XC74UL14AA

TOREX

CMOS Logic

◆CMOS Schmitt Trigger Inverter
◆High Speed Operation : tpd = 2.3ns (TYP.)
◆Operating Voltage Range : 2V ~ 5.5V
◆Low Power Consumption : 1μA (MAX.)

■APPLICATIONS

●Palmtops

●Digital equipment

■GENERAL DESCRIPTION

The XC74UL14AA is a CMOS schmitt trigger inverter, manufactured using silicon gate CMOS fabrication.

CMOS low power circuit operation makes high speed LS-TTL operation achievable.

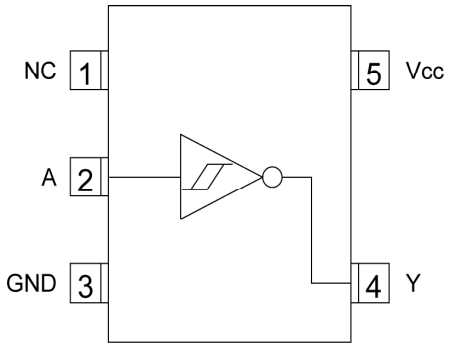
With a wave forming buffer connected internally, stabilized output can be achieved as the circuit offers high noise immunity.

As the XC74UL14AA is integrated into mini molded, SSOT-25 and SOT-25 packages, high density mounting is possible.

■FEATURES

High Speed Operation : tpd = 2.3ns (TYP.)
Operating Voltage Range : 2V ~ 5.5V
Low Power Consumption : 1μA (MAX.)
Ultra Small Packages : SSOT-25 and SOT-25

■PIN CONFIGURATION



SSOT-25/SOT-25
(TOP VIEW)

■FUNCTIONS

INPUT	OUTPUT
A	Y
H	L
L	H

H=High level
L=Low level

■ABSOLUTE MAXIMUM RATINGS

Ta=-40℃~85℃

PARAMETER	SYMBOL	RATINGS	UNITS
Supply Voltage	V_{CC}	-0.5~+6.0	V
Input Voltage	V_{IN}	-0.5~+6.0	V
Output Voltage	V_{OUT}	-0.5~V_{CC}+0.5	V
Input Diode Current	I_{IK}	-20	mA
Output Diode Current	I_{OK}	±20	mA
Output Current	I_{OUT}	±25	mA
V_{CC},GND Current	I_{CC},I_{GND}	±50	mA
Power Dissipation(Ta=55℃)	Pd	150	mW
Storage Temperature Range	Tstg	-65~+150	℃

* Voltage is all ground standardized.

■RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	V_{CC}(V)	CONDITIONS	UNITS
Supply Voltage	V_{CC}	–	2~5.5	V
Input Voltage	V_{IN}	–	0~5.5	V
Output Voltage	V_{OUT}	–	0~V_{CC}	V
Operating Temperature Range	Topr	–	-40~+85	℃
Output Current	I_{OH}	3.0	-4	mA
		4.5	-8	
	I_{OL}	3.0	4	
		4.5	8	

■DC ELECTRICAL CHARACTERISTICS

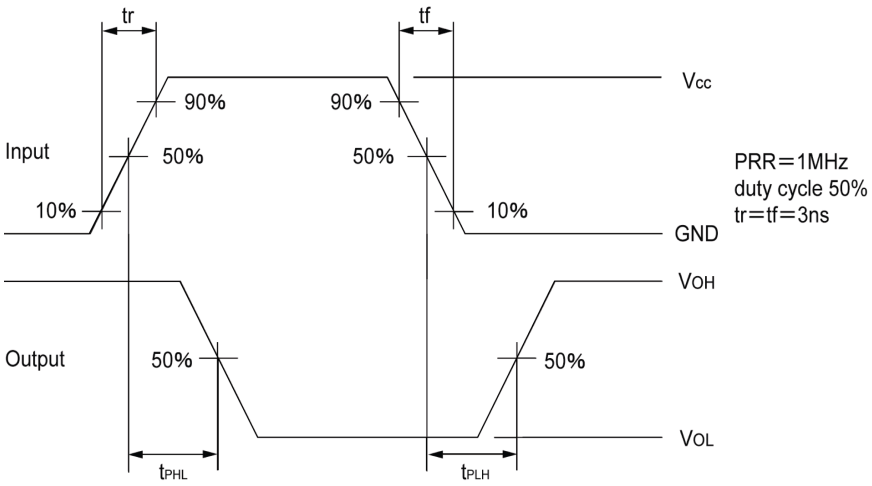
PARAMETER	SYMBOL	V_{CC}(V)	CONDITIONS		Ta=25℃ MIN.	Ta=25℃ TYP.	Ta=25℃ MAX.	Ta=-40℃~85℃ MIN.	Ta=-40℃~85℃ MAX.	UNITS
Threshold Voltage	V_{T+}	2.0			–	–	2.2	–	2.2	V
		3.0			–	–	3.15	–	3.15	
		5.5			–	–	3.85	–	3.85	
	V_{T-}	2.0			0.9	–	–	0.9	–	V
		3.0			1.35	–	–	1.35	–	
		5.5			1.65	–	–	1.65	–	
Hysteresis Voltage	V_H	3.0			0.25	–	1.2	0.25	1.2	
		4.5			0.30	–	1.4	0.30	1.4	
		5.5			0.35	–	1.6	0.35	1.6	
Output Voltage	V_{OH}	2.0	V_{IN}=V_{IL}	I_{OH}=-50μA	1.9	2.0	–	1.9	–	V
		3.0			2.9	3.0	–	2.9	–	
		4.5			4.4	4.5	–	4.4	–	
		3.0		I_{OH}=-4mA	2.58	–	–	2.48	–	
		4.5		I_{OH}=-8mA	3.94	–	–	3.80	–	
	V_{OL}	2.0	V_{IN}=V_{IH}	I_{OL}=50μA	–	–	0.1	–	0.1	V
		3.0			–	–	0.1	–	0.1	
		4.5			–	–	0.1	–	0.1	
		3.0		I_{OL}=4mA	–	–	0.36	–	0.44	
		4.5		I_{OL}=8mA	–	–	0.36	–	0.44	
Input Current	I_{IN}	5.5	V_{IN}=V_{CC} or GND		-0.1	–	0.1	-1.0	1.0	μA
Static Supply Current	I_{CC}	5.5	V_{IN}=V_{CC} or GND, I_{OUT}=0μA		–	–	1.0	–	10.0	

■SWITCHING ELECTRICAL CHARACTERISTICS

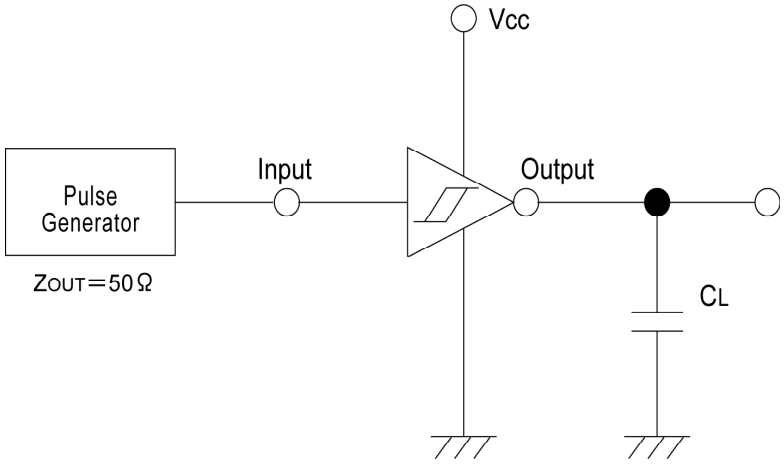
tr=tf=3ns

PARAMETER	SYMBOL	C_L	V_{CC}(V)	CONDITIONS	Ta=25℃ MIN.	Ta=25℃ TYP.	Ta=25℃ MAX.	Ta=-40℃~85℃ MIN.	Ta=-40℃~85℃ MAX.	UNITS
Delay Time	tPLH	15pF	3.3		–	2.8	12.8	1.0	15.0	ns
			5.0		–	2.1	8.6	1.0	10.0	
		50pF	3.3		–	4.3	16.3	1.0	18.5	ns
			5.0		–	3.1	10.6	1.0	12.0	
	tPHL	15pF	3.3		–	3.1	12.8	1.0	15.0	ns
			5.0		–	2.5	8.6	1.0	10.0	
		50pF	3.3		–	4.4	16.3	1.0	18.5	ns
			5.0		–	3.4	10.6	1.0	12.0	
Input Capacitance	C_{IN}	–	5.0	V_{IN}=V_{CC} or GND	–	2	10	–	10	pF
Power Dissipation Capacitance	Cpd	No Load, f=1MHz			–	10	–	–	–	pF

■WAVEFORM



■TEST CIRCUIT



Note: Open output when measuring supply current