XC74WLU04ASR

TOREX

CMOS Logic

■GENERAL DESCRIPTION

XC74WLU04ASR is triple inverter (unbuffered) manufactured using silicon gate CMOS processes. The small supply current, which is one of the features of the CMOS logic, gives way to high speed operations which enables LS-TTL.

With wave forming buffers connected internally, stabilized output can be achieved as the series offers high noise immunity.

As the series is integrated into a mini molded, MSOP-8B package, high density mounting is possible.

■Applications

● Palmtops

● Digital equipment

■FEATURES

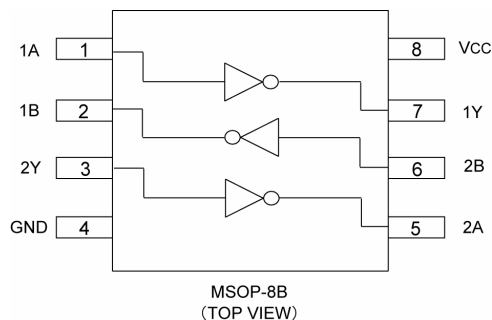**High Speed Operations** : tpd = 2.3ns (TYP.) (Vcc=5V)

Operating Voltage Range : 2V ~ 5.5V

Low Power Consumption : 1 μ A (MAX.)@Ta=25℃

CMOS Logic Triple Inverter(Unbufferd)

Small Package : MSOP-8B

■PIN CONFIGURATION

MSOP-8B
（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	Vcc	-0.5~+6.0	V
Input Voltage	VIN	-0.5~+6.0	V
Output Voltage	VOUT	-0.5~Vcc+0.5	V
Input Diode Current	IIK	-20	mA
Output Diode Current	IOK	±20	mA
Switch Output Current	IOUT	±25	mA
Vcc,GND Current	ICC,IGND	±50	mA
Power Dissipation (Ta = 25℃)	Pd	300	mW
Storage Temperature Range	Tstg	-65~+150	℃

Note : Voltage is all ground standardized.

■RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	UNITS
Supply Voltage	V_{CC}	2~5.5	V
Input Voltage	V_{IN}	0~5.5	V
Output Voltage	V_{OUT}	0~VCC	V
Operating Temperature Range	Topr	-40~+85	℃

■DC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	V_{CC}(V)	CONDITIONS		Ta=25℃			Ta=-40℃~85℃		UNITS
					MIN.	TYP.	MAX.	MIN.	MAX.	
Input Voltage	V_{IH}	2.0			1.70	—	—	1.70	—	V
		3.0			2.40	—	—	2.40	—	
		5.5			4.40	—	—	4.40	—	
	V_{IL}	2.0			—	—	0.30	—	0.30	V
		3.0			—	—	0.60	—	0.60	
		5.5			—	—	1.10	—	1.10	
Output Voltage	V_{OH}	2.0	$V_{IN}=V_{IH}$	I_{OH}=-50μA	1.80	2.0	—	1.80	—	V
		3.0			2.70	3.0	—	2.70	—	
		4.5			4.05	4.5	—	4.05	—	
		3.0	$V_{IN}=GND$	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	—	—	0.20	—	0.20	V
		3.0			—	—	0.30	—	0.30	
		4.5			—	—	0.45	—	0.45	
		3.0	$V_{IN}=V_{CC}$	I_{OL}=4mA	—	—	0.36	—	0.44	
		4.5		I_{OL}=8mA	—	—	0.36	—	0.44	
Input Current	I_{IN}	0~5.5	$V_{IN}=V_{CC}$ or GND		-0.1	—	0.1	-1	1	μA
Static Supply Current	I_{CC}	5.5	$V_{IN}=V_{CC}$ or GND, $I_{OUT=0}\mu$A		—	—	1	—	10	μA

■SWITCHING ELECTRICAL CHARACTERISTICS

(tr=tf=3ns)

PARAMETER	SYMBOL	C_L	V_{CC}(V)	CONDITIONS	Ta=25℃			Ta=-40℃~85℃		UNITS
					MIN.	TYP.	MAX.	MIN.	MAX.	
Delay Time	t_{PLH}	15pF	3.3		—	2.80	7.1	1.0	8.5	ns
			5.0		—	2.40	5.5	1.0	6.0	
		50pF	3.3		—	4.50	10.6	1.0	12.0	ns
			5.0		—	3.60	7.0	1.0	8.0	
	T_{PHL}	15pF	3.3		—	2.70	7.1	1.0	8.5	ns
			5.0		—	2.20	5.5	1.0	6.0	
		50pF	3.3		—	4.2	10.6	1.0	12.0	ns
			5.0		—	3.5	7.0	1.0	8.0	
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

■NOISE CHARACTERISTICS

(tr=tf=3ns)

PARAMETER	SYMBOL	CL	Vcc(V)	CONDITIONS	Ta=25℃			UNITS
					MIN.	TYP.	MAX.	
Non Functional Output Maximum Dynamic VOL	VOLP	50pF	5.0		―	0.3	0.8	V
Non Functional Output Minimum Dynamic VOL	VOLV	50pF	5.0		-0.8	-0.3	―	V
Minimum Dynamic VIH	VIHD	50pF	5.0		―	―	3.5	V
Maximum Dynamic VIL	VILD	50pF	5.0		―	―	1.5	V

■TEST CIRCUIT

■WAVEFORM

PRR=1MHz
duty cycle 50%
tr=tf=3ns
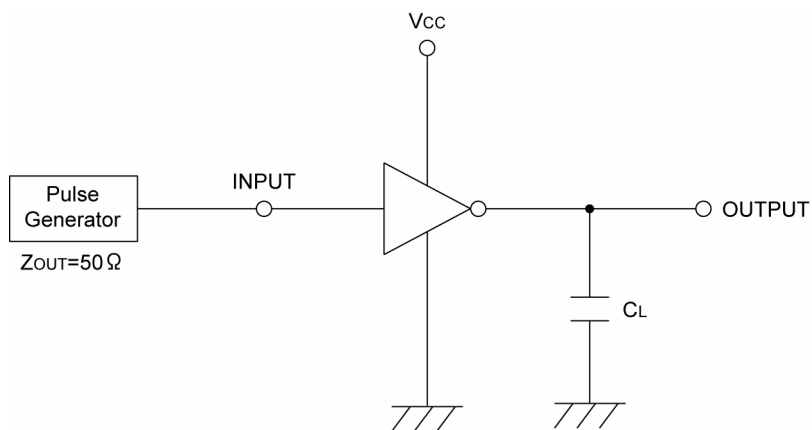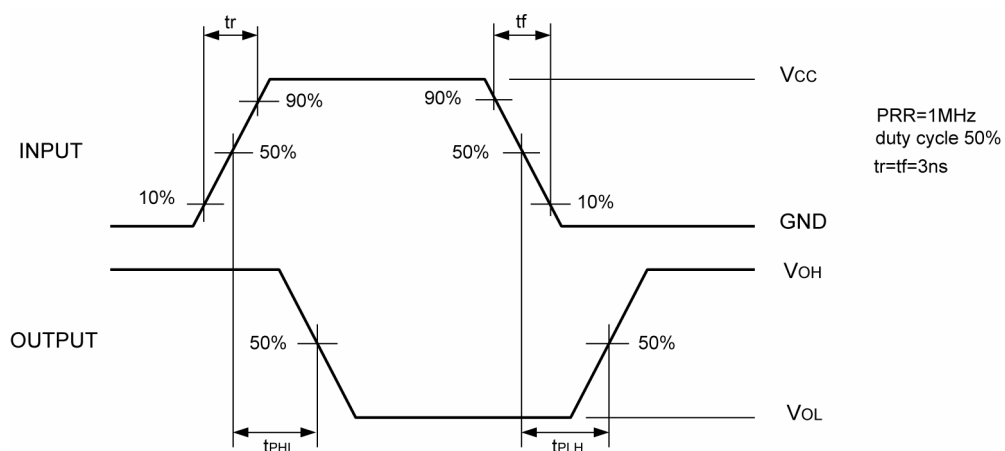
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