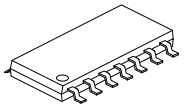
UCD4077B

Advance ***CMOS IC***

QUAD EXCLUSIVE-NOR GATE



SOP-14

■ DESCRIPTION

The **UTC UCD4077B** contains four Exclusive-NOR gates

The **UCD4077B** Provide the system designer with a means for direct implementation of the Exclusive-NOR function.

■ FEATURES

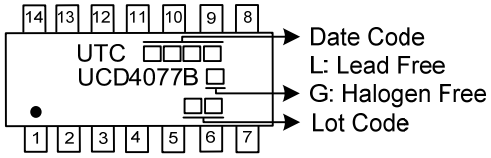
* Wide supply voltage range: 3.0V to 18V
* 5V, 10V, 15V Parametric Ratings
* Quad Exclusive-NOR Gate
* Symmetrical Output Characteristics

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCD4077BL-S14-R	UCD4077BG-S14-R	SOP-14	Tape Reel

UCD4077BG-S14-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S14: SOP-14 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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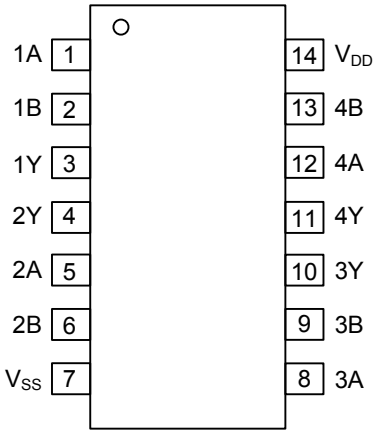
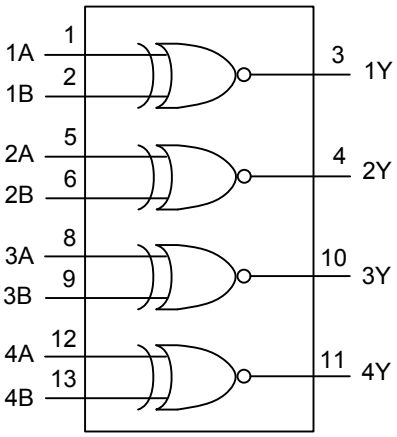
■ PIN CONFIGURATION



■ FUNCTION TABLE

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

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	-0.5 ~ 20	V
Input Voltage	$V_{(nA,nB)}$	-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 ~ 18	V
Operating Temperature	T_{OPR}	-40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS (V_{IN}=12V, 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 or 4.5V		3.5			V
		V_{DD}=10V, V_O=1.0V or 9V		7.0			V
		V_{DD}=15V, V_O=1.5V or 13.5V		11.0			V
Low-Level Input Voltage	V_{IL}	V_{DD}=5V, V_O=0.5V or 4.5V				1.5	V
		V_{DD}=10V, V_O=1.0V or 9V				3.0	V
		V_{DD}=15V, V_O=1.5V or 13.5V				4.0	V
High-Level Output Voltage	V_{OH}	V_{DD}=5V, V_I=0V or 5V		4.95	5		V
		V_{DD}=10V, V_I=0V or 10V		9.95	10		V
		V_{DD}=15V, V_I=0V or 15V		14.95	15		V
Low-Level Output Voltage	V_{OL}	V_{DD}=5V, V_I=0V or 5V			0	0.05	V
		V_{DD}=10V, V_I=0V or 10V			0	0.05	V
		V_{DD}=15V, V_I=0V or 15V			0	0.05	V
High-Level Output Current (Note)	I_{OH}	V_{DD}=5V, V_O=4.6V	V_{IN}=V_{DD} or GND	-0.51	-1.0		mA
		V_{DD}=5V, V_O=2.5V		-1.6	-3.2		mA
		V_{DD}=10V, V_O=9.5V		-1.3	-2.6		mA
		V_{DD}=15V, V_O=13.5V		-3.4	-6.8		mA
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		mA
		V_{DD}=15V, V_O=1.5V		3.4	6.8		mA
Input Leakage Current	$I_{I(LEAK)}$	V_{DD}=18V				±0.1	μA
Quiescent Supply Current	I_Q	V_{DD}=5V			0.01	0.25	μA
		V_{DD}=10V			0.01	0.5	μA
		V_{DD}=15V			0.01	1.0	μA
		V_{DD}=20V			0.02	5.0	μA

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

■ SWITCHING CHARACTERISTICS

(Input: t_R=t_F=20ns, C_L=50pF, R_L=200kΩ, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Time	t_{PLH} / t_{PHL}	V_{DD}=5V		140	280	ns
		V_{DD}=10V		65	130	ns
		V_{DD}=15V		50	100	ns
Transition Time	t_{TLH} / t_{THL}	V_{DD}=5V		100	200	ns
		V_{DD}=10V		50	100	ns
		V_{DD}=15V		40	80	ns

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

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

■ TYPICAL APPLICATION CIRCUIT

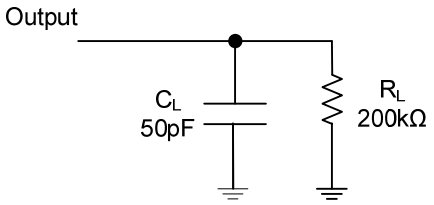


Fig 1. Definitions for test circuit

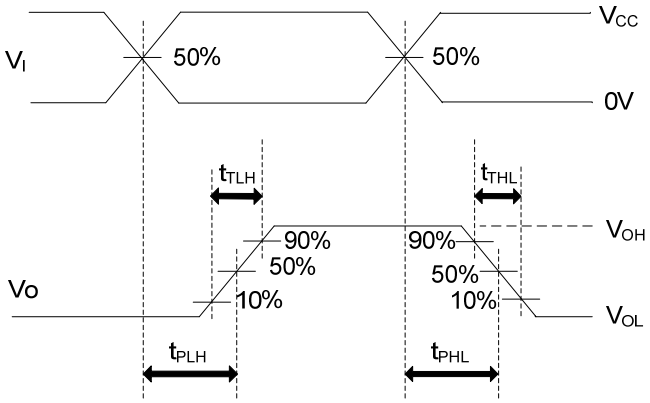


Fig 2. Propagation Delay Times

Note: C_L includes probe and jig capacitance.

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