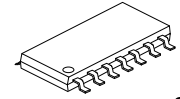


**U74HCT4066****CMOS IC****QUAD BILATERAL SWITCH****DESCRIPTION**

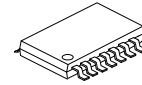
The UTC **U74HCT4066** consists of four independent analog switches. Each switch has an Enable input (nE) which is active HIGH to decide the switch status.

FEATURES

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



SOP-14U

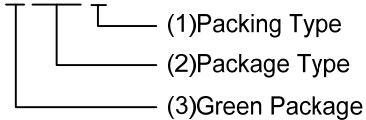


TSSOP-14U

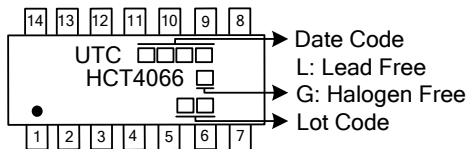
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HCT4066L-UEA-R	U74HCT4066G-UEA-R	SOP-14U	Tape Reel
U74HCT4066L-UEB-R	U74HCT4066G-UEB-R	TSSOP-14U	Tape Reel

U74HCT4066G-UEA-R



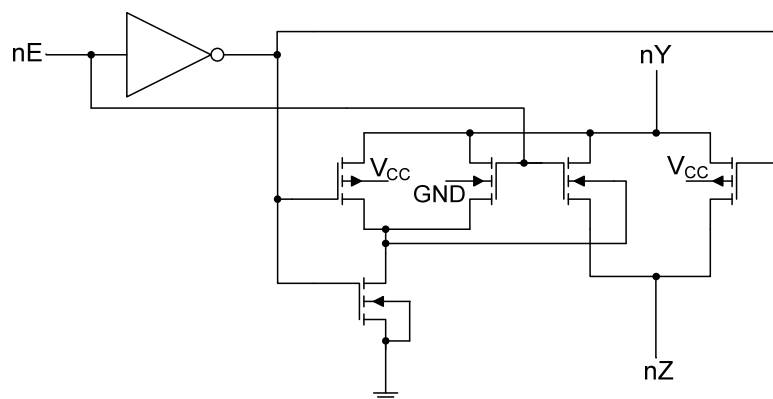
- (1) R: Tape Reel
- (2) UEA: SOP-14U, UEB: TSSOP-14U
- (3) G: Halogen Free and Lead Free, L: Lead Free

MARKING

Pinout diagram of the 74VHC04 hex inverters. The diagram shows a 14-pin package with pins 1 through 7 on the left and pins 14 through 8 on the right. Pin 1 is labeled 1Y, pin 2 is 1Z, pin 3 is 2Z, pin 4 is 2Y, pin 5 is 2E, pin 6 is 3E, and pin 7 is GND. Pin 14 is labeled V_{cc}, pin 13 is 1E, pin 12 is 4E, pin 11 is 4Y, pin 10 is 4Z, pin 9 is 3Z, and pin 8 is 3Y. A small circle is shown between pins 1 and 14.

INPUTS(nE)	SWITCH
H	ON
L	OFF

- **LOGIC DIAGRAM**



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, 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
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 (T_A=25°C, unless otherwise specified)

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 Rise and Fall Times	t _R , t _F	V _{CC} =4.5V		6	500	ns
Operating Temperature	T _A		-40		+125	°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	SOP-14U	90	°C/W
	TSSOP-14U	105	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

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	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	V _{IN} =V _{IH} or V _{IL} , V _{IS} =V _{CC} to GND, V _{CC} =4.5V, I _S =1mA		54	118	Ω
	Rail	V _{IN} =V _{IH} or V _{IL} , V _{CC} =4.5V, I _S =1mA	V _{IS} =GND V _{IS} =V _{CC}	35 42	95 106	Ω
Maximum variation of ON-resistance between any two channels	Δ R _{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°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 =∞		3	15	ns
Turn-ON Time from nE to V _{OS}	t _{PZH} /t _{PZL}	V _{CC} =4.5V, R _L =1KΩ		12	30	ns
Turn-OFF Time from nE to V _{OS}	t _{PHZ} /t _{PLZ}	V _{CC} =4.5V, R _L =1KΩ		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 =600Ω, f=1MHz		-50		dB
Crosstalk Between any two Switches (Note 1)	α _{CT(S)}	V _{CC} =4.5V, R _L =600Ω, f=1MHz		-60		dB

U74HCT4066

CMOS IC

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
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■ DYNAMIC CHARACTERISTICS(Cont.)

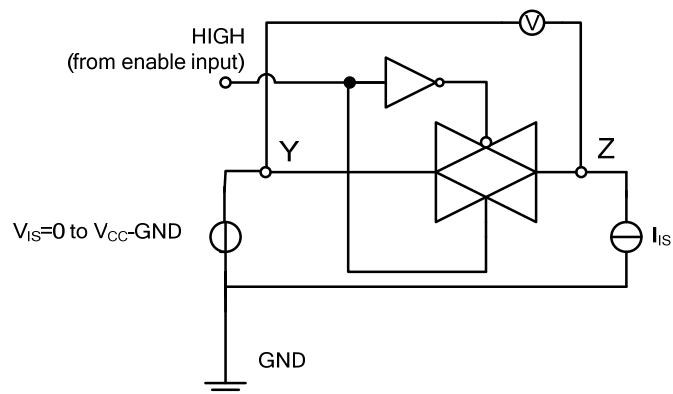
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Minimum Frequency Response(-3dB) (Note 2)	f_{MAX}	$V_{CC}=4.5V$, $R_L=50\Omega$, $C_L=10pF$		180		MHz
maximum switch capacitance	C_S			8		pF

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

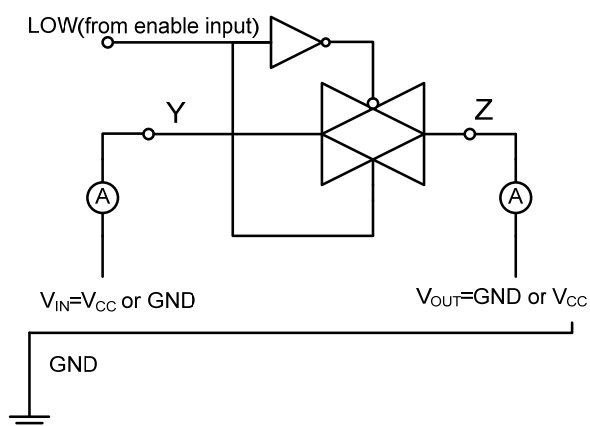
2. Adjust input voltage V_{IS} is 0dbm level at V_{OS} for 1MHz (0dbm=1mW into 50 Ω)

■ TEST CIRCUIT AND WAVEFORMS

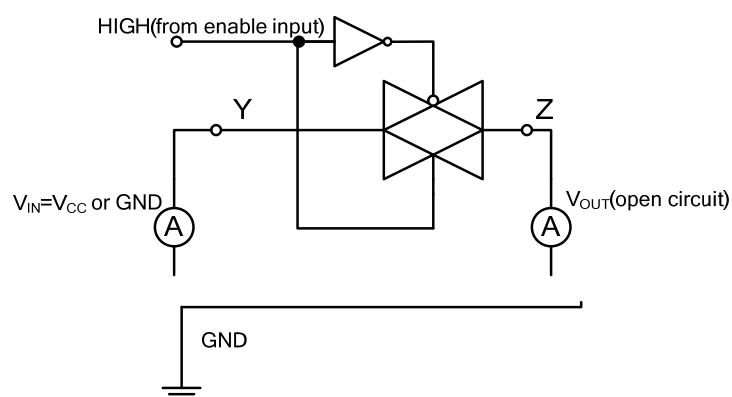
Test circuit for measuring ON-resistance (R_{on})



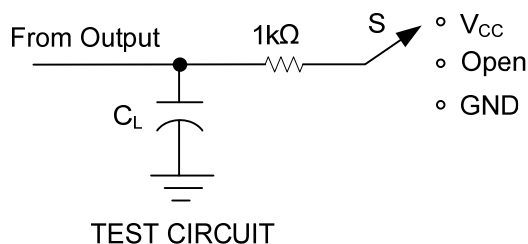
Test circuit for measuring OFF-state current



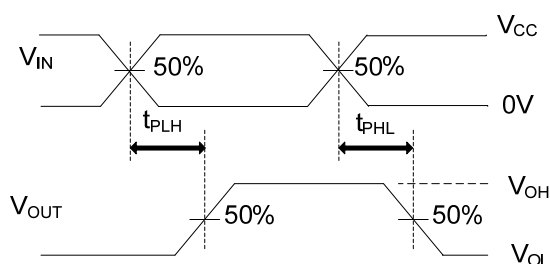
Test circuit for measuring ON-state current



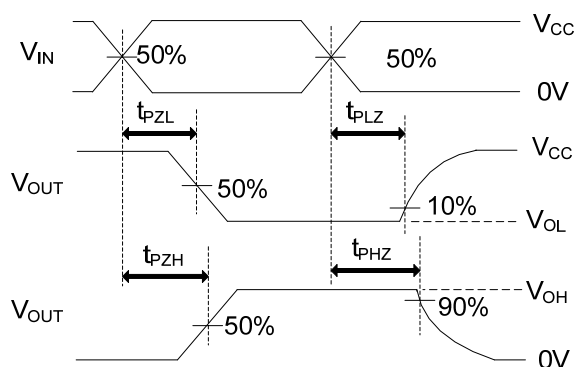
■ TEST CIRCUIT AND WAVEFORMS(Cont.)



	S	V_{IN}
t_{PLH}/t_{PHL}	OPEN	
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.
 Note: 2. PRR ≤ 1 MHz, $Z_o = 50\Omega$, $t_R \leq 6$ ns, $t_F \leq 6$ ns.

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