XC74UHU04WM

TOREX

CMOS Logic

◆CMOS Logic 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

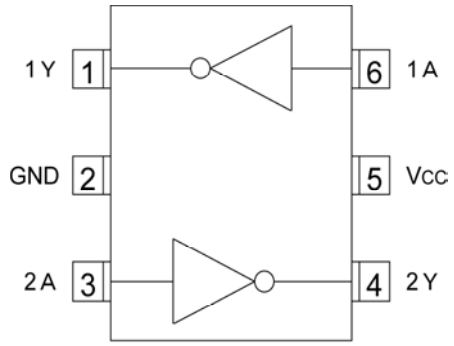
■GENERAL DESCRIPTION

The XC74UHU04WM is a CMOS dual inverter, manufactured using silicon Gate CMOS fabrication.
CMOS low power circuit operation makes high speed LS-TTL operations 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.

■FEATURES

High Speed Operation : tpd = 12ns(TYP.)
Operating Voltage Range : 2V ~ 6V
Power Consumption : 1μA (MAX.)
Ultra Small Package : SOT-26

■PIN CONFIGURATION



SOT-26
(TOP VIEW)

■FUNCTIONS

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
Supply Voltage	V_{CC}	-0.5~+7.0	V
Input Voltage	V_{IN}	-0.5~V_{CC}+0.5	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
Output Current	I_{OUT}	±25	mA
V_{CC},GND Current	I_{CC},I_{GND}	±25	mA
Power Dissipation	Pd	200	mW
Storage Temperature Range	Tstg	-65~+150	℃

* 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=VIL	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	IOH=20μA	–	0.0	0.2	–	0.2	V
		4.5		–	0.0	0.5	–	0.5	
		6.0	VIN=VIH	–	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
Static Supply Current	ICC	6.0	VIN=VCC or GND,IOUT=0μA	–	–	1.0	–	10.0	

■SWITCHING ELECTRICAL CHARACTERISTICS

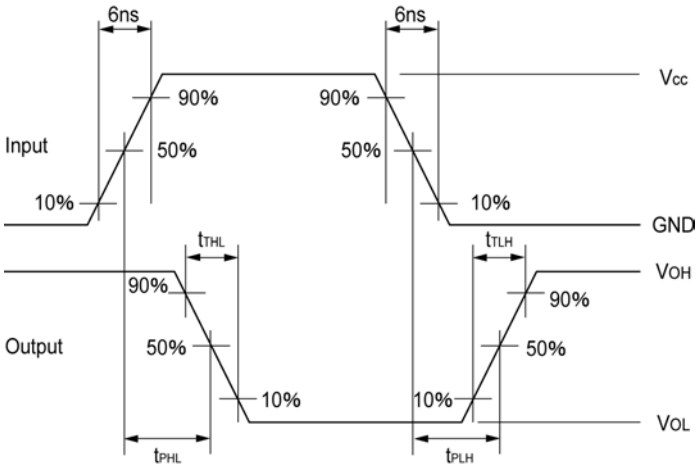
CL=15pF, tr=6ns, VCC=5V

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

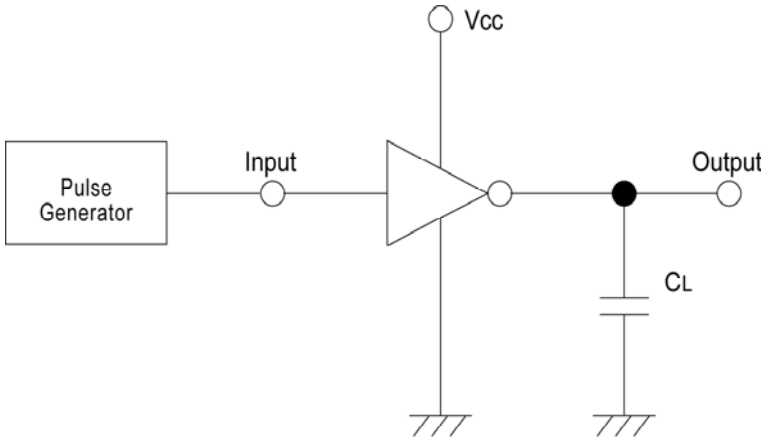
CL=50pF, tr=tf=6ns

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	
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

■WAVEFORM



■TEST 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 Range	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)	