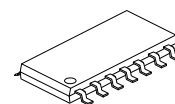


**U74HCT4066****CMOS IC****QUAD BILATERAL SWITCH****■ DESCRIPTION**

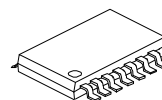
The UTC **U74HCT4066** consists of four independent analog switches. Each switch has an Enable input (nE) which is active HIGH to decide the switch status.

■ FEATURES

- * Operation voltage range: 4.5V~5.5V
- * Very low "ON" resistance: 50Ω(Typ.)@V_{CC}=4.5V



SOP-14

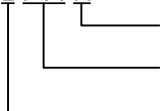


TSSOP-14

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HCT4066L-P14-R	U74HCT4066G-P14-R	TSSOP-14	Tape Reel
U74HCT4066L-S14-R	U74HCT4066G-S14-R	SOP-14	Tape Reel

U74HCT4066L-P14-R



- (1) Packing Type
- (2) Package Type
- (3) Lead Plating

(1) R: Tape Reel

(2) P14: TSSOP-14, S14: SOP-14

(3) G: Halogen Free, L: Lead Free

Pinout diagram of the 16-pin 74VHC04 hex inverters. The diagram shows a central chip with pins 1 through 14 labeled on both sides. Pin 1 is labeled '1Y', pin 2 '1Z', pin 3 '2Z', pin 4 '2Y', pin 5 '2E', pin 6 '3E', pin 7 'GND', pin 8 '3Y', pin 9 '3Z', pin 10 '4Z', pin 11 '4Y', pin 12 '4E', pin 13 '1E', and pin 14 'Vcc'. A small circle is shown above pin 1.

INPUTS(nE)	SWITCH
H	ON
L	OFF

[illegible]

■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	-0.5 ~ +11	V
Input Diode Current		I_{IK}	±20	mA
Switch Diode Current		I_{SK}	±20	mA
Switch Current		I_S	±25	mA
VCC or GND Current		I_{CC}	±50	mA
Power Dissipation		P_D	500	mW
Derate above 60°C	TSSOP-14		5.5	mW/°C
Derate above 70°C	SOP-14		8	mW/°C
Storage Temperature		T_{STG}	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		4.5	5.0	5.5	V
Input Voltage	V_{IN}		GND		V_{CC}	V
Switch Voltage	V_S		GND		V_{CC}	V
Input Transition Rise or Fall Rate	t_R, t_F	$V_{CC}=2V$		6	500	ns
Operating Temperature	T_A		-40		85	°C

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
High-Level Input Voltage		V _{IH}	V _{CC} =4.5V to 5.5V		2			V
Low-Level Input Voltage		V _{IL}	V _{CC} =4.5V to 5.5V				0.8	V
Input Leakage Current		I _{I(LEAK)}	V _{CC} =5.5V, V _{IN} =V _{CC} or GND				±1.0	μA
current per channel	OFF-state	I _S	V _{CC} =5.5V, V _{IN} =V _{IH} or V _{IL} , V _S =V _{CC} -GND				±1.0	μA
	ON-state						±1.0	
Quiescent Supply Current		I _Q	V _{CC} =4.5V to 5.5V , V _{IN} =V _{IS} =V _{OS} =V _{CC} or GND				20	μA
Additional Quiescent Supply Current		Δ I _Q	V _{CC} =4.5V to 5.5V, V _{IN} =V _{CC} -2.1V, Other inputs at V _{CC} or GND			100	450	μA
ON-resistance	Peak	R _{ON}	V _{IN} =V _{IH} or V _{IL} , V _{IS} =V _{CC} to GND, V _{CC} =4.5V, I _S =1mA			54	118	Ω
	Rail	R _{ON}	V _{IN} =V _{IH} or V _{IL} ,	V _{IS} =GND		35	95	Ω
V _{CC} =4.5V, I _S =1mA			V _{IS} =V _{CC}		42	106	Ω	
Maximum variation of ON-resistance between any two channels		ΔR _{ON}	V _{IN} = V _{IH} or V _{IL} , V _{IS} = V _{CC} to GND, V _{CC} =4.5V			5		Ω

■ DYNAMIC CHARACTERISTICS ($T_a=25^\circ C, GND=0V, t_R=t_F=6ns, C_L=50pF$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From V_{IS} to V_{OS}	t_{PHL}/t_{PLH}	$V_{CC}=4.5V, R_L=\infty$		3	15	ns
Turn-ON Time from nE to V_{OS}	t_{PZH}/t_{PZL}	$V_{CC}=4.5V, R_L=1K\Omega$		12	30	ns
Turn-OFF Time from nE to V_{OS}	t_{PHZ}/t_{PLZ}	$V_{CC}=4.5V, R_L=1K\Omega$		20	44	ns
Sine-Wave Distortion	THD	$V_{CC}=4.5V, V_{IS(P-P)}=4V, f=1kHz, R_L=10k$		0.04		%
Switch OFF Signal Feed-Through (Note 1)	α_{OFF}	$V_{CC}=4.5V, R_L=600\Omega, f=1MHz$		-50		dB
Crosstalk Between any two Switches (Note 1)	$\alpha_{CT(S)}$	$V_{CC}=4.5V, R_L=600\Omega, f=1MHz$		-60		dB
Crosstalk Voltage between any input to any Switch (Peak-to-Peak Value)	$V_{(P-P)}$	$V_{CC}=4.5V, R_L=600\Omega, f=1MHz$		110		mV

■ DYNAMIC CHARACTERISTICS(Cont.)

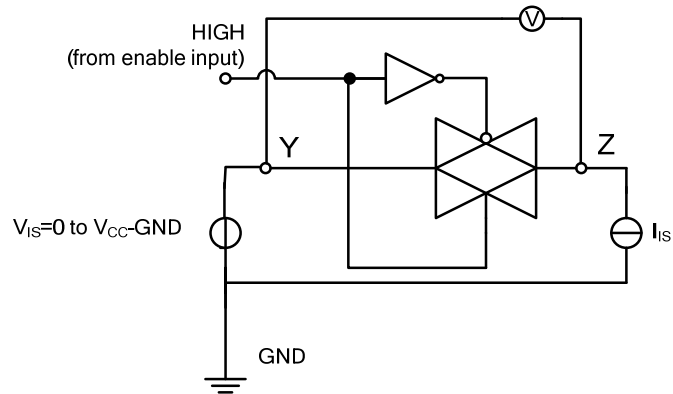
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Minimum Frequency Response(-3dB) (Note 2)	f_{MAX}	$V_{CC}=4.5V$, $R_L=50\Omega$, $C_L=10pF$		180		MHz
maximum switch capacitance	C_S			8		pF

Note 1. Adjust input voltage V_{IS} is 0dbm level (0dbm=1mW into 600 Ω)

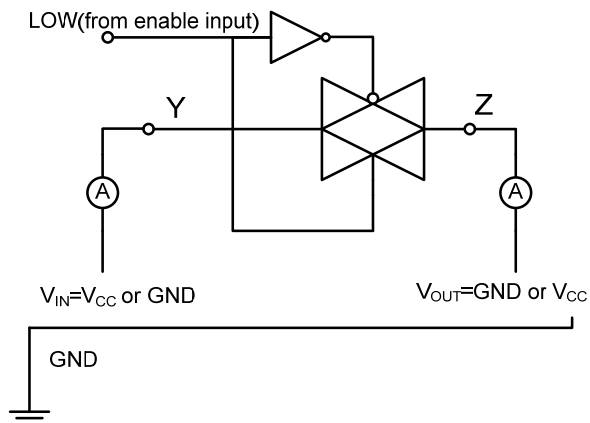
2. Adjust input voltage V_{IS} is 0dbm level at V_{OS} for 1MHz (0dbm=1mW into 50 Ω)

■ TEST CIRCUIT AND WAVEFORMS

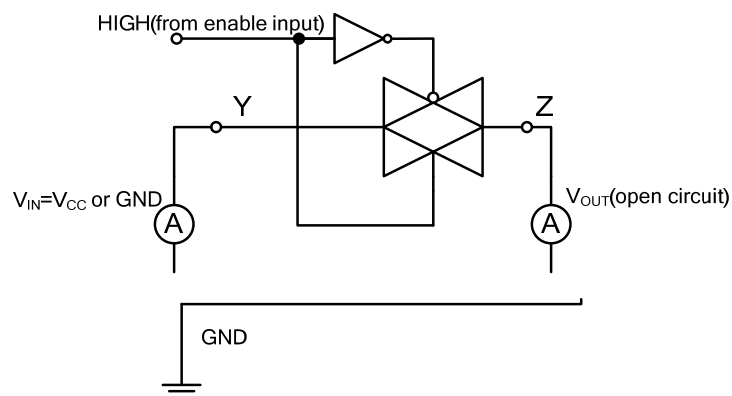
Test circuit for measuring ON-resistance (R_{on})



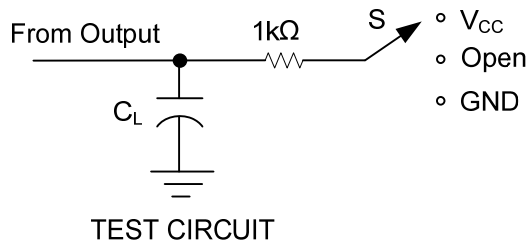
Test circuit for measuring OFF-state current



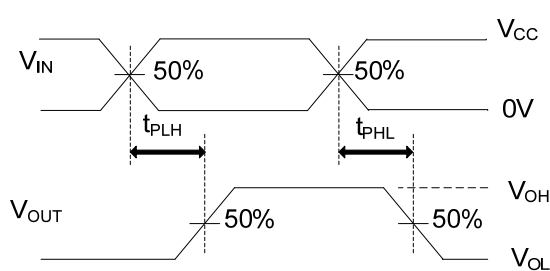
Test circuit for measuring ON-state current



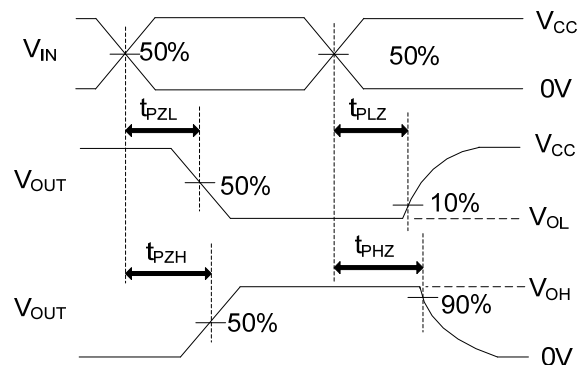
■ TEST CIRCUIT AND WAVEFORMS(Cont.)



	S	V_{IN}
t_{PLH}/t_{PHL}	OPEN	V_{IN}
t_{PHZ}/t_{PZH}	GND	V_{CC}
t_{PLZ}/t_{PZL}	V_{CC}	GND



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

Note: 1. C_L includes probe and jig capacitance.
 2. PRR $\leq 1\text{MHz}$, $Z_o = 50\Omega$, $t_R \leq 6\text{ns}$, $t_F \leq 6\text{ns}$.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.