XC74WL240ASR

TOREX

ETR1323_001

CMOS Logic

■GENERAL DESCRIPTION

XC74WL240ASR is dual bus buffer 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

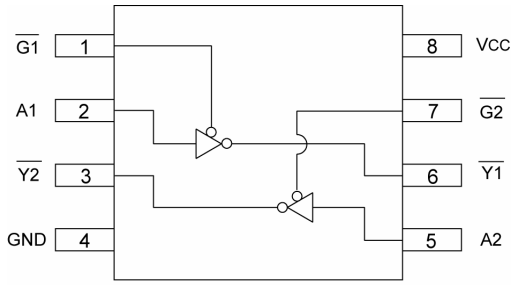
●Palmtops

●Digital equipment

■FEATURES

High Speed Operations : tpd = 3.8ns (TYP.) (VCC=5V)
Operating Voltage Range : 2V ~ 5.5V
Low Power Consumption: 2μA (MAX.)@Ta=25℃
CMOS Logic Dual Bus Buffer (Inverted 3-state outputs)
Small Package : MSOP-8B

■PIN CONFIGURATION



MSOP-8B
(TOP VIEW)

■FUNCTIONS

INPUT		OUTPUT
$\overline{G}$	A	$\overline{Y}$
H	X	Z
L	H	L
L	L	H

H=High level
L=Low level
X=Don't care
Z=High impedance

■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	℃
Input Rise and Fall Time	tr,tf	0~200（VCC=3.3V）	ns
		0~100（VCC=5V）	

■DC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	VCC(V)	CONDITIONS		Ta=25℃ MIN.	Ta=25℃ TYP.	Ta=25℃ MAX.	Ta=-40℃~85℃ MIN.	Ta=-40℃~85℃ MAX.	UNITS
Input Voltage	V_{IH}	2.0			1.50	—	—	1.50	—	V
		3.0			2.10	—	—	2.10	—	
		5.5			3.85	—	—	3.85	—	
	V_{IL}	2.0			—	—	0.50	—	0.50	V
		3.0			—	—	0.90	—	0.90	
		5.5			—	—	1.65	—	1.65	
Output Voltage	V_{OH}	2.0	$V_{IN}=V_{IL}$	I_{OH}=-50μA	1.90	2.00	—	1.90	—	V
		3.0			2.90	3.00	—	2.90	—	
		4.5			4.40	4.50	—	4.40	—	
		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	—	—	0.10	—	0.10	V
		3.0			—	—	0.10	—	0.10	
		4.5			—	—	0.10	—	0.10	
		3.0		I_{OL}=4mA	—	—	0.36	—	0.44	
		4.5		I_{OL}=8mA	—	—	0.36	—	0.44	
3 State Off-Leak Current	I_{OZ}	5.0	$V_{IN}=V_{IL}$ or V_{IH}, $V_{OUT}=V_{CC}$ or GND		-0.25	—	0.25	-2.50	2.50	μA
Input Current	I_{IN}	0~5.5	$V_{IN}=V_{CC}$ or GND		-0.10	—	0.1	-1.00	1.00	μA
Static Supply Current	I_{CC}	5.5	$V_{IN}=V_{CC}$ or GND		—	—	2.0	—	20.0	μA

■SWITCHING ELECTRICAL CHARACTERISTICS

(tr=tf=3ns)

PARAMETER	SYMBOL	CONDITIONS			Ta=25℃			Ta=-40℃~85℃		UNITS
		C_L	V_{CC}(V)		MIN.	TYP.	MAX.	MIN.	MAX.	
Delay Time	t_{PLH}	15pF	3.3		–	5.6	8.0	1.0	9.5	ns
			5.0		–	3.8	5.5	1.0	6.5	
		50pF	3.3		–	8.1	11.5	1.0	13.0	ns
			5.0		–	5.3	7.5	1.0	8.5	
	t_{PHL}	15pF	3.3		–	5.6	8.0	1.0	9.5	ns
			5.0		–	3.8	5.5	1.0	6.5	
		50pF	3.3		–	8.1	11.5	1.0	13.0	ns
			5.0		–	5.3	7.5	1.0	8.5	
Output Enable Time	t_{ZL}	15pF	3.3	R_L=1kΩ	–	5.4	8.0	1.0	9.5	ns
			5.0		–	3.6	5.1	1.0	6.0	
		50pF	3.3		–	7.9	11.5	1.0	13.0	ns
			5.0		–	5.1	7.1	1.0	8.0	
	t_{ZH}	15pF	3.3	R_L=1kΩ	–	5.4	8.0	1.0	9.5	ns
			5.0		–	3.6	5.1	1.0	6.0	
		50pF	3.3		–	7.9	11.5	1.0	13.0	ns
			5.0		–	5.1	7.1	1.0	8.0	
Output Disable Time	t_{LZ}	50pF	3.3	R_L=1kΩ	–	9.5	13.2	1.0	15.0	ns
			5.0		–	6.1	8.8	1.0	10.0	
	t_{HZ}	50pF	3.3	R_L=1kΩ	–	9.5	13.2	1.0	15.0	ns
			5.0		–	6.1	8.8	1.0	10.0	
Output Pin Skew (Note)	t_{OSLH}	50pF	3.3		–	–	1.5	–	1.5	ns
			5.0		–	–	1.0	–	1.0	
	t_{OSHL}	50pF	3.3		–	–	1.5	–	1.5	ns
			5.0		–	–	1.0	–	1.0	
Input Capacitance	C_{IN}	–	–		–	4	10	–	10	pF
Output Capacitance	C_{OUT}	–	–		–	6	–	–	–	pF
Power Dissipation Capacitance	Cpd	–	–		–	17	–	–	–	pF

Note: t_{OSLH} and t_{OSHL} are the guaranteed parameters.

$t_{OSLH} = |t_{PLHm} - t_{PHLn}|$, $t_{OSHL} = |t_{PHLm} - t_{PHLn}|$

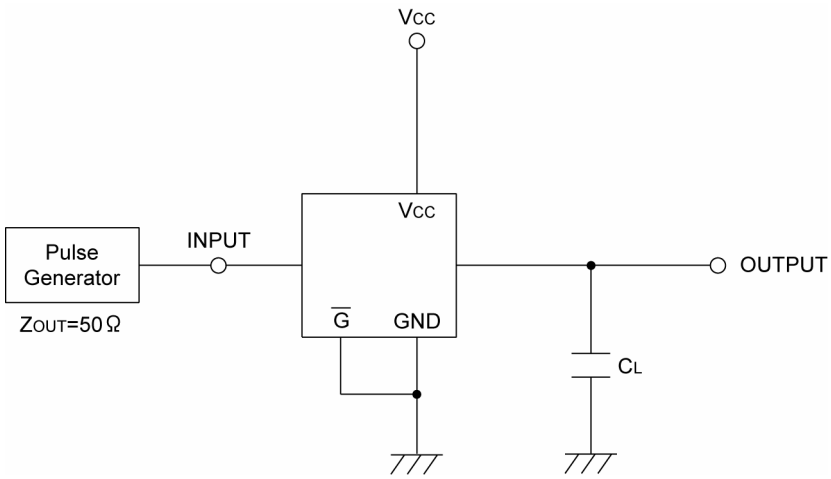
■NOISE CHARACTERISTICS

(tr=tf=3ns)

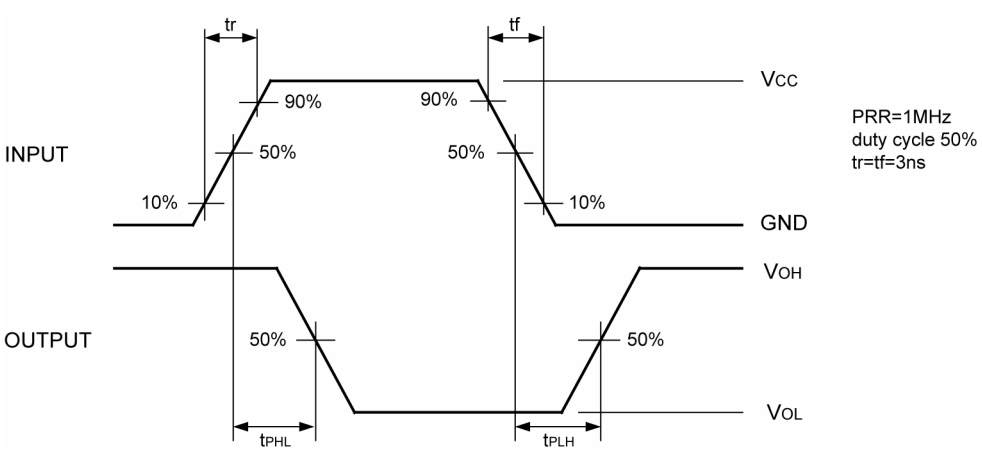
PARAMETER	SYMBOL	CONDITIONS			Ta=25℃			UNITS
		C_L	V_{CC}(V)		MIN.	TYP.	MAX.	
Non Functional Output Maximum Dynamic V_{OL}	V_{OLP}	50pF	5.0		–	0.5	0.8	V
Non Functional Output Minimum Dynamic V_{OL}	V_{OLV}	50pF	5.0		-0.8	-0.5	–	V
Minimum Dnamic V_{IH}	V_{IHD}	50pF	5.0		–	–	3.5	V
Maximum Dnamic V_{IL}	V_{ILD}	50pF	5.0		–	–	1.5	V

■DELAY TIME

●Test Circuit

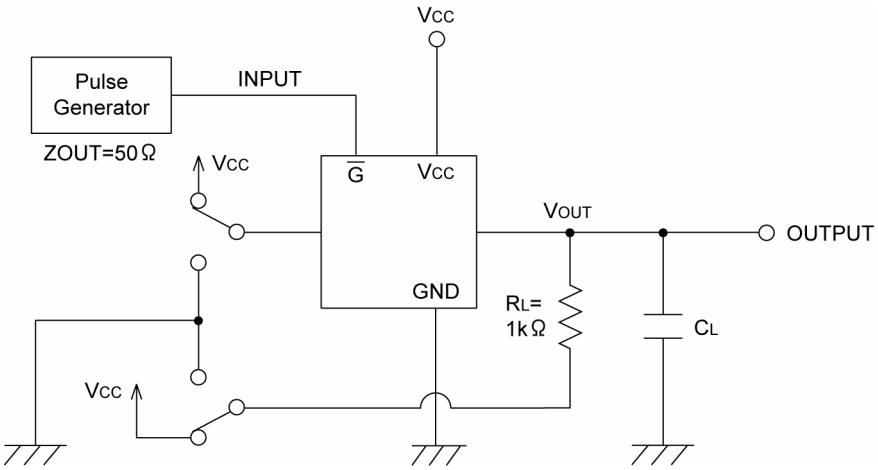


●Waveform

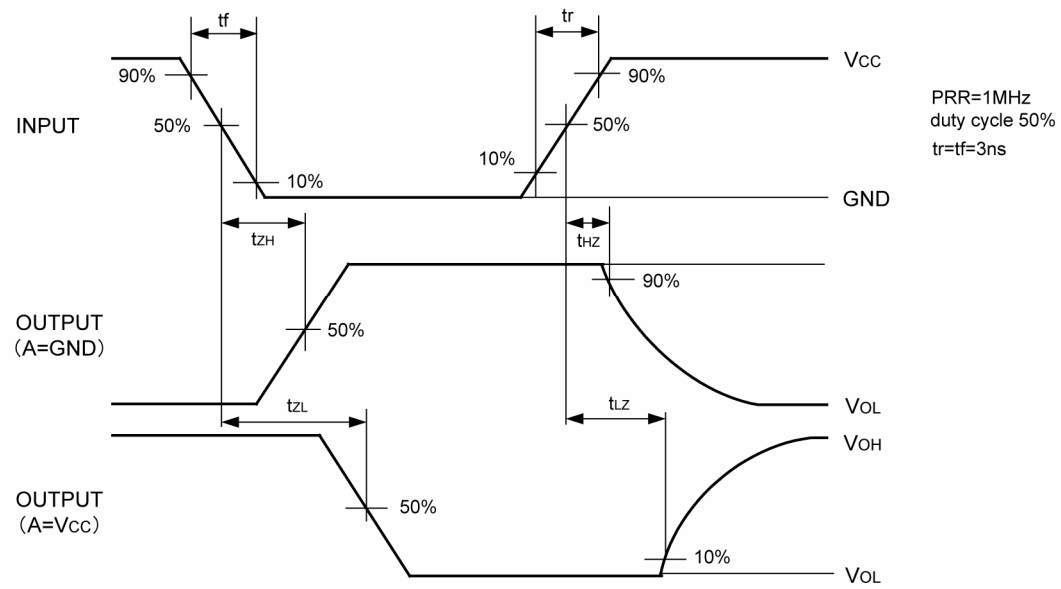


■OUTPUT ENABLE TIME, OUTPUT DISABLE TIME

●Test Circuit



●Waveform



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