



UCD4011B

CMOS IC

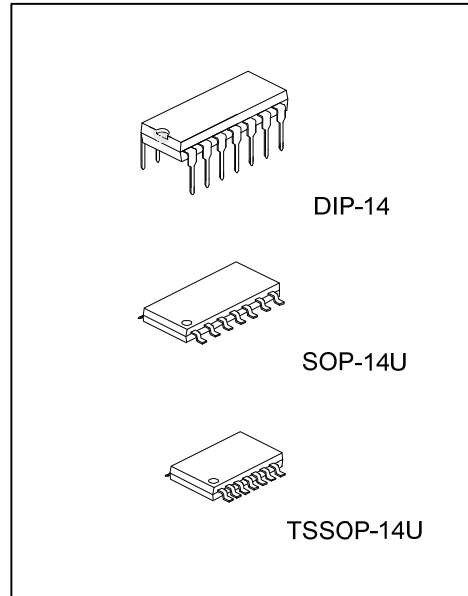
QUAD 2-INPUT NAND BUFFERED B SERIES GATE

DESCRIPTION

The **UTC UCD4011B** contains four independent 2-input NAND gates which perform the function $Y=A \cdot B$ in positive logic.

FEATURES

- * 5V-10V-15V Parametric Ratings
- * Quad 2-Input NAND Gate
- * Symmetrical Output Characteristics
- * Maximum Input Current of 1uA at 15V Over Full Package Temperature Range



ORDERING INFORMATION

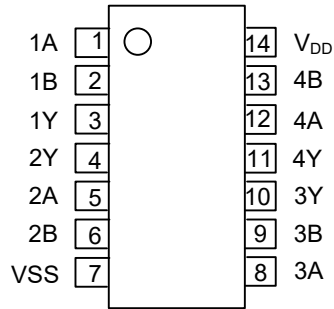
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCD4011BL-D14-T	UCD4011BG-D14-T	DIP-14	Tube
UCD4011BL-UEA-R	UCD4011BG-UEA-R	SOP-14U	Tape Reel
UCD4011BL-UEB-R	UCD4011BG-UEB-R	TSSOP-14U	Tape Reel

<p>UCD4011BG-D14-T</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) D14: DIP-14, UEA: SOP-14U, UEB: TSSOP-14U (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

DIP-14	SOP-14U / TSSOP-14U

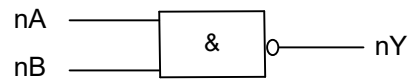
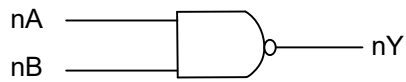
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

INPUT(A)	INPUT(B)	OUTPUT(Y)
H	H	L
H	L	H
L	H	H
L	L	H

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{DD}	-0.5 ~ 18	V
Input Voltage	V(nA,nB)	-0.5 ~ V _{DD} +0.5	V
Output Voltage	V(nY)	-0.5 ~ V _{DD} +0.5	V
Storage Temperature	T _{STG}	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{DD}	3 ~ 15	V
Operating Temperature	T _{OPR}	-40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V _{IH}	V _{DD} = 5V, V _O =0.5V	3.5			V
		V _{DD} = 10V, V _O =1.0V	7.0			
		V _{DD} = 15V, V _O =1.5V	11.0			
Low-Level Input Voltage	V _{IL}	V _{DD} = 5V, V _O =4.5V			1.5	V
		V _{DD} = 10V, V _O =9.0V			3.0	
		V _{DD} = 15V, V _O =13.5V			4.0	
High-Level Output Voltage	V _{OH}	V _{DD} = 5V, I _O < 1μA	4.95	5		V
		V _{DD} = 10V, I _O < 1μA	9.95	10		
		V _{DD} = 15V, I _O < 1μA	14.95	15		
Low-Level Output Voltage	V _{OL}	V _{DD} = 5V, I _O < 1μA		0	0.05	V
		V _{DD} = 10V, I _O < 1μA		0	0.05	
		V _{DD} = 15V, I _O < 1μA		0	0.05	
High-Level Output Current (NOTE)	I _{OH}	V _{DD} = 5V, V _O =4.6V	-0.51	-1.0		mA
		V _{DD} = 10V, V _O =9.5V	-1.3	-2.6		
		V _{DD} = 15V, V _O =13.5V	-3.4	-6.8		
Low-Level Output Current (NOTE)	I _{OL}	V _{DD} = 5V, V _O =0.4V	0.51	1		mA
		V _{DD} = 10V, V _O =0.5V	1.3	2.6		
		V _{DD} = 15V, V _O =1.5V	3.4	6.8		
Input Leakage Current	I _{I(LEAK)}	V _{DD} = 15V, V _{IN} = V _{DD} or V _{SS}			±0.1	μA
Quiescent Supply Current	I _Q	V _{DD} = 5V, V _{IN} = V _{DD} or V _{SS} , I _{OUT} = 0		0.01	0.25	μA
		V _{DD} = 10V, V _{IN} = V _{DD} or V _{SS} , I _{OUT} = 0		0.01	0.5	
		V _{DD} = 15V, V _{IN} = V _{DD} or V _{SS} , I _{OUT} = 0		0.01	1.0	

Note: I_{OL} and I_{OH} are tested one output at a time.

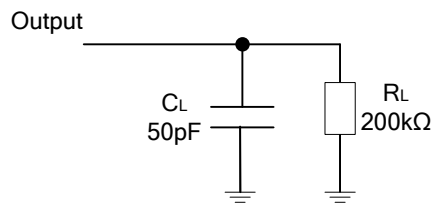
■ SWITCHING CHARACTERISTICS (T_A=25°C, Input: t_R=t_F=20ns, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from Input(A or B) to Output(Y)	t _{PLH} / t _{PHL}	V _{DD} =5V, C _L =50pF, R _L =200kΩ		90	250	ns
		V _{DD} =10V, C _L =50pF, R _L =200kΩ		55	120	
		V _{DD} =15V, C _L =50pF, R _L =200kΩ		45	90	
Transition Time	t _{TLH} t _{THL}	V _{DD} =5V, C _L =50pF, R _L =200kΩ		100	200	ns
		V _{DD} =10V, C _L =50pF, R _L =200kΩ		50	100	
		V _{DD} =15V, C _L =50pF, R _L =200kΩ		40	80	

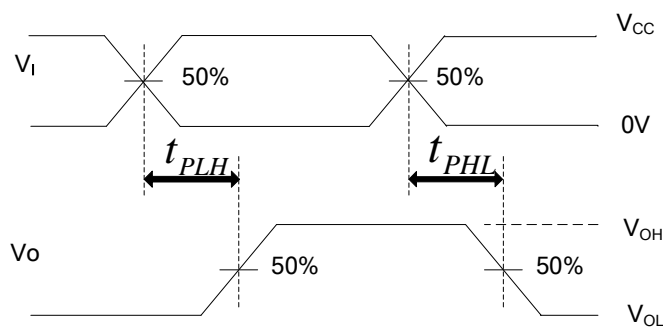
■ OPERATING CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Average Input Capacitance	C _{IN}	Any Input		5	7.5	pF

■ TEST CIRCUIT AND WAVEFORMS



Definitions for test circuit



Propagation Delay Times

Note: C_L includes probe and jig capacitance.

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