- **CMOS Dual Inverter**
- **Unbuffered Type**
- **High Speed Operation tpd=12ns TYP**
- **Operating Voltage Range 2V~6V**
- **Low Power Consumption 1μA MAX**

Applications

- Crystal Oscillators
- Palmtops
- Digital Equipment

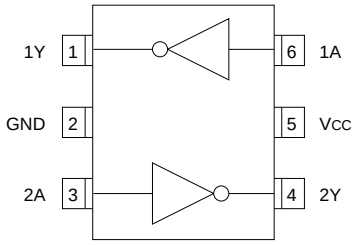
General Description

The XC74UHU04WM is a CMOS Dual Inverter, manufactured using silicon gate CMOS fabrication.
CMOS low power circuit operation makes high speed LS-TTL operations achieveable.
The internal unbuffered, single-step composition makes the UHU04WM suitable for use with crystal oacillators.
As the XC74UHU04WM is integrated into a mini molded, SOT-26 package, high density mounting is possible.

Features

High Speed Operation: tpd=12ns TYP
Operating Voltage Range: 2V~6V
Low Power Consumption: 1μA MAX
Space Saving Package: SOT-26

Pin Configuration



SOT-26
(TOP VIEW)

Function

INPUT	OUTPUT
1A	1Y
H	L
L	H

INPUT	OUTPUT
2A	2Y
H	L
L	H

H=High level, L=Low level

Absolute Maximum Ratings

Ta=25℃

PARAMETER	SYMBOL	RATINGS	UNITS
Power Supply Voltage	VCC	-0.5 ~ +7.0	V
Input Voltage	VIN	-0.5 ~ VCC +0.5	V
Output Voltage	VOUT	-0.5 ~ VCC +0.5	V
Input Diode Current	IIK	±20	mA
Output Diode Current	IOK	±20	mA
Output Current	IOUT	±25	mA
VCC ,GND Current	ICC, IGND	±25	mA
Continuous Total Power Dissipation	Pd	200	mW
Storage Temperature	Tstg	-65 ~ +150	℃

Note: Voltage is all Ground standardized.

DC Electrical Characteristics

PARAMETER	SYMBOL	CONDITIONS			Ta=25℃			Ta=-40~85℃		UNITS
		VCC(V)			MIN	TYP	MAX	MIN	MAX	
Input Voltage	VIH	2.0			1.7	–	–	1.7	–	V
		4.5			3.6	–	–	3.6	–	
		6.0			4.8	–	–	4.8	–	
	VIL	2.0			–	–	0.3	–	0.3	V
		4.5			–	–	0.9	–	0.9	
		6.0			–	–	1.2	–	1.2	
Output Voltage	VOH	2.0	VIN=VIH or VIL	IOH=-20μA	1.8	2.0	–	1.8	–	V
		4.5			4.0	4.5	–	4.0	–	
		6.0			5.5	6.0	–	5.5	–	
		4.5		IOH=-2mA	4.18	4.31	–	4.13	–	
		6.0		IOH=-2.6mA	5.68	5.8	–	5.63	–	
	VOL	2.0	VIN=VIH	IOH=20μA	–	0.0	0.2	–	0.2	V
		4.5			–	0.0	0.5	–	0.5	
		6.0			–	0.0	0.5	–	0.5	
		4.5		IOH=2mA	–	0.17	0.26	–	0.33	
		6.0		IOH=2.6mA	–	0.18	0.26	–	0.33	
Input Current	IIN	6.0	VIN=VCC or GND		–	–	±0.1	–	±1.0	μA
Quiescent Supply Current	ICC	6.0	VIN=VCC or GND, IOUT=0μA		–	–	1.0	–	10.0	

Switching Electrical Characteristics

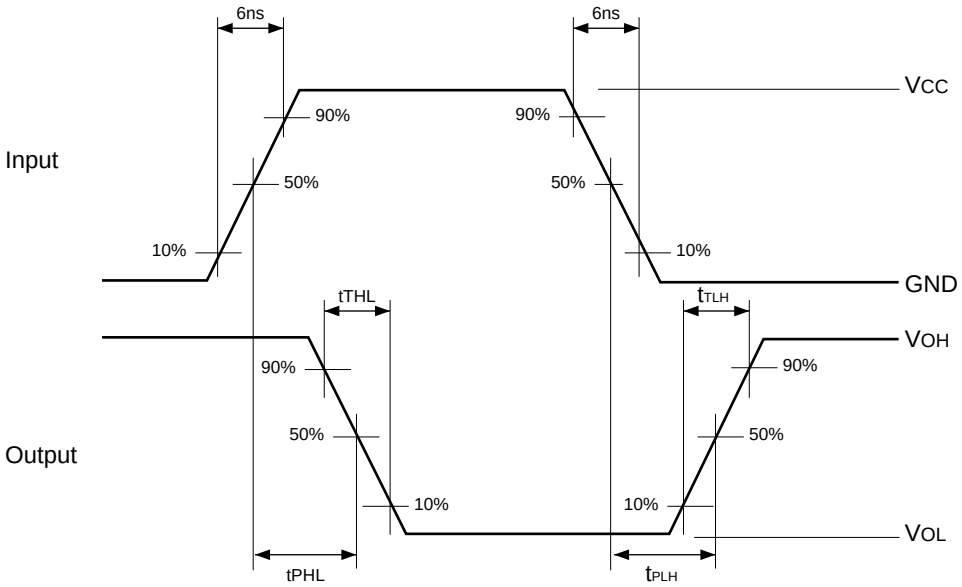
CL=15pF, tr=6ns, VCC=5V

PARAMETER	SYMBOL	CONDITIONS	Ta=25℃			UNITS
			MIN	TYP	MAX	
Output Transition Time	tTLH		–	5	10	ns
	tTHL		–	5	10	ns
Propagation Delay Time	tPLH		–	5	15	ns
	tPHL		–	5	15	ns

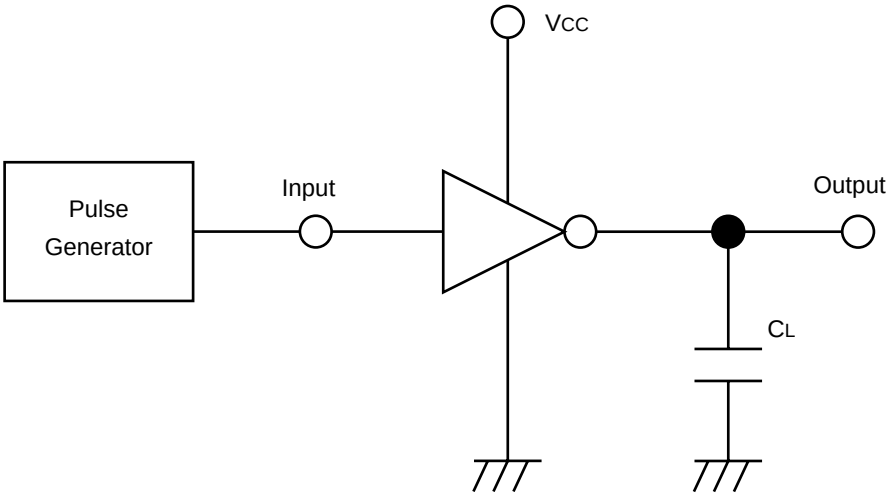
CL=50pF, tr=tf=6ns

PARAMETER	SYMBOL	CONDITIONS		Ta=25℃			Ta=-40~85℃		UNITS
		VCC(V)		MIN	TYP	MAX	MIN	MAX	
Output Transition Time	tTLH	2.0		–	50	125	–	155	ns
		4.5		–	14	25	–	31	
		6.0		–	12	21	–	26	
	tTHL	2.0		–	50	125	–	155	ns
		4.5		–	14	25	–	31	
		6.0		–	12	21	–	26	
Propagation Delay Time	tPLH	2.0		–	48	100	–	125	ns
		4.5		–	12	20	–	25	
		6.0		–	9	17	–	21	
	tPHL	2.0		–	48	100	–	125	ns
		4.5		–	12	20	–	25	
		6.0		–	9	17	–	21	
Input Capacitance	CIN	–		–	5	10	–	10	pF

■ Waveforms



■ Typical Application Circuit



Note: open output when measuring supply current

■ Recommended Operating Conditions

PARAMETER	SYMBOL	CONDITIONS	UNITS
Supply Voltage	VCC	2 ~ 6	V
Input Voltage	VIN	0 ~ VCC	V
Output Voltage	VOUT	0 ~ VCC	V
Operating Temperature	Topr	-40 ~ +85	℃
Input Rise and Fall Time	tr, tf	0 ~ 1000 (VCC=2.0V)	ns
		0 ~ 500 (VCC=4.5V)	
		0 ~ 400 (VCC=6.0V)	