

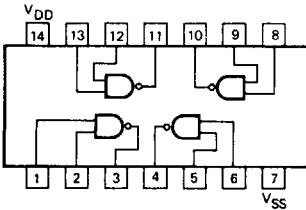
GD4011B • GD4012B

4011B QUAD
2-INPUT NAND GATE

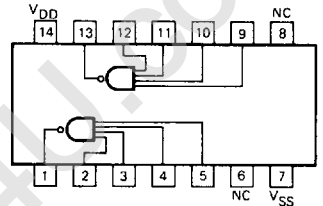
4012B DUAL
4-INPUT NAND GATE

DESCRIPTION – These CMOS logic elements provide the positive input NAND function. The outputs are fully buffered for highest noise immunity and pattern insensitivity of output impedance.

4011B
LOGIC AND CONNECTION DIAGRAM
DIP (TOP VIEW)



4012B
LOGIC AND CONNECTION DIAGRAM
DIP (TOP VIEW)



NOTE:
The SO Package have the same pinouts
(Connection Diagram) as the Dual In-line
Package.

DC CHARACTERISTICS: V_{DD} as shown, $V_{SS} = 0\text{ V}$ (See Note 1)

SYMBOL	PARAMETER	LIMITS									UNITS	TEMP	TEST-CONDITIONS See Note 1	
		$V_{DD} = 5\text{ V}$			$V_{DD} = 10\text{ V}$			$V_{DD} = 15\text{ V}$						
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX				
I_{DD}	Quiescent Power Supply Current	XC			1			2			4	μA	MIN, 25°C	All inputs at 0 V or V_{DD}
					7.5			15			30		MAX	
	XM			0.25			0.5			1	μA	MIN, 25°C		
				7.5			15			30		MAX		

AC CHARACTERISTICS: V_{DD} as shown, $V_{SS} = 0\text{ V}$, $T_A = 25^\circ\text{C}$, 4011B only (See Note 2)

SYMBOL	PARAMETER	LIMITS									UNITS	TEST CONDITIONS See Note 2		
		$V_{DD} = 5\text{ V}$			$V_{DD} = 10\text{ V}$			$V_{DD} = 15\text{ V}$						
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX				
t_{PLH}	Propagation Delay			60	110			25	60		20	48	ns	$C_L = 50\text{ pF}$, $R_L = 200\text{ k}\Omega$
t_{PHL}				60	110			25	60		20	48		
t_{TLH}	Output Transition Time			60	135			30	70		20	45	ns	Input Transition Times < 20 ns
t_{THL}				60	135			30	70		20	45		

AC CHARACTERISTICS: V_{DD} as shown, $V_{SS} = 0\text{ V}$, $T_A = 25^\circ\text{C}$, 4012B only

SYMBOL	PARAMETER	LIMITS									UNITS	TEST CONDITIONS See Note 2		
		$V_{DD} = 5\text{ V}$			$V_{DD} = 10\text{ V}$			$V_{DD} = 15\text{ V}$						
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX				
t_{PLH}	Propagation Delay			73	110			33	60		24	48	ns	$C_L = 50\text{ pF}$, $R_L = 200\text{ k}\Omega$
t_{PHL}				85	110			31	60		20	48		
t_{TLH}	Output Transition Time			76	135			37	70		27	45	ns	Input Transition Times < 20 ns
t_{THL}				67	135			25	70		17	45		

NOTES

- Additional DC Characteristics are listed in this section under 4000B Series CMOS Family Characteristics.
- Propagation Delays and Output Transition Times are graphically described in this section under 4000B Series CMOS Family Characteristics.

TYPICAL ELECTRICAL CHARACTERISTICS

