



UCD4S70B

Preliminary

CMOS IC

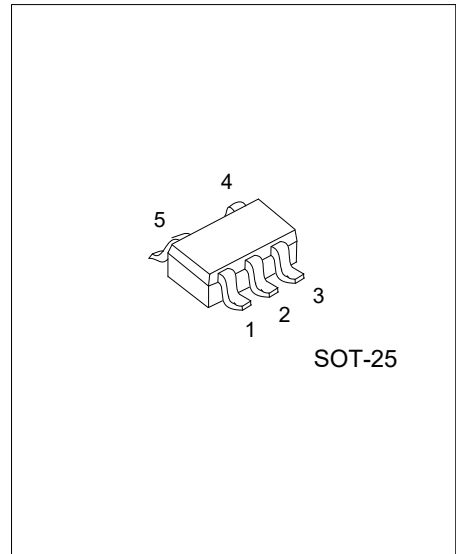
EXCLUSIVE-OR GATE

DESCRIPTION

The **UTC UCD4S70B** contains one Exclusive-OR gate.

FEATURES

- * 5V, 10V, 15V Parametric Ratings
- * Exclusive-OR Gate
- * Symmetrical Output Characteristics

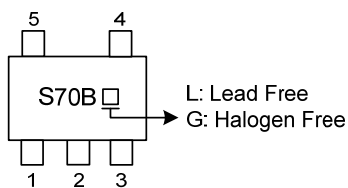


ORDERING INFORMATION

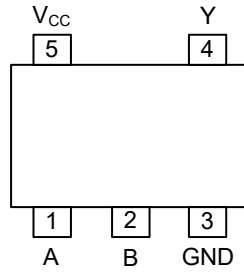
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCD4S70BL-AF5-R	UCD4S70BG-AF5-R	SOT-25	Tape Reel

<p>UCD4S70BG-AF5-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AF5: SOT-25 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



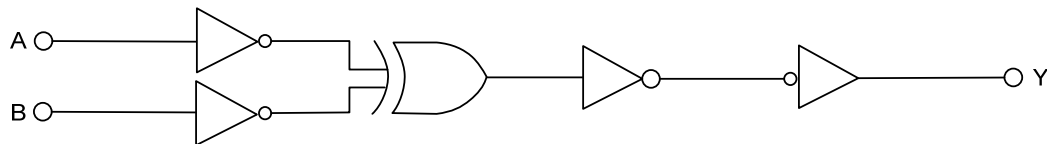
■ PIN CONFIGURATION



■ FUNCTION TABLE

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

■ 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 ($V_{IN}=12V$, 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			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}	$V_{DD}=5V, V_O=4.6V$	-0.51	-1.0		mA
		$V_{DD}=5V, V_O=2.5V$	-2.1	-4.0		mA
		$V_{DD}=10V, V_O=9.5V$	-1.3	-2.2		mA
		$V_{DD}=15V, V_O=13.5V$	-3.4	-9.0		mA
Low-Level Output Current (Note)	I_{OL}	$V_{DD}=5V, V_O=0.4V$	0.51	1.0		mA
		$V_{DD}=10V, V_O=0.5V$	1.3	2.6		mA
		$V_{DD}=15V, V_O=1.5V$	3.4	12		mA
Input Leakage Current	$I_{(LEAK)}$	$V_{DD}=15V, V_{IN}=V_{DD}$ or GND			± 0.1	μA
Quiescent Supply Current	I_Q	$V_{DD}=5V, V_{IN}=V_{DD}$ or GND, $I_{OUT}=0$		0.001	1	μA
		$V_{DD}=10V, V_{IN}=V_{DD}$ or GND, $I_{OUT}=0$		0.002	2	μA
		$V_{DD}=15V, V_{IN}=V_{DD}$ or GND, $I_{OUT}=0$		0.002	4	μA

■ SWITCHING CHARACTERISTICS ($V_{SS}=0V, C_L=50pF$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Time	t_{PLH} / t_{PHL}	$V_{DD}=5V$		90	280	ns
		$V_{DD}=10V$		45	130	ns
		$V_{DD}=15V$		35	100	ns
Transition Time	t_{TLH} / t_{THL}	$V_{DD}=5V$		70	200	ns
		$V_{DD}=10V$		35	100	ns
		$V_{DD}=15V$		30	80	ns

■ OPERATING CHARACTERISTICS (unless otherwise specified)

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

■ TYPICAL APPLICATION CIRCUIT

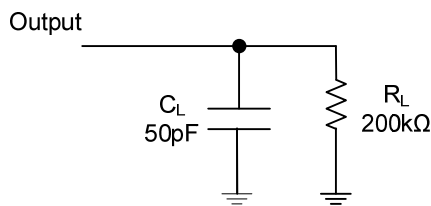


Fig 1. Definitions for test circuit

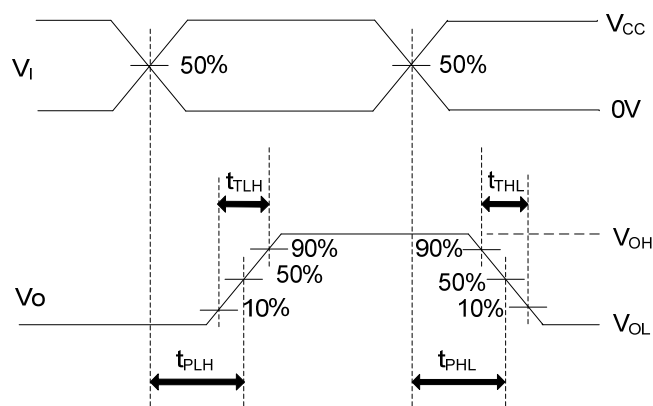


Fig 2. Propagation Delay Times

Note: C_L includes probe and jig capacitance.

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