$	f_i = input freq. (MHz)
	10		f_o = output freq. (MHz)
	15		C_L = load capacitance (pF)
			$\Sigma(f_o C_L)$ = sum of outputs
			V_{DD} = supply voltage (V)