XC74UL86AA

TOREX

CMOS Logic

◆CMOS 2-Input Exclusive-OR Gate
◆High Speed Operation : tpd=3.1ns TYP
◆Operating Voltage Range : 2V~5.5V
◆Low Power Consumption : 1μA (max)

■General Description

The XC74UL86AA is a 2-input CMOS exclusive-OR gate, manufactured using silicon gate CMOS fabrication.
CMOS low power circuit operation makes high speed LS-TTL operations achievable.
With a wave forming buffer connected internally, stabilized output can be achieved as the circuit offers high noise immunity.
As the XC74UL86AA is integrated into mini molded, SSOT-25 and SOT-25 packages, high density mounting is possible.

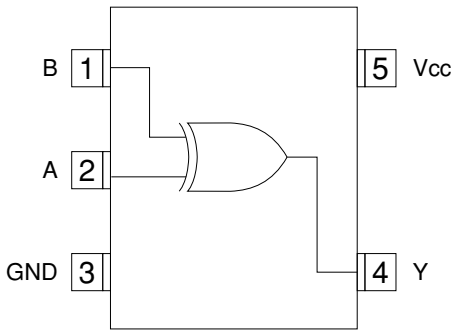
■Applications

●Palmtops
●Digital Equipment

■Features

High Speed Operation : tpd=3.1ns TYP
Operating Voltage Range: 2V~5.5V
Low Power Consumption: 1μA (max)
Ultra Small Package : SSOT-25 and SOT-25

■Pin Configuration



SSOT-25/SOT-25
(TOP VIEW)

■Function

INPUT		OUTPUT
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	L

H=High level, L=Low level

■Absolute Maximum Ratings

Ta=-40°C~85°C

PARAMETER	SYMBOL	RATINGS	UNITS
Power 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
Continuous Total Power Dissipation (Ta=55°C)	Pd	150	mW
Storage Temperature	Tstg	-65 ~ +150	°C

Note: Voltage is all Ground standardized.

■Recommended Operating Conditions

PARAMETER	SYMBOL	VCC(V)	CONDITIONS	UNITS
Supply Voltage	VCC	-	2 ~ 5.5	V
Input Voltage	VIN	-	0 ~ 5.5	V
Output Voltage	VOUT	-	0 ~ VCC	V
Operating Temperature	Topr	-	-40 ~ +85	°C
Output Current	IOH	3.0	-4	mA
		4.5	-8	
	IOL	3.0	4	
		4.5	8	
Input Rise and Fall Time	tr, tf	3.3	0 ~ 100	ns
		5.0	0 ~ 20	

■DC Electrical Characteristics

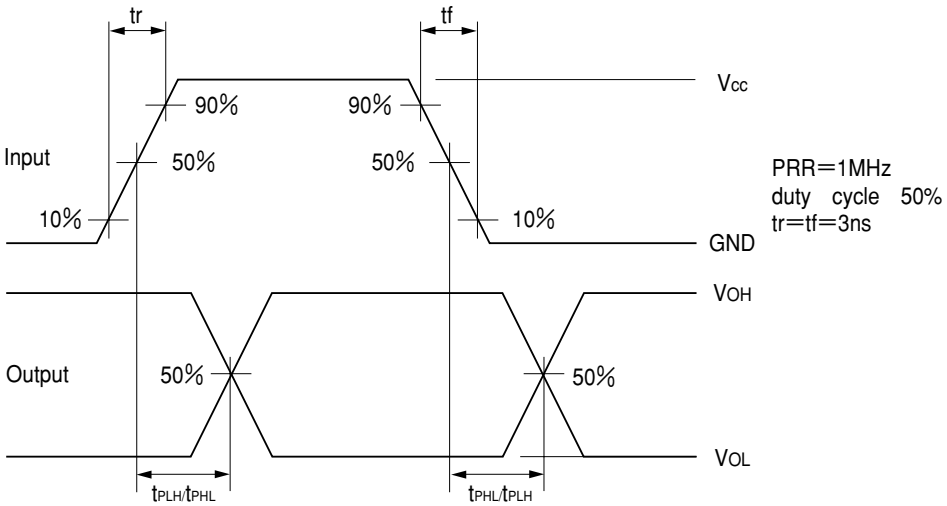
PARAMETER	SYMBOL	VCC(V)	CONDITIONS		Ta=25°C MIN	Ta=25°C TYP	Ta=25°C MAX	Ta=-40~85°C MIN	Ta=-40~85°C MAX	UNITS
Input Voltage	VIH	2.0			1.5	-	-	1.5	-	V
		3.0			2.1	-	-	2.1	-	
		5.5			3.85	-	-	3.85	-	
	VIL	2.0			-	-	0.5	-	0.5	V
		3.0			-	-	0.9	-	0.9	
		5.5			-	-	1.65	-	1.65	
Output Voltage	VOH	2.0	VIN=VIH or VIL	IOH=-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		IOH=-4mA	2.58	-	-	2.48	-	
		4.5		IOH=-8mA	3.94	-	-	3.80	-	
	VOL	2.0	VIN=VIH	IOL=50μA	-	-	0.1	-	0.1	V
		3.0			-	-	0.1	-	0.1	
		4.5			-	-	0.1	-	0.1	
		3.0		IOL=4mA	-	-	0.36	-	0.44	
		4.5		IOL=8mA	-	-	0.36	-	0.44	
Input Current	IIN	5.5	VIN=VCC or GND		-0.1	-	0.1	-1.0	1.0	μA
Quiescent Supply Current	ICC	5.5	VIN=VCC or GND, IOUT=0μA		-	-	1.0	-	10.0	

■Switching Electrical Characteristics

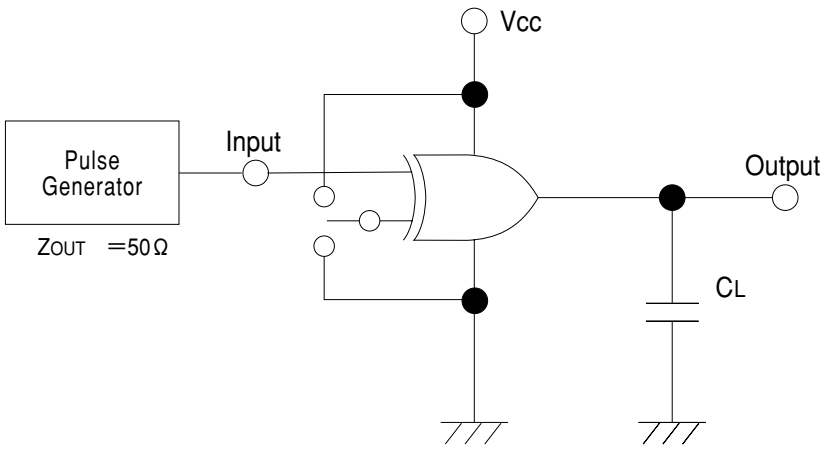
tr=tf=3ns

PARAMETER	SYMBOL	CL	VCC(V)	CONDITIONS	Ta=25°C MIN	Ta=25°C TYP	Ta=25°C MAX	Ta=-40~85°C MIN	Ta=-40~85°C MAX	UNITS
Propagation Delay Time	tPLH	15pF	3.3		-	4.4	11	1	13	ns
			5.0		-	3.3	6.8	1	8	
		50pF	3.3		-	6.1	14.5	1	16.5	ns
			5.0		-	4.4	8.8	1	10	
	tPHL	15pF	3.3		-	4	11	1	13	ns
			5.0		-	2.9	6.8	1	8	
		50pF	3.3		-	5.6	14.5	1	16.5	ns
			5.0		-	4.1	8.8	1	10	
Input Capacitance	CIN	-	5.0	VIN=VCC or GND	-	4	10	-	10	pF
Power Dissipation Capacitance	Cpd	No Load, f=1MHz			-	12	-	-	-	pF

■Waveforms



■Typical Application Circuit



Note: Open output when measuring supply current