



U74ACT08

CMOS IC

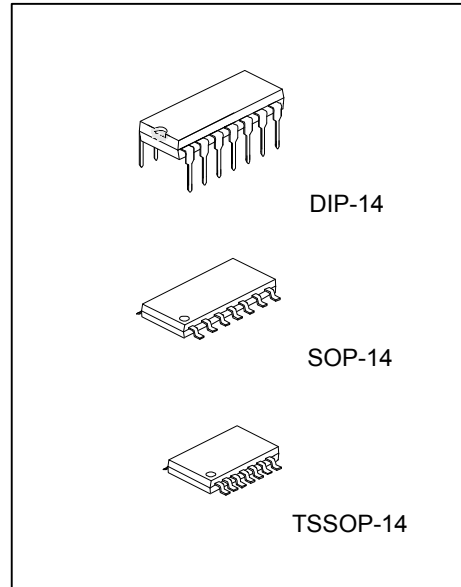
QUAD 2-INPUT AND GATE

DESCRIPTION

The U74ACT08 consists of four 2-INPUT AND GATE, it provides the function $Y=A*B$, the device is designed to interface directly High Speed CMOS systems with TTL, NMOS and CMOS output voltage levels.

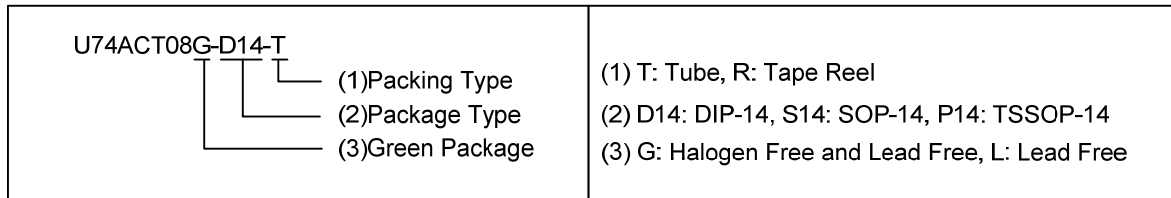
FEATURES

- * Operation Voltage Range: 4.5~5.5V
- * Low Power Dissipation: $I_{CC}=4\mu A(\text{Max})$
- * High Noise Immunity
- * Compatible With TTL Output

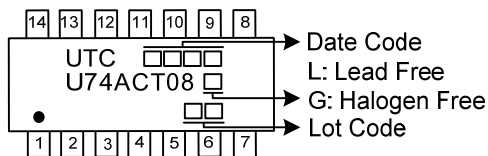


ORDERING INFORMATION

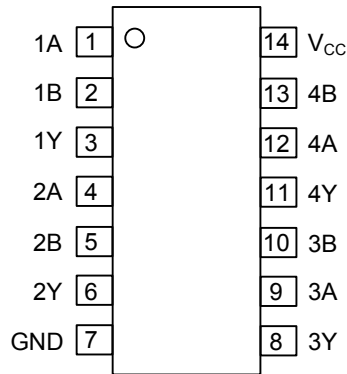
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74ACT08L-D14-T	U74ACT08G-D14-T	DIP-14	Tube
U74ACT08L-S14-R	U74ACT08G-S14-R	SOP-14	Tape Reel
U74ACT08L-P14-R	U74ACT08G-P14-R	TSSOP-14	Tape Reel



MARKING



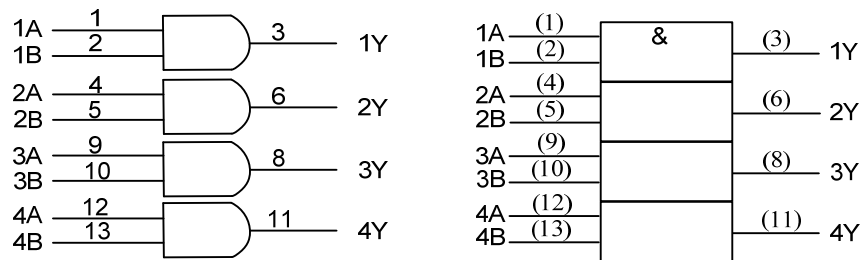
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

INPUT		OUTPUT
A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5~7	V
Input Voltage	V_{IN}	-0.5~ $V_{CC}+0.5$	V
DC Output Voltage	V_{OUT}	-0.5~ $V_{CC}+0.5$	V
Input Clamp Current ($V_{IN}<0$)	I_{IK}	±20	mA
Output Clamp Current ($V_{OUT}<0$)	I_{OK}	±20	mA
Output Current	I_{OUT}	±50	mA
V_{CC} or GND Current	I_{CC}	±200	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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	4.5 ~ 5.5	V
Input Voltage	V_{IN}	0 ~ V_{CC}	V
Output Voltage	V_{OUT}	0 ~ V_{CC}	V
Input Transition Rise or Fall Rate	t_R, t_F	8	ns/V
Operating Temperature	T_A	-40 ~ +85	°C

■ STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V_{IH}	$V_{CC}=4.5V\sim 5.5V, V_{OUT}=0.1V$ or $V_{CC}-0.1V$	2.0	1.5		V
Low-Level Input Voltage	V_{IL}	$V_{CC}=4.5V\sim 5.5V, V_{OUT}=0.1V$ or $V_{CC}-0.1V$		1.5	0.8	V
High-Level Output Voltage	V_{OH}	$V_{CC}=4.5V, I_{OH}=-50\mu A$	4.4	4.49		V
		$V_{CC}=5.5V, I_{OH}=-50\mu A$	5.4	5.49		
		$V_{CC}=4.5V, I_{OH}=-24mA$	3.86			
		$V_{CC}=5.5V, I_{OH}=-24mA$	4.86			
Low-Level Output Voltage	V_{OL}	$V_{CC}=4.5V, I_{OL}=50\mu A$		0.001	0.1	V
		$V_{CC}=5.5V, I_{OL}=50\mu A$		0.001	0.1	
		$V_{CC}=4.5V, I_{OL}=24mA$			0.36	
		$V_{CC}=5.5V, I_{OL}=24mA$			0.36	
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=5.5V, V_{IN}=5.5V$ or GND			±0.1	μA
Additional Quiescent Supply Current	ΔI_Q	$V_{CC}=5.5V, V_{IN}=3.4V$; other input at V_{CC} or GND; $I_{OUT}=0$		0.6		mA
Quiescent Supply Current	I_Q	$V_{CC}=5.5V, V_{IN}=V_{CC}$ or GND $I_{OUT}=0$			4	μA
Input Capacitance	C_{IN}	$V_{CC}=5.0V, V_{IN}=V_{CC}$ or GND		4		pF

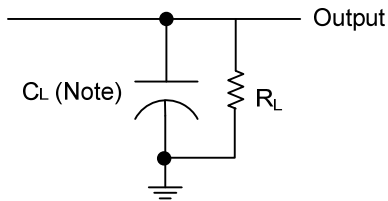
■ DYNAMIC CHARACTERISTIC (input $t_R = t_F = 3ns, T_A = 25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Propagation Delay Time	$t_{PLH} t_{PHL}$	$V_{CC} = 5.0V \pm 0.5V, C_L = 50pF, R_L = 500\Omega$	1.5	5	9	ns

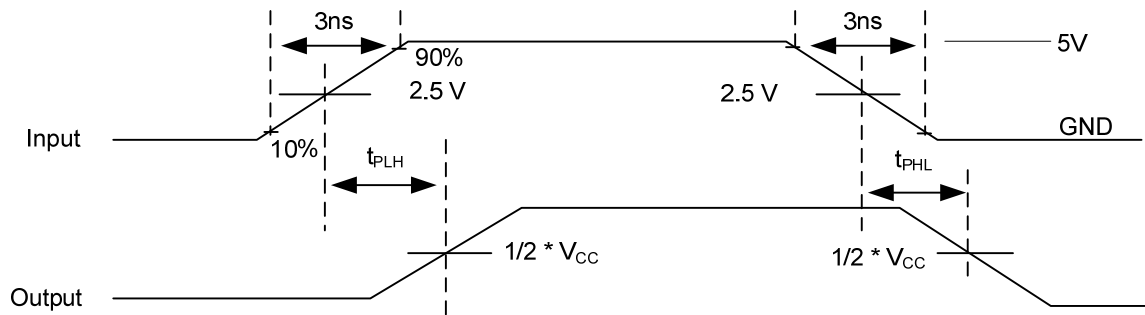
■ OPERATING CHARACTERISTIC

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	$V_{CC} = 5.0V$		30		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.



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. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.