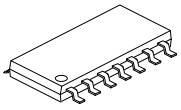
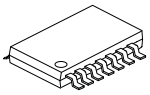
U74HC07

CMOS IC

HEX BUFFER (OPEN DRAIN)



SOP-14



TSSOP-14

■ DESCRIPTION

The **U74HC07** is a high speed CMOS hex open drain buffer fabricated with UTC advanced CMOS technology.

The internal circuit is composed of 2 stages including buffer output, which enables high noise immunity and stable output.

All inputs are equipped with protection circuits against static discharge and transient excess voltage.

■ ORDERING INFORMATION

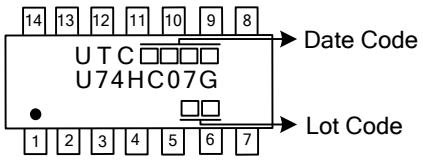
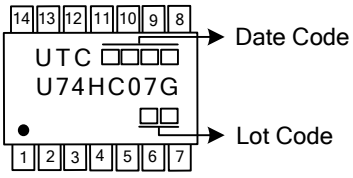
Ordering Number	Package	Packing
U74HC07G-S14-R	SOP-14	Tape Reel
U74HC07G-P14-R	TSSOP-14	Tape Reel

U74HC07G-S14-R

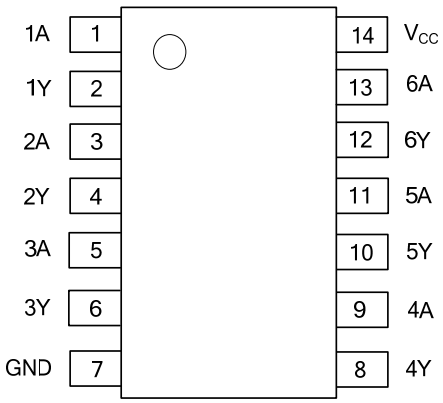
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) S14: SOP-14, P14: TSSOP-14
(3) G: Halogen Free and Lead Free

■ MARKING

SOP-14	TSSOP-14
	

■ PIN CONFIGURATION



■ PIN CONFIGURATION

PIN No	SYMBOL	NAME AND FUNCTION
1, 3, 5, 9, 11, 13	1A to 6A	Data Inputs
2, 4, 6, 8, 10, 12	1Y to 6Y	Data Outputs
7	GND	Ground(0V)
14	V_{CC}	Positive Supply Voltage

■ FUNCTION TABLE

A	Y
L	L
H	Z

Z: High Impedance

■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 to +7	V
DC Input Voltage	V_I	-0.5 to V_{CC}+0.5	V
DC Output Votage	V_O	-0.5 to V_{CC}+0.5	V
DC Input Diode Current	I_{IK}	±20	mA
DC Output Diode Current	I_{OK}	±20	mA
DC Output Current	I_O	±25	mA
DC V_{CC} or Ground Current	I_{CC}	±50	mA
Power Dissipation (Note 2)	P_D	500	mW
Lead Temperature	T_L	300	°C
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-65 ~ + 150	°C

Note: 1. 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.
2. 500mW at 65°C, derate to 300mW by 10mW/°C form 65°C to 85°C.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		2 ~ 6	V
Input Voltage	V_I		0 ~ V_{CC}	V
Output Voltage	V_O		0 ~ V_{CC}	V
Input Rise and Fall Time	t_r, t_f	V_{CC}=2V	0 ~ 1000	ns
		V_{CC}=4.5V	0 ~ 500	
		V_{CC}=6V	0 ~ 400	

Note: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOP-14	θ_{JA}	76	°C/W
	TSSOP-14		113	

■ 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}=2V	1.5	1.2		V
		V_{CC}=4.5V	3.15	2.4		
		V_{CC}=6V	4.2	3.2		
Low-level Input Voltage	V_{IL}	V_{CC}=2V		0.8	0.5	V
		V_{CC}=4.5V		2.1	1.35	
		V_{CC}=6V		2.8	1.8	
Output Voltage Low-Level	V_{OL}	V_{CC}=2V, I_{OL}=20μA		0	0.1	V
		V_{CC}=4.5V, I_{OL}=20μA		0	0.1	
		V_{CC}=6V, I_{OL}=20μA		0	0.1	
		V_{CC}=4.5V, I_{OL}=4mA		0.15	0.26	
		V_{CC}=6V, I_{OL}=5.2mA		0.16	0.26	
Input Leakage Current	I_I	V_{CC}=6V, V_I= V_{CC} or GND			±0.1	μA
Output Leakage Current	I_{OZ}	V_{CC}=6V, V_I= V_{IH} or V_{IL}, V_O= V_{CC} or GND			±0.5	μA
Quiescent Supply Current	I_{CC}	V_{CC}=6V, V_{IN}=V_{CC} or GND, I_{OUT}=0			1	μA

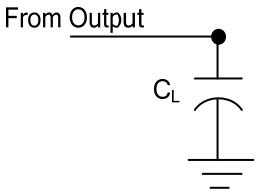
■ SWITCHING CHARACTERISTICS ($t_r = t_f = 6ns$, $C_L=50pF$, $T_A=25°C$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Transition Time	t_{THL}	V_{CC}=2V		30	75	ns
		V_{CC}=4.5V		8	15	
		V_{CC}=6V		7	13	
Propagation Delay Time	t_{PLZ}	V_{CC}=2V, R_L=1KΩ		10	90	ns
		V_{CC}=4.5V, R_L=1KΩ		7	18	
		V_{CC}=6V, R_L=1KΩ		6	15	
Propagation Delay Time	t_{PZL}	V_{CC}=2V, R_L=1KΩ		17	90	ns
		V_{CC}=4.5V, R_L=1KΩ		7	18	
		V_{CC}=6V, R_L=1KΩ		5	15	

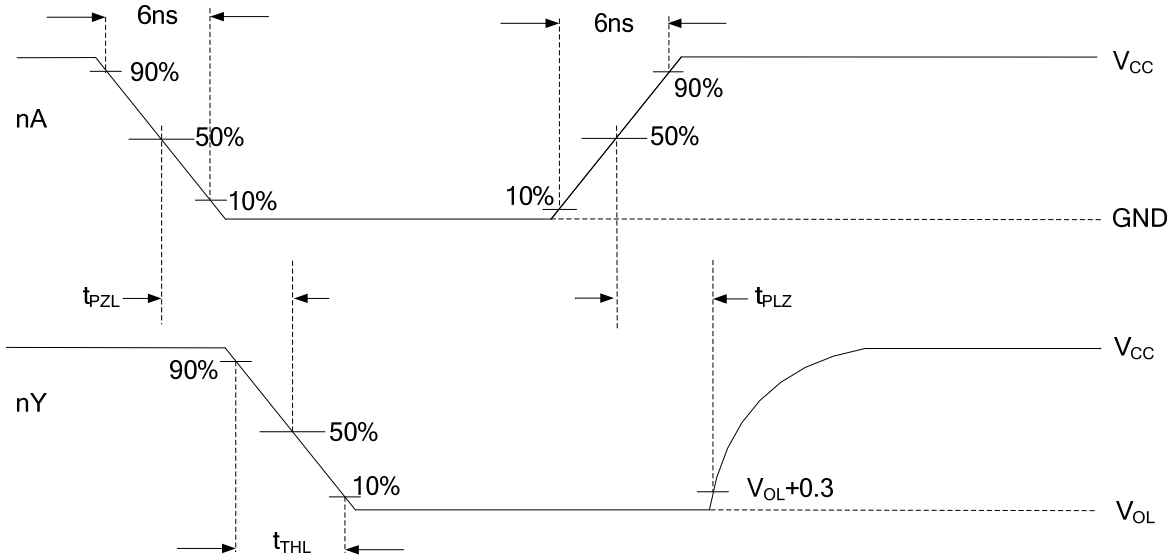
■ CAPACITIVE CHARACTERISTICS ($T_A=25°C$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C_{IN}	V_{CC}=5V		5	10	pF
Output Capacitance	C_{OUT}	V_{CC}=5V		3		pF
Power Dissipation Capacitance	C_{PD}	V_{CC}=5V		4		pF

■ TEST CIRCUIT AND WAVEFORMS (f=1MHz, 50% duty cycle)



TEST CIRCUIT



PROPAGATION DELAY TIME