

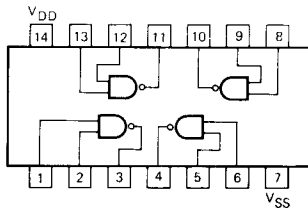
4011B • 4012B

4011B QUAD 2-INPUT NAND GATE

4012B DUAL 4-INPUT NAND GATE

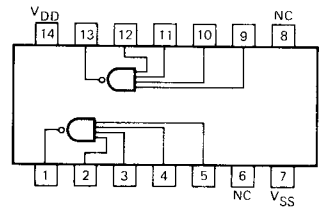
DESCRIPTION — These CMOS logic elements provide the positive input NAND function. The outputs are fully buffered for highest noise immunity and pattern insensitivity of output impedance.

**4011B
LOGIC AND CONNECTION DIAGRAM
DIP (TOP VIEW)**



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

**4012B
LOGIC AND CONNECTION DIAGRAM
DIP (TOP VIEW)**



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	XC			1			2			4	μA	MIN, 25°C	All inputs at 0 V or V_{DD}
				7.5			15			30	MAX			
	Supply Current	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	ns	
t_{TLH}	Output Transition Time			60	135		30	70		20	45	ns	
t_{THL}				60	135		30	70		20	45	ns	Times $\leq 20\text{ ns}$

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	ns	
t_{TLH}	Output Transition Time			76	135		37	70		27	45	ns	
t_{THL}				67	135		25	70		17	45	ns	Times $\leq 20\text{ ns}$

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

