XC74WL4066SR

TOREX

CMOS Logic

◆CMOS Logic Dual Analog Switch/Multiplexer
◆Operating Voltage Range : 2V ~ 5.5V
◆High Speed Operations : tpd =1.5ns TYP
◆Low Power Consumption : 2μA (max)
◆Low ON Resistance : Ron=22Ω TYP
◆MSOP-8B Package

■Applications

●Palmtops
●Digital Equipment

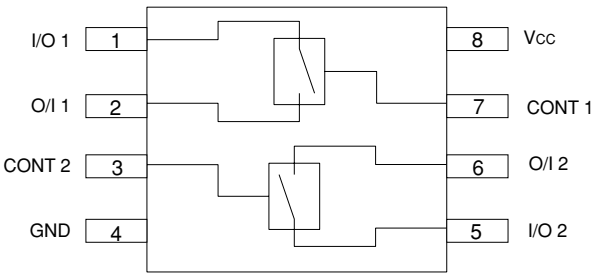
■Description

XC74WL4066SR is Dual Analog Switch manufactured using silicon gate CMOS processes. The small quiescent 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.

■Features

High Speed Operations : tpd = 1.5ns TYP (V_{CC}=5V)
Operating Voltage Range: 2V ~ 5.5V
Low Power Consumption: 2μA (max)
Low ON Resistance : 22Ω TYP
Small Package : MSOP-8B

■Pin Configuration



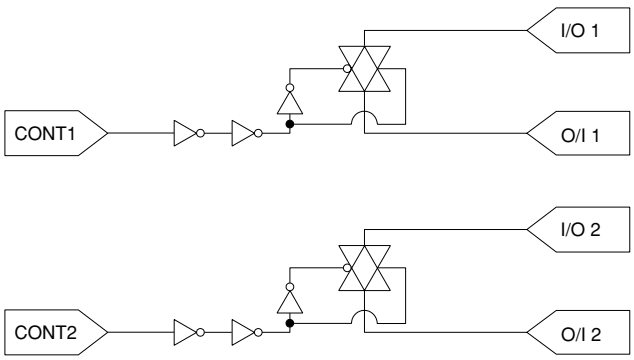
MSOP-8B
(TOP VIEW)

■Functions

Control	State
L	OFF
H	OF

H = High Level
L = Low Level

■Logic Diagram



■Absolute Maximum Ratings

Ta=−40℃～85℃

PARAMETER	SYMBOL	RATINGS	UNITS
Power Supply Voltage	VCC	−0.5～+6.0	V
Input Voltage	VCONT	−0.5～+6.0	V
Output Voltage	Vi/o	−0.5～VCC+0.5	V
Input Diode Current	IIK	−20	mA
Output Diode Current	IOK	±20	mA
Switch Output Current	Ii/O	±25	mA
VCC, GND Current	ICC, IGND	±50	mA
Power Dissipation (Ta = 25℃)	Pd	300	mW
Storage Temperature	Tstg	−65～+150	℃

Note : Voltage is all Ground standardized.

■Recommended Operating Conditions

PARAMETER	SYMBOL	CONDITIONS	UNITS
Supply Voltage	VCC	2～5.5	V
Input Voltage	VCONT	0～5.5	V
Output Voltage	Vi/o	0～VCC	V
Operating Temperature	Topr	−40～+85	℃
Input Rise and Fall Time	tr, tf	0～200（VCC=3.3V）	ns
		0～100（VCC=5V）	

■DC Electrical Characteristics

PARAMETER	SYMBOL	VCC (V)	CONDITIONS	Ta=25℃ MIN	Ta=25℃ TYP	Ta=25℃ MAX	Ta=−40～85℃ MIN	Ta=−40～85℃ MAX	UNITS
"High" Level Control Input Voltage"	VIH	2.0		1.5	—	—	1.5	—	V
		3.0		2.1	—	—	2.1	—	
		5.5		3.85	—	—	3.85	—	
"Low" Level Control Input Voltage"	VIL	2.0		—	—	0.5	—	0.5	V
		3.0		—	—	0.9	—	0.9	
		5.5		—	—	1.65	—	1.65	
Peak ON Resistance	RONmax	2.0	VCONT=VIH	—	130	350	—	550	Ω
		3.0	VIN=0～VCC	—	22	50	—	65	
		4.5	IIN/OUT=1mA	—	12	25	—	35	
ON Resistance	RON(1)	2.0	VCONT=VIH	—	23	50	—	65	Ω
		3.0	VIN=GND or VCC	—	14	30	—	40	
		4.5	IIN/OUT=1mA	—	10	20	—	25	
Switch ON Resistance Differential	△RON	2.0	VCONT=VIH	—	13	35	—	55	Ω
		3.0	VIN=0～VCC	—	3	6	—	8	
		4.5	IIN/OUT=1mA	—	2	4	—	6	
Power Off Leakage Current	IS(OFF)	5.5	VCONT=VIL, VIN=VCC, VOUT=GND	—	—	±0.1	—	±1.0	μA
Power On Leakage Current	IS(ON)	5.5	VCONT=VIH, VIN=VCC or GND	—	—	±0.1	—	±1.0	μA
Control Input Current	ICONT	0～5.5	VIN=VCC or GND	—	—	±0.1	—	±1.0	μA
Quiscent Supply Current	ICC	5.5	VIN=VCC or GND	—	—	2.0	—	20.0	μA

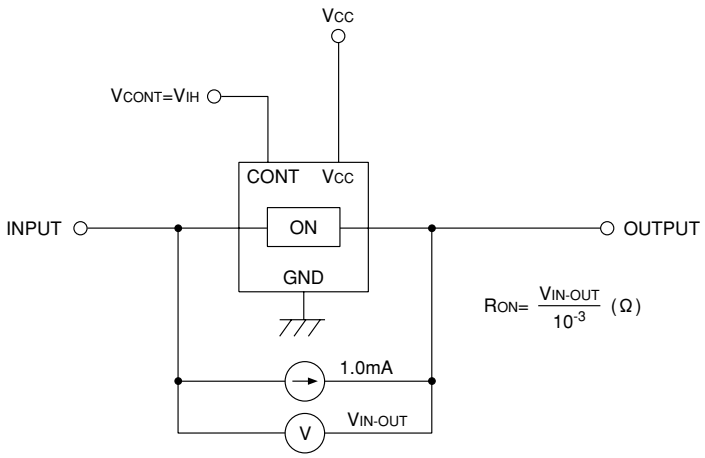
■Switching Electrical Characteristics

(tr=tf=3ns)

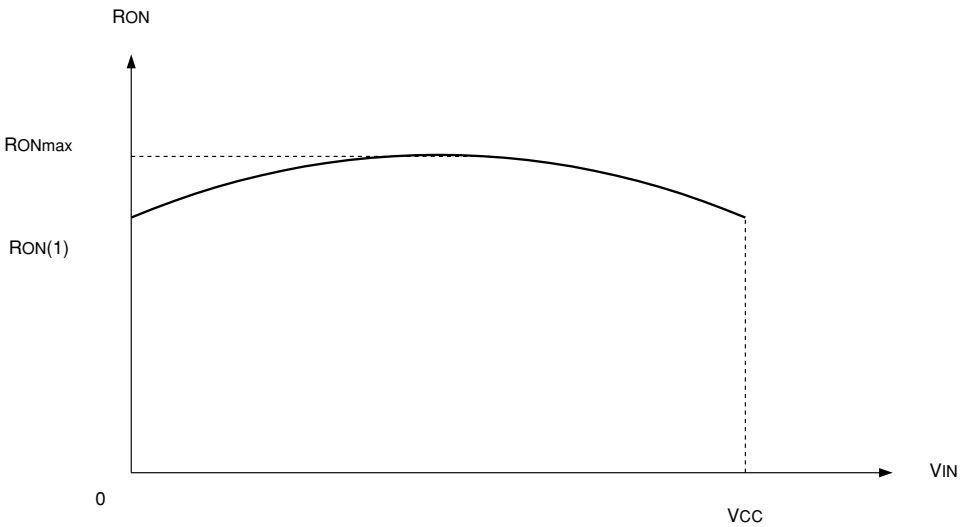
PARAMETER	SYMBOL	CL	VCC (V)	CONDITIONS	Ta=25℃ MIN	Ta=25℃ TYP	Ta=25℃ MAX	Ta=−40～85℃ MIN	Ta=−40～85℃ MAX	UNITS
Propagation Delay Time	tPLH tPHL	15pF	2.0		—	2.5	12	—	15	ns
			3.3		—	2	4	—	5.5	
			5.0		—	1.5	3	—	4	
		50pF	2.0		—	4	20	—	23	ns
			3.3		—	3	6	—	8	
			5.0		—	2	5	—	6	
Output Enable Time	tZL tZH	15pF	2.0	RL=1kΩ	—	8.5	45	—	60	ns
			3.3		—	4.5	9	—	11	
			5.0		—	3.5	7.5	—	9	
		50pF	2.0	RL=1kΩ	—	9	50	—	65	ns
			3.3		—	5	10	—	12	
			5.0		—	4	8.5	—	10	
Output Disable Time	tLZ tHZ	15pF	2.0	RL=1kΩ	—	9	45	—	55	ns
			3.3		—	7	17	—	20	
			5.0		—	6	14	—	18	
		50pF	2.0	RL=1kΩ	—	12	60	—	75	ns
			3.3		—	10	23	—	27	
			5.0		—	8	20	—	25	
Sine Wave Distortion Rate		50pF	3.0	RL=10kΩ fIN=1kHz	—	0.05	—	—	—	%
-3dB Band Width		50pF	3.0	RL=600Ω $20\log_{10}\frac{V_{OUT}}{V_{IN}}=-3dB$	—	200	—	—	—	MHz
Feed Through (Switch-off)		50pF	3.0	RL=600Ω	—	−60	—	—	—	dB
Cross Talk (Control Switch)		50pF	2.0	RL=600Ω fCONT=1MHz	—	60	—	—	—	mV
			3.0		—	100	—	—	—	
			4.5		—	150	—	—	—	
Cross Talk (between Switches)		50pF	2.0	RL=600Ω fIN=1MHz	—	−60	—	—	—	dB
			3.0		—	−60	—	—	—	
			4.5		—	−60	—	—	—	
Control Input Capacitance	CCONT	—	—		—	5	10	—	10	pF
Switch Input/Output Capacitance	CIN/OUT	—	—		—	6	—	—	—	pF
Feed Through Capacitance	CIN-OUT	—	—		—	0.5	—	—	—	pF
Power Dissipation Capacitance	Cpd	—	—		—	13	—	—	—	pF

■ON Resistance

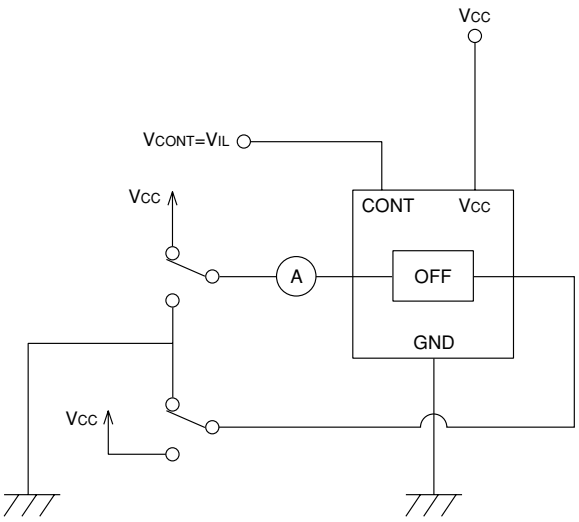
■Typical Application Circuit



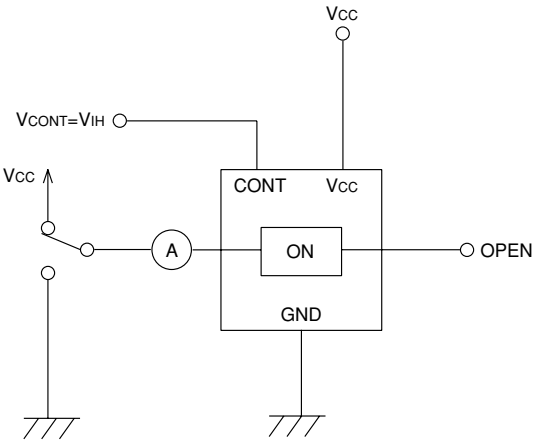
■Voltage Dependancies of ON Resistance



■Power Off Leakage Current

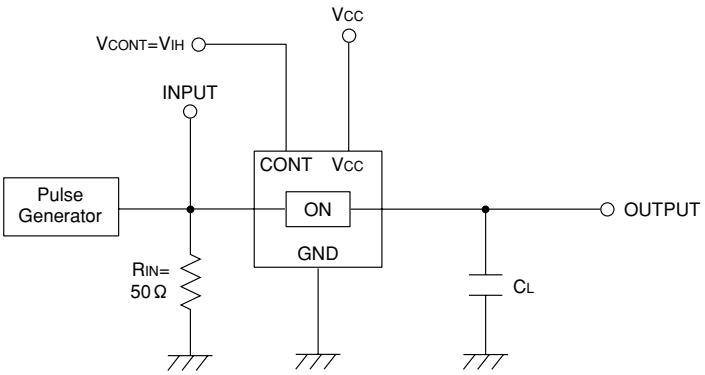


■Power On Leakage Current

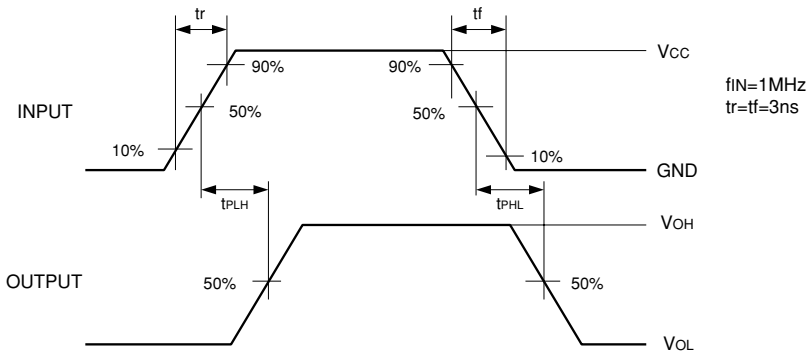


■Propagation Delay Time

■Typical Application Circuit

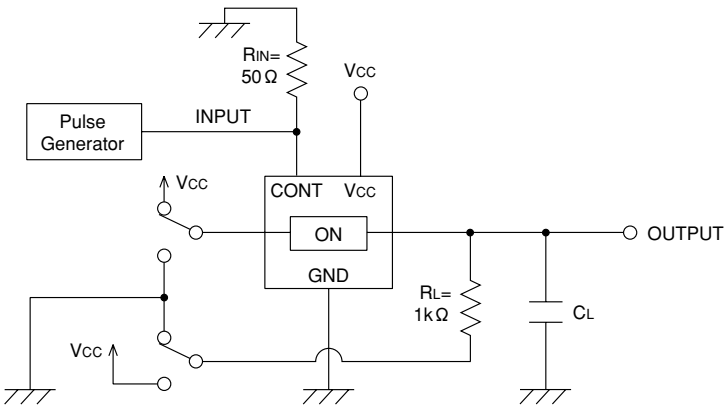


■Waveforms

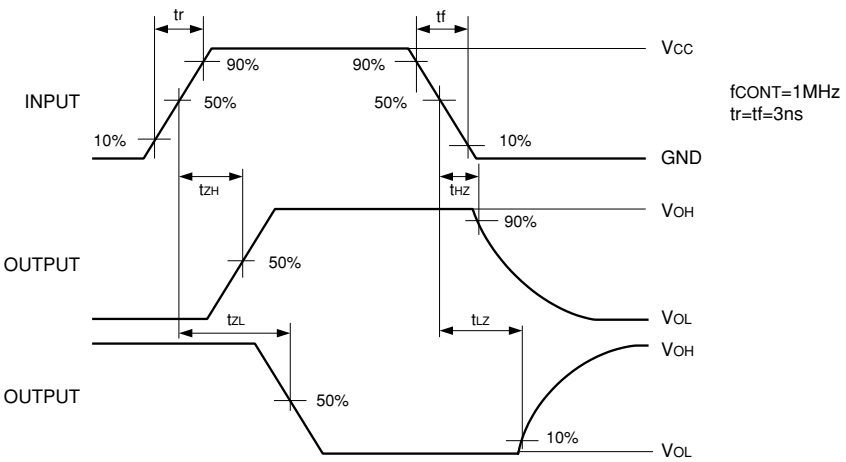


■Output Enable Time, Output Disable Time

■Typical Application Circuit

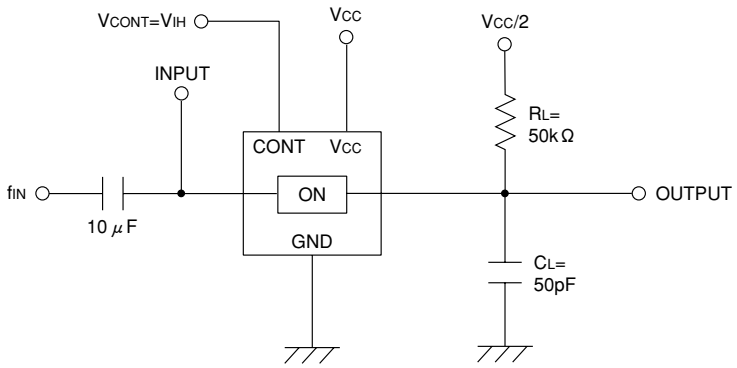


■Waveforms



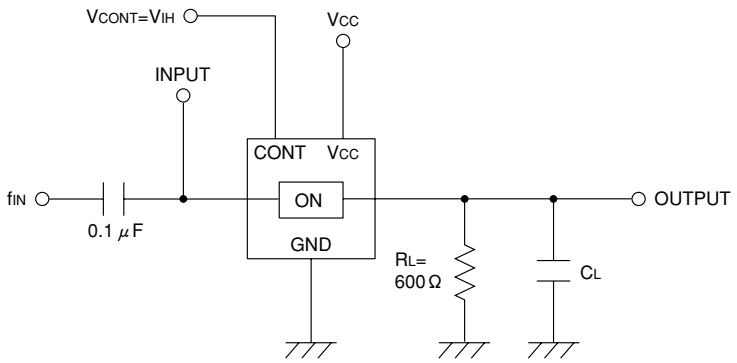
fCONT=1MHz
tr=tf=3ns

■Sine Wave Distortion Rate



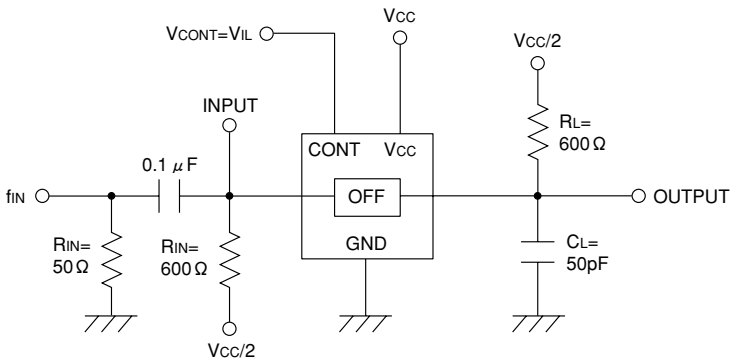
* Input by sine wave

■-3dB Band Width



* Input by sine wave (VIN=0dBm, f=1MHz)

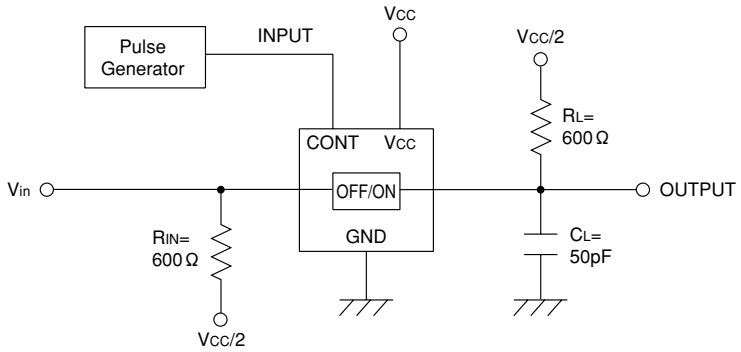
■Feed Through Test Circuit



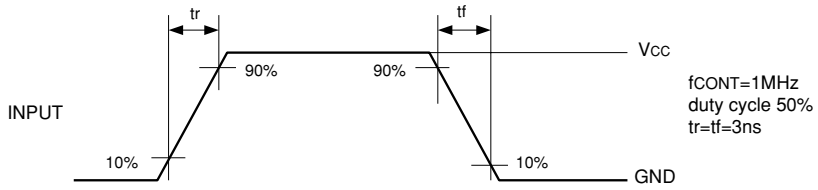
* Input by sine wave (VIN=0dBm, f=1MHz)

■Cross Talk (Control Input → Switch Output)

■Typical Application Circuit



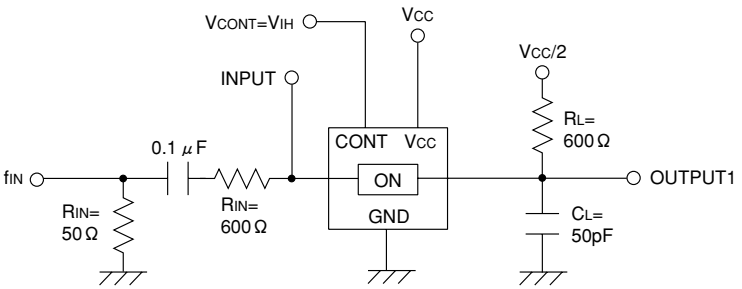
■Waveforms

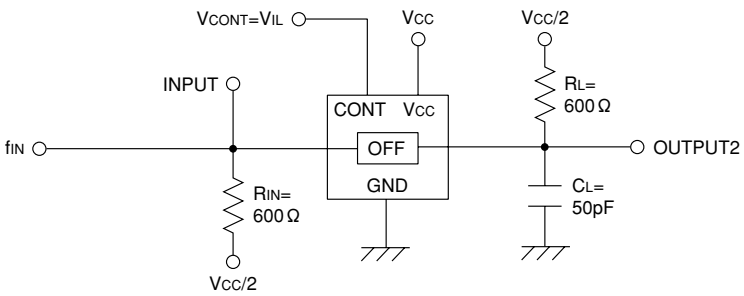


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■Cross Talk (between Switches)

■Typical Application Circuits





■Waveforms

