

XC74UHU04WM



CMOS Logic

- ◆ CMOS Dual Inverter
- ◆ Unbuffered Type
- ◆ High Speed Operation : tpd=12ns TYP
- ◆ Operating Voltage Range : 2V~6V
- ◆ Low Power Consumption : 1μA (max)

General Description

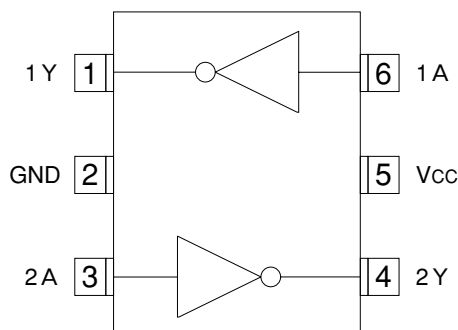
The XC74UHU04WM is a CMOS Dual Inverter, manufactured using silicon gate CMOS fabrication.

CMOS low power circuit operation makes high speed LS-TTL operations achievable.

The internal unbuffered, single-step composition makes the XC74UHU04WM suitable for use with crystal oscillators.

As the XC74UHU04WM is integrated into a mini molded, SOT-26 package, high density mounting is possible.

Pin Configuration



SOT-26
(TOP VIEW)

Absolute Maximum Ratings

Ta=25°C

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	I _{IK}	±20	mA
Output Diode Current	I _{OK}	±20	mA
Output Current	I _{OUT}	±25	mA
VCC ,GND Current	I _{CC} , I _{GND}	±25	mA
Continuous Total Power Dissipation	P _d	200	mW
Storage Temperature	T _{stg}	-65 ~ +150	°C

Note: Voltage is all Ground standardized.

Applications

- Crystal Oscillators
- Palmtops
- Digital Equipment

Features

High Speed Operation : tpd=12ns TYP

Operating Voltage Range: 2V~6V

Power Consumption : 1μA (max)

Ultra Small Package : SOT-26

Function

INPUT	OUTPUT
1A	1Y
H	L
L	H

INPUT	OUTPUT
2A	2Y
H	L
L	H

H=High level, L=Low level

DC Electrical Characteristics

PARAMETER	SYMBOL	V _{CC} (V)	CONDITIONS	Ta=25°C			Ta=-40-85°C		UNITS	
				MIN	TYP	MAX	MIN	MAX		
Input Voltage	V _{IH}	2.0		1.7	-	-	1.7	-	V	
		4.5		3.6	-	-	3.6	-		
		6.0		4.8	-	-	4.8	-		
	V _{IL}	2.0		-	-	0.3	-	0.3	V	
		4.5		-	-	0.9	-	0.9		
		6.0		-	-	1.2	-	1.2		
Output Voltage	V _{OH}	2.0	V _{IN} =V _{IH} or V _{IL}	I _{OH} =-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		I _{OH} =-2mA	4.18	4.31	-	4.13	-	
		6.0		I _{OH} =-2.6mA	5.68	5.8	-	5.63	-	
		V _{OL}		2.0	V _{IN} =V _{IH}	I _{OH} =20μA	-	0.0	0.2	
	4.5		-	0.0			0.5	-	0.5	
	6.0		-	0.0			0.5	-	0.5	
	4.5		I _{OH} =2mA	-		0.17	0.26	-	0.33	
	6.0		I _{OH} =2.6mA	-		0.18	0.26	-	0.33	
	Input Current		I _{IN}	6.0		V _{IN} =V _{CC} or GND	-	-	±0.1	-
	Quiescent Supply Current	I _{CC}	6.0	V _{IN} =V _{CC} or GND, I _{OUT} =0μA	-	-	1.0	-	10.0	

Switching Electrical Characteristics

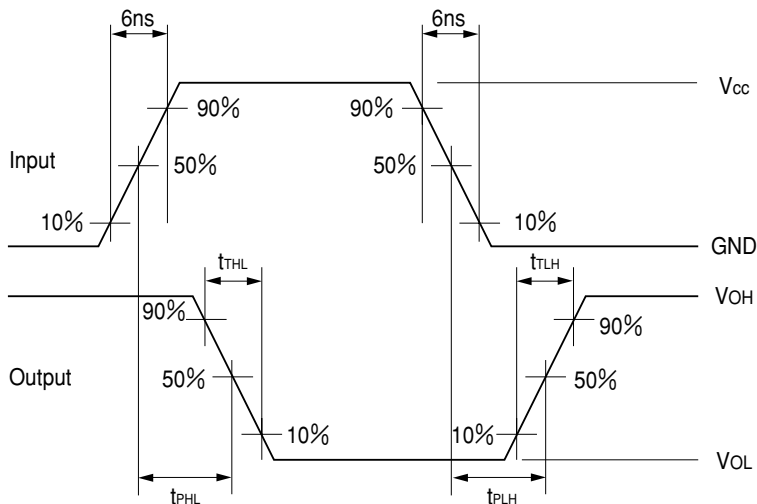
C_L=15pF, t_r=6ns, V_{CC}=5V

PARAMETER	SYMBOL	CONDITIONS	Ta=25°C			UNITS
			MIN	TYP	MAX	
Output Transition Time	t _{TLH}		-	5	10	ns
	t _{THL}		-	5	10	ns
Propagation Delay Time	t _{PLH}		-	5	15	ns
	t _{PHL}		-	5	15	ns

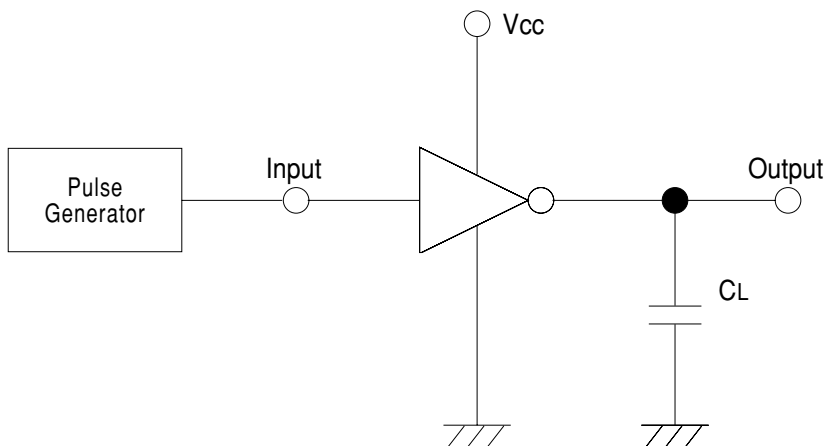
C_L=50pF, t_r=tf=6ns

PARAMETER	SYMBOL	V _{CC} (V)	CONDITIONS	Ta=25°C			Ta=-40-85°C		UNITS
				MIN	TYP	MAX	MIN	MAX	
Output Transition Time	t _{TLH}	2.0		-	50	125	-	155	ns
		4.5		-	14	25	-	31	
		6.0		-	12	21	-	26	
	t _{THL}	2.0		-	50	125	-	155	ns
		4.5		-	14	25	-	31	
		6.0		-	12	21	-	26	
Propagation Delay Time	t _{PLH}	2.0		-	48	100	-	125	ns
		4.5		-	12	20	-	25	
		6.0		-	9	17	-	21	
	t _{PHL}	2.0		-	48	100	-	125	ns
		4.5		-	12	20	-	25	
		6.0		-	9	17	-	21	
Input Capacitance	C _{IN}	-		-	5	10	-	10	pF

Waveforms



Typical Application Circuit



Note: Open output when measuring supply current

Recommended Operating Conditions

PARAMETER	SYMBOL	CONDITIONS	UNITS
Supply Voltage	V_{CC}	2 ~ 6	V
Input Voltage	V_{IN}	0 ~ V_{CC}	V
Output Voltage	V_{OUT}	0 ~ V_{CC}	V
Operating Temperature	T_{opr}	-40 ~ +85	°C
Input Rise and Fall Time	t_r, t_f	0 ~ 1000 ($V_{CC}=2.0V$)	ns
		0 ~ 500 ($V_{CC}=4.5V$)	
		0 ~ 400 ($V_{CC}=6.0V$)	