

- ◆ COMS Buffer
- ◆ High Speed Operation : tpd = 2.05ns TYP
- ◆ Operating Voltage Range : 2V ~ 5.5V
- ◆ Low Power Consumption : 1μA (max)

■ General Description

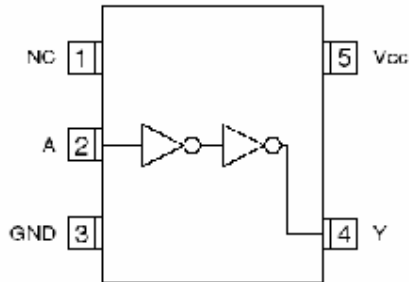
The ML74UL34MRG is a CMOS Buffer, manufactured using silicon gate CMOS fabrication.

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

The internal circuit is composed of inverter and buffer, which provide high noise immunity and stable output.

AS the ML74UL04 is integrated into mini molded, SOT-23-5 packages, high density mounting is possible.

■ Pin Configuration



SOT-23-5 (TOP VIEW)

■ Absolute Maximum Ratings

Ta=-40°C~85°C

PARAMETER	SYMBOL	RATINGS	UNITS
Power 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
Output Current	IOUT	±25	mA
Vcc, GND Current	ICC, IGND	±50	mA
Continuous Total Power Dissipation (Ta=55°C)	Pd	150	mW
Storage Temperature	Tstg	-65 ~ +150	°C

Note: Voltage is all Ground standardized.

■ Applications

- Crystal Oscillators
- Palmtops
- Digital Equipment

■ Features

High Speed Operation : tpd = 2.05ns TYP

Operating Voltage Range: 2V ~ 5.5V

Low Power Consumption: 1μA (max)

Ultra Small Package : SOT-23-5

■ Function

INPUT	OUTPUT
A	Y
H	H
L	L

H=High level, L=Low level

■ Recommended Operating Conditions

PARAMETER	SYMBOL	V _{cc} (V)	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	T _{opr}	-	-40 ~ +85	°C
Output Current	I _{OH}	3.0	-4	mA
		4.5	-8	
	I _{OL}	3.0	4	
		4.5	8	
Input Rise and Fall Time	tr, tf	3.3	0 ~ 100	ns
		5.0	0 ~ 20	

■ DC Electrical Characteristics

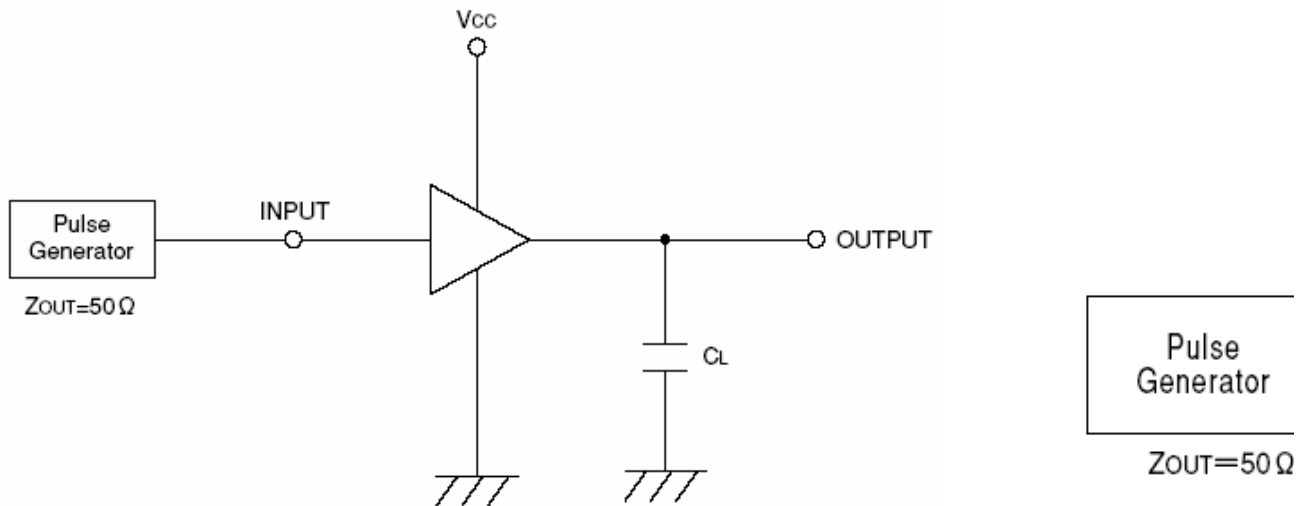
PARAMETER	SYMBOL	V _{cc} (V)	CONDITIONS	Ta=25°C			Ta=-40~85°C		UNITS		
				MIN	TYP	MAX	MIN	MAX			
Input Voltage	V _{IH}	2.0		1.5	-	-	1.5	-	V		
		3.0		2.1	-	-	2.1	-			
		5.5		3.85	-	-	3.85	-			
	V _{IL}	2.0		-	-	0.5	-	0.5	V		
		3.0		-	-	0.9	-	0.9			
		5.5		-	-	1.65	-	1.65			
Output Voltage	V _{OH}	2.0	V _{IN} =V _{IH} or V _{IL}	I _{OH} =-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		I _{OH} =-4mA	2.58	-	-	2.48	-		
		4.5		I _{OH} =-8mA	3.94	-	-	2.80	-		
	V _{OL}	V _{IN} =V _{IH}	2.0	I _{OL} =50μA	-	-	0.1	-	0.1	V	
					3.0	-	-	0.1	-		0.1
					4.5	-	-	0.1	-		0.1
			3.0		I _{OL} =4mA	-	-	0.36	-		0.44
			4.5		I _{OL} =8mA	-	-	0.36	-		0.44
Input Current	I _{IN}	5.5	V _{IN} =V _{cc} or GND	-0.1	-	0.1	-1.0	1.0	μA		
Quiescent Supply Current	I _{cc}	5.5	V _{IN} =V _{cc} or GND, I _{OUT} =0μA	-	-	1.0	-	10.0	μA		

■ Switching Electrical Characteristics

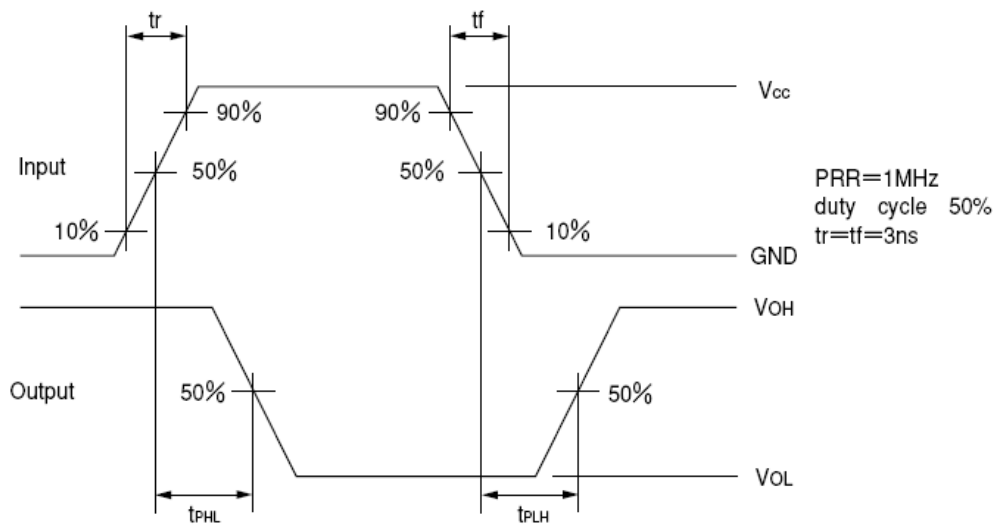
PARAMETER	SYMBOL	C _L	V _{cc} (V)	CONDITIONS	Ta=25°C			Ta=-40~85°C		UNITS
					MIN	TYP	MAX	MIN	MAX	
Propagation Delay Time	t _{PLH}	15pF	3.3		-	2.7	7.1	1.0	8.5	ns
			5.0		-	2.1	5.5	1.0	6.5	
		50pF	3.3		-	4.1	10.6	1.0	12	ns
			5.0		-	3.2	7.5	1.0	8.5	
	t _{PHL}	15pF	3.3		-	2.5	7.1	1.0	8.5	ns
			5.0		-	2.0	5.5	1.0	6.5	
		50pF	3.3		-	3.9	10.6	1.0	12	ns
			5.0		-	3.0	7.5	1.0	8.5	
Input Capacitance	C _{IN}	-	5.0	V _{IN} =V _{cc} or GND	-	2	10	-	10	pF
Power Dissipation Capacitance	C _{pd}	No Load, f=1MHz		-	8.9	-	-	-	-	pF

Tr=tf=3ns

■ Typical Application Circuit



■ Waveforms



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