



UCD4071C

CMOS IC

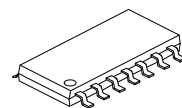
QUAD 2-INPUT OR BUFFERED B SERIES GATE

■ DESCRIPTION

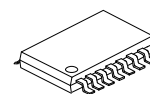
The **UTC UCD4071C** contains four independent 2-input OR gates and they perform the function $Y=A+B$ in positive logic.

■ 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
- * Green & Pb Free



SOP-14U



TSSOP-14U

■ ORDERING INFORMATION

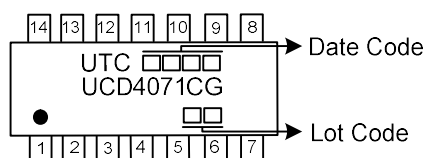
Ordering Number	Package	Packing
UCD4071CG-UEA-R	SOP-14U	Tape Reel
UCD4071CG-UEB-R	TSSOP-14U	Tape Reel

UCD4071CG-UEA-R

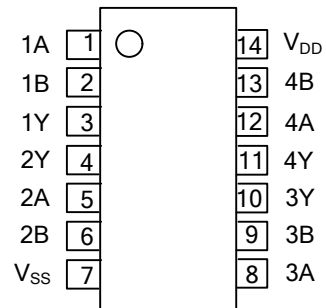
- (1) Packing Type
- (2) Package Type
- (3) Green Package

- (1) R: Tape Reel
- (2) UEA: SOP-14U, UEB: TSSOP-14U
- (3) G: Halogen Free and Lead Free

■ MARKING



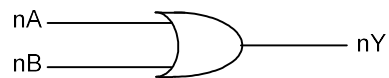
■ PIN CONFIGURATION



■ 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 (Unless otherwise specified) (Note 1 ~ 2)

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{DD}		-0.5 ~ 20	V
Input Voltage	V_{IN}		-0.5 ~ $V_{DD} + 0.5$	V
Output Voltage	V_{OUT}		-0.5 ~ $V_{DD} + 0.5$	V
Input Clamp Current	I_{IK}	$V_{IN} < 0\text{ V}$, or $V_{IN} > V_{DD}$	± 10	mA
Storage Temperature	T_{STG}		-65 ~ + 150	°C

Notes: 1. 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.

2. It's guarantee by design, this parameter is not production tested.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{DD}	Operating	3 ~ 18	V
Input Voltage	V_{IN}		0 ~ V_{DD}	V
Operating Temperature	T_A		-40 ~ +125	°C

Note: It's guarantee by design, this parameter is not production tested.

■ ELECTRICAL CHARACTERISTICS (NOTE 2)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A = 25^\circ\text{C}$			$T_A = -40^\circ\text{C} \sim +125^\circ\text{C}$			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V_{IH}	$V_{DD} = 5\text{V}$, $V_O = 0.5\text{V}$	3.5			3.5			V
		$V_{DD} = 10\text{V}$, $V_O = 1.0\text{V}$	7.0			7.0			V
		$V_{DD} = 15\text{V}$, $V_O = 1.5\text{V}$	11.0			11.0			V
Low-Level Input Voltage	V_{IL}	$V_{DD} = 5\text{V}$, $V_O = 4.5\text{V}$			1.5			1.5	V
		$V_{DD} = 10\text{V}$, $V_O = 9.0\text{V}$			3.0			3.0	V
		$V_{DD} = 15\text{V}$, $V_O = 13.5\text{V}$			4.0			4.0	V
High-Level Output Voltage	V_{OH}	$V_{DD} = 5\text{V}$, $I_{OH} = -1\mu\text{A}$	4.95			4.95			V
		$V_{DD} = 10\text{V}$, $I_{OH} = -1\mu\text{A}$	9.95			9.95			V
		$V_{DD} = 15\text{V}$, $I_{OH} = -1\mu\text{A}$	14.95			14.95			V
Low-Level Output Voltage	V_{OL}	$V_{DD} = 5\text{V}$, $I_{OL} = 1\mu\text{A}$			0.05			0.05	V
		$V_{DD} = 10\text{V}$, $I_{OL} = 1\mu\text{A}$			0.05			0.05	V
		$V_{DD} = 15\text{V}$, $I_{OL} = 1\mu\text{A}$			0.05			0.05	V
High-Level Output Current (Note 1)	I_{OH}	$V_{DD} = 5\text{V}$, $V_O = 4.6\text{V}$	-0.5			-0.36			mA
		$V_{DD} = 10\text{V}$, $V_O = 9.5\text{V}$	-1.3			-0.9			mA
		$V_{DD} = 15\text{V}$, $V_O = 13.5\text{V}$	-3.4			-2.4			mA
Low-Level Output Current (Note 1)	I_{OL}	$V_{DD} = 5\text{V}$, $V_O = 0.4\text{V}$	0.5			0.36			mA
		$V_{DD} = 10\text{V}$, $V_O = 0.5\text{V}$	1.3			0.9			mA
		$V_{DD} = 15\text{V}$, $V_O = 1.5\text{V}$	3.4			2.4			mA
Input Leakage Current	$I_{I(LEAK)}$	$V_{DD} = 18\text{V}$, $V_{IN} = V_{DD}$ or GND			± 0.1			± 1	μA
Quiescent Supply Current	I_Q	$V_{DD} = 5\text{V}$, $V_{IN} = V_{DD}$ or V_{SS} , $I_{OUT} = 0$			0.25			7.5	μA
		$V_{DD} = 10\text{V}$, $V_{IN} = V_{DD}$ or V_{SS} , $I_{OUT} = 0$			0.5			15	μA
		$V_{DD} = 15\text{V}$, $V_{IN} = V_{DD}$ or V_{SS} , $I_{OUT} = 0$			1			30	μA

Notes: 1. I_{OL} and I_{OH} are tested one output at a time.

2. It's guarantee by design, this parameter is not production tested.

■ **SWITCHING CHARACTERISTICS** (Input: $t_R=t_F=20\text{ns}$)

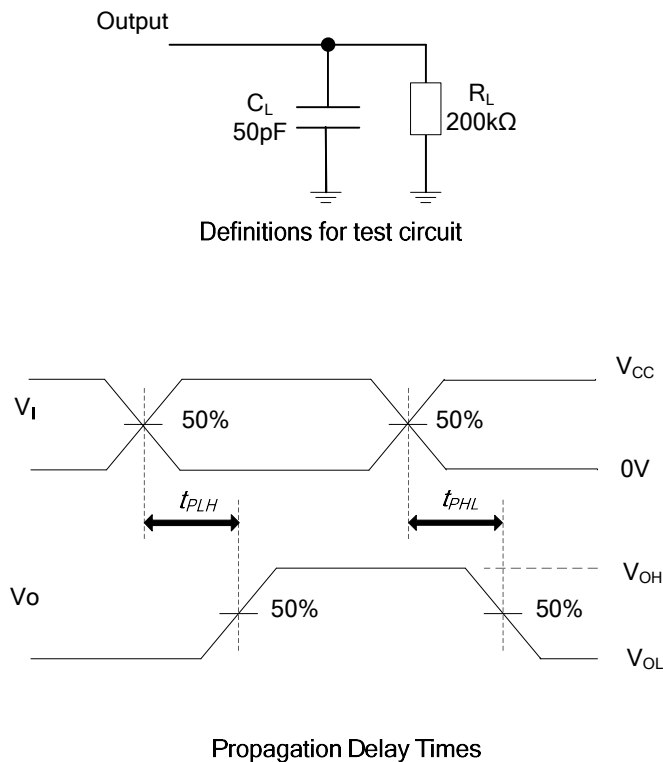
PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay From Input (nA or nB) to Output (nY)	t _{PLH}	V _{DD} =5V, C _L =50pF, R _L =200kΩ		85	250			270	ns
		V _{DD} =10V, C _L =50pF, R _L =200kΩ		40	120			140	ns
		V _{DD} =15V, C _L =50pF, R _L =200kΩ		30	90			110	ns
	t _{PHL}	V _{DD} =5V, C _L =50pF, R _L =200kΩ		80	250			270	ns
		V _{DD} =10V, C _L =50pF, R _L =200kΩ		35	120			140	ns
		V _{DD} =15V, C _L =50pF, R _L =200kΩ		25	90			110	ns
Transition Time	t _{TLH} t _{THL}	V _{DD} =5V, C _L =50pF, R _L =200kΩ		80	200			220	ns
		V _{DD} =10V, C _L =50pF, R _L =200kΩ		40	100			120	ns
		V _{DD} =15V, C _L =50pF, R _L =200kΩ		30	80			100	ns

Note: It's guarantee by design, this parameter is not production tested.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Average Input Capacitance	C _{IN}	Any Input			7.5	pF
Power Dissipation Capacitance	C _{PD}	Any Gate		18		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.

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