XC74WL14AASR

CMOS Logic

■GENERAL DESCRIPTION

XC74WL14AASR is triple schmit inverter 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.) (V_{CC}=5V)

Operating Voltage Range : 2V ~ 5.5V

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

CMOS Logic Triple Schmit Inverter

Small Package : MSOP-8B

■PIN CONFIGURATION

MSOP-8B
（TOP VIEW）
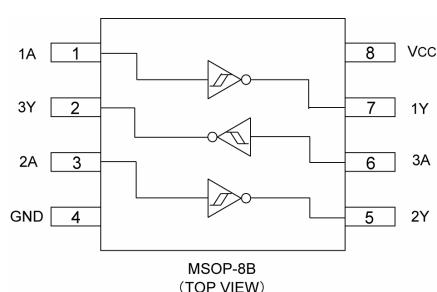
■FUNCTIONS

INPUT	OUTPUT
A	Y
H	L
L	H

H=High level

L=Low level

■ABSOLUTE MAXIMUM RATINGS

Ta=-40℃~85℃

PARAMETER	SYMBOL	RATINGS	UNITS
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
Switch Output Current	I_{OUT}	±25	mA
V_{CC},GND Current	I_{CC},I_{GND}	±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~ V_{CC}	V
Operating Temperature Range	Topr	-40~+85	℃

■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	VT+	3.0			—	—	2.20	—	2.20	V
		4.5			—	—	3.15	—	3.15	
		5.5			—	—	3.85	—	3.85	
	VT-	3.0			0.90	—	—	0.90	—	V
		4.5			1.35	—	—	1.35	—	
		5.5			1.65	—	—	1.65	—	
Hysteresis Voltage	VH	3.0			0.25	—	1.2	0.25	1.2	V
		4.5			0.30	—	1.4	0.30	1.4	
		5.5			0.35	—	1.6	0.35	1.6	
Output Voltage	VOH	2.0	$V_{IN}=V_{IL}$	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	$V_{IN}=V_{IH}$	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	0~5.5	$V_{IN}=V_{CC}$ or GND		-0.1	—	0.1	-1.0	1.0	μA
Static Supply Current	ICC	5.5	$V_{IN}=V_{CC}$ or GND,$I_{OUT}=0$μA		—	—	1.0	—	10.0	μA

■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.	
Delay Time	TPLH	15pF	3.3		—	2.8	12.8	1.0	15	ns
			5.0		—	2.1	8.6	1.0	10	
		50pF	3.3		—	4.3	16.3	1.0	18.5	ns
			5.0		—	3.1	10.6	1.0	12	
	TPHL	15pF	3.3		—	3.1	12.8	1.0	15	ns
			5.0		—	2.5	8.6	1.0	10	
		50pF	3.3		—	4.4	16.3	1.0	18.5	ns
			5.0		—	3.4	10.6	1.0	12	
Input Capacitance	CIN	—	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	C_L	V_{CC}(V)	CONDITIONS	Ta=25℃			UNITS
					MIN.	TYP.	MAX.	
Non Functional Output Maximum Dynamic V_{OL}	V_{OLP}	50pF	5.0		—	0.3	0.8	V
Non Functional Output Minimum Dynamic V_{OL}	V_{OLV}	50pF	5.0		-0.8	-0.3	—	V
Minimum Dynamic V_{IH}	V_{IHD}	50pF	5.0		—	—	3.5	V
Maximum Dynamic V_{IL}	V_{ILD}	50pF	5.0		—	—	1.5	V

■TEST CIRCUIT

■WAVEFORM

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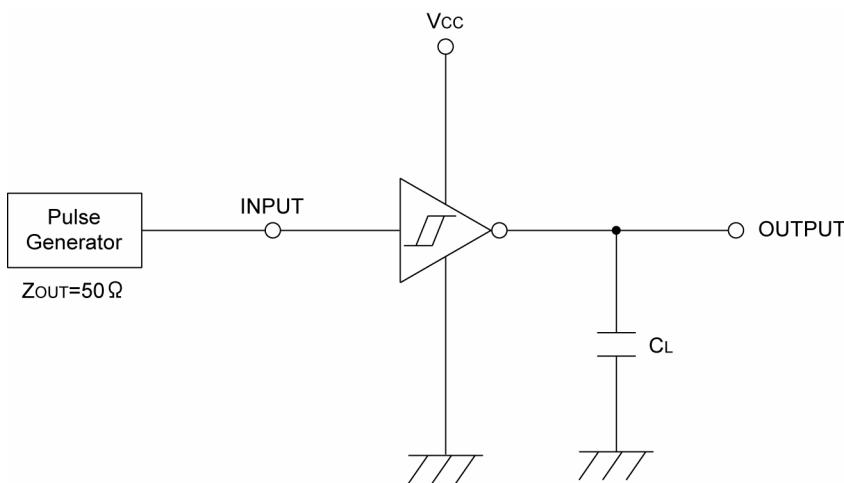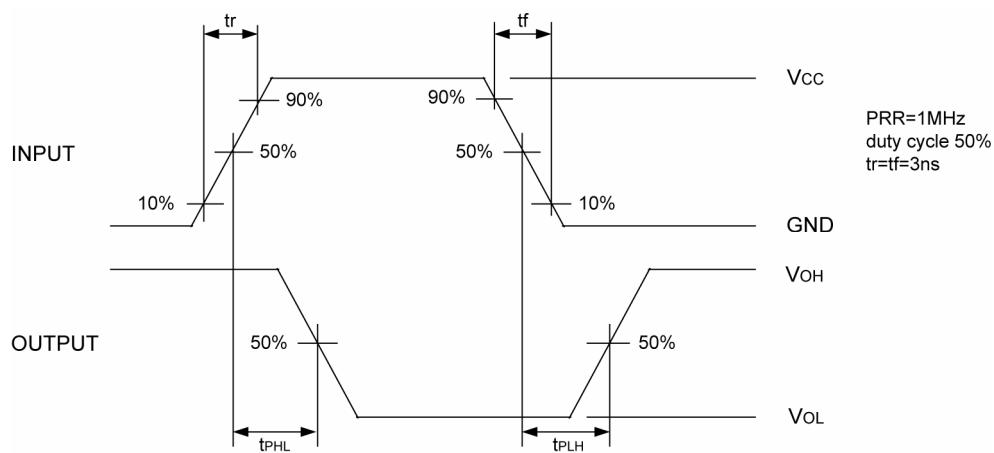
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