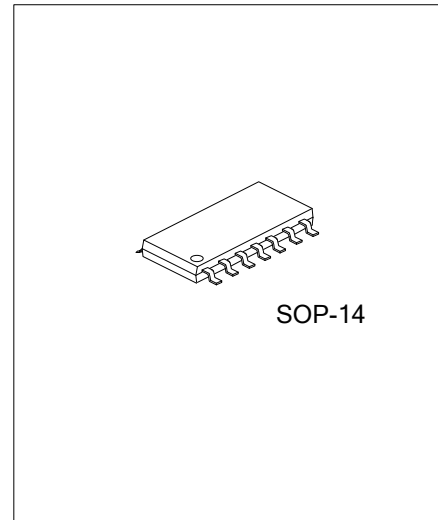




# UCD4071B

**CMOS IC**

## QUAD 2-INPUT OR BUFFERED B SERIES GATE



■ **DESCRIPTION**

The **UTC UCD4071B** contains four independent 2-input OR gates and they perform the function  $Y=A+B$  in positive logic.

■ **FEATURES**

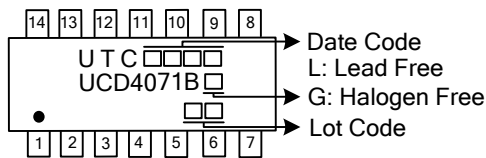
- \* 5V-10V-15V Parametric Ratings
- \* Quad 2-Input OR Gate
- \* Symmetrical Output Characteristics
- \* Maximum Input Current of 1uA at 15V Over Full Package Temperature
- \* Low Power TTL:  
Fan Out of 2 Driving 74L or 1 Driving 74LS Compatibility

■ **ORDERING INFORMATION**

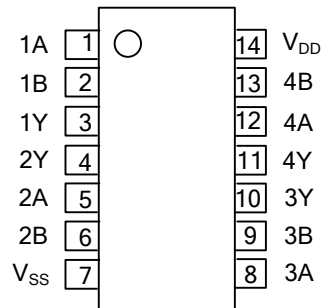
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCD4071BL-S14-T	UCD4071BG-S14-T	SOP-14	Tube
UCD4071BL-S14-R	UCD4071BG-S14-R	SOP-14	Tape Reel

<p>UCD4071BL-S14-T</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) T: Tube, R: Tape Reel (2) S14: SOP-14 (3) L: Lead Free, G: Halogen Free</p>
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■ **MARKING**



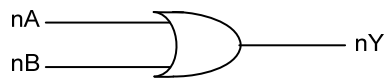
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATING( $T_A=25^{\circ}\text{C}$ , 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	$^{\circ}\text{C}$
Lead Temperature(Soldering, 10s)	$T_L$	260	$^{\circ}\text{C}$

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	$T_{OP}$	-40 ~ +125	$^{\circ}\text{C}$

■ ELECTRICAL CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ , 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	3		V
		$V_{DD}= 10V, V_O=1.0V$	7.0	6		
		$V_{DD}= 15V, V_O=1.5V$	11.0	9		
Low-Level Input Voltage	$V_{IL}$	$V_{DD}= 5V, V_O=4.5V$		2	1.5	V
		$V_{DD}= 10V, V_O=9.0V$		4	3.0	
		$V_{DD}= 15V, V_O=13.5V$		6	4.0	
High-Level Output Voltage	$V_{OH}$	$V_{DD}= 5V, I_{OH}=1\mu A$	4.95	5		V
		$V_{DD}= 10V, I_{OH}=1\mu A$	9.95	10		
		$V_{DD}= 15V, I_{OH}=1\mu A$	14.95	15		
Low-Level Output Voltage	$V_{OL}$	$V_{DD}= 5V, I_{OL}=1\mu A$		0	0.05	V
		$V_{DD}= 10V, I_{OL}=1\mu A$		0	0.05	
		$V_{DD}= 15V, I_{OL}=1\mu A$		0	0.05	
High-Level Output Current (NOTE)	$I_{OH}$	$V_{DD}= 5V, V_O=4.6V$	-0.51	-0.88		mA
		$V_{DD}= 10V, V_O=9.5V$	-1.3	-2.25		
		$V_{DD}= 15V, V_O=13.5V$	-3.4	-8.8		
Low-Level Output Current (NOTE)	$I_{OL}$	$V_{DD}= 5V, V_O=0.4V$	0.51	0.88		mA
		$V_{DD}= 10V, V_O=0.5V$	1.3	2.25		
		$V_{DD}= 15V, V_O=1.5V$	3.4	8.8		
Input Leakage Current	$I_{I(LEAK)}$	$V_{DD}= 15V, V_{IN} = V_{DD}$ or GND			0.1	$\mu A$
Quiescent Supply Current	$I_Q$	$V_{DD}= 5V, V_{IN} = V_{DD}$ or $V_{SS}, I_{OUT} = 0$		0.004	0.25	$\mu A$
		$V_{DD}= 10V, V_{IN} = V_{DD}$ or $V_{SS}, I_{OUT} = 0$		0.005	0.5	
		$V_{DD}= 15V, V_{IN} = V_{DD}$ or $V_{SS}, I_{OUT} = 0$		0.006	1.0	

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

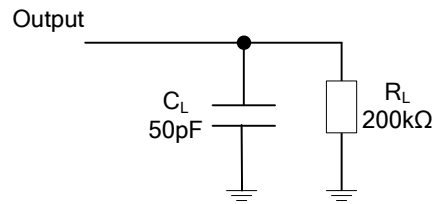
■ SWITCHING CHARACTERISTICS( $T_A=25^\circ\text{C}$ , Input:  $t_R=t_F=20\text{ns}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from Input(A or B) to Output(Y)	$t_{PLH}$	$V_{DD}=5\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		90	250	ns
		$V_{DD}=10\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		40	100	
		$V_{DD}=15\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		30	70	
	$t_{PHL}$	$V_{DD}=5\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		100	250	
		$V_{DD}=10\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		40	100	
		$V_{DD}=15\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		30	70	
Transition Time	$t_{TLH}$	$V_{DD}=5\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		90	200	ns
		$V_{DD}=10\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		50	100	
	$t_{THL}$	$V_{DD}=15\text{V}, C_L=50\text{pF}, R_L=200\text{k}\Omega$		40	80	

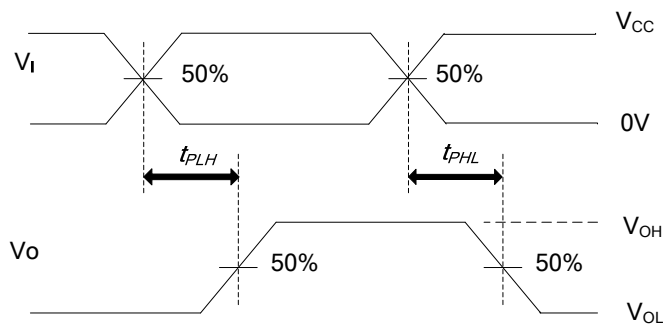
■ OPERATING CHARACTERISTICS( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Average Input Capacitance	$C_{IN}$	Any Input		5	7.5	pF
Power Dissipation Capacitance	$C_{pd}$	Any Gate		18		

■ TEST CIRCUIT AND WAVEFORMS



Definitions for test circuit



Propagation Delay Times

Note:  $C_L$  includes probe and jig capacitance.

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