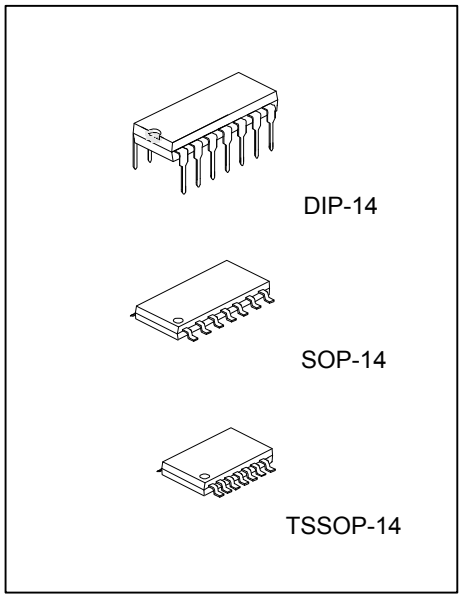
U74ACT08

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}=4μA(Max)
* High Noise Immunity
* Compatible With TTL Output

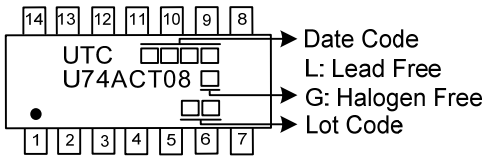
■ ORDERING INFORMATION

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

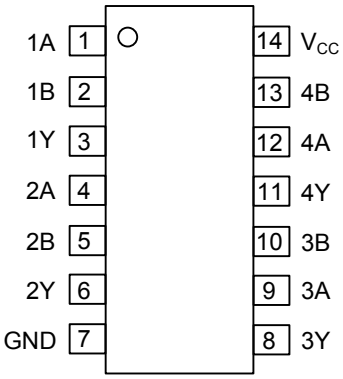
U74ACT08G-D14-T
(1)Packing Type
(2)Package Type
(3)Green Package

(1) T: Tube, R: Tape Reel
(2) D14: DIP-14, S14: SOP-14, P14: TSSOP-14
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



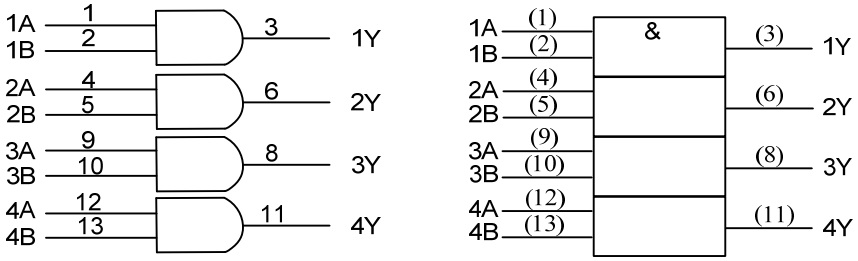
■ PIN CONFIGURATION



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

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	Δt/Δv	8	ns/V
Operating TemperatureY	T_A	-40 ~ +125	°C

■ 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~5.5V		2.0	1.5		V
Low-Level Input Voltage	V_{IL}	V_{CC}=4.5V~5.5V			1.5	0.8	V
High-Level Output Voltage	V_{OH}	V_{CC}=4.5V	I_{OH}=-24mA	3.86			V
			I_{OH}=-50μA	4.4	4.49		V
		V_{CC}=5.5V	I_{OH}=-24mA	4.86			V
			I_{OH}=-50μA	5.4	5.49		V
Low-Level Output Voltage	V_{OL}	V_{CC}=4.5V	I_{OL}=24mA			0.36	V
			I_{OL}=50μA		0.001	0.1	V
		V_{CC}=5.5V	I_{OL}=24mA			0.36	V
			I_{OL}=50μA		0.001	0.1	V
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=5.5V, V_{IN}=5.5V or GND				±0.1	μA
Quiescent Supply Current	I_Q	V_{CC}=5.5V, V_{IN}=V_{CC} or GND I_{OUT}=0				4	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_Q	V_{CC}=5.5V, V_{IN}=3.4V; other input at V_{CC} or GND; I_{OUT}=0			0.6		mA
Input Capacitance	C_{IN}	V_{CC}=5.0V, V_{IN}=V_{CC} or GND			4		pF

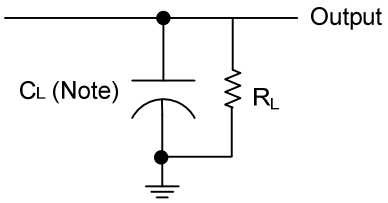
■ DYNAMIC CHARACTERISTIC (input t_R = t_F =3ns, T_A=25°C, unless otherwise specified))

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

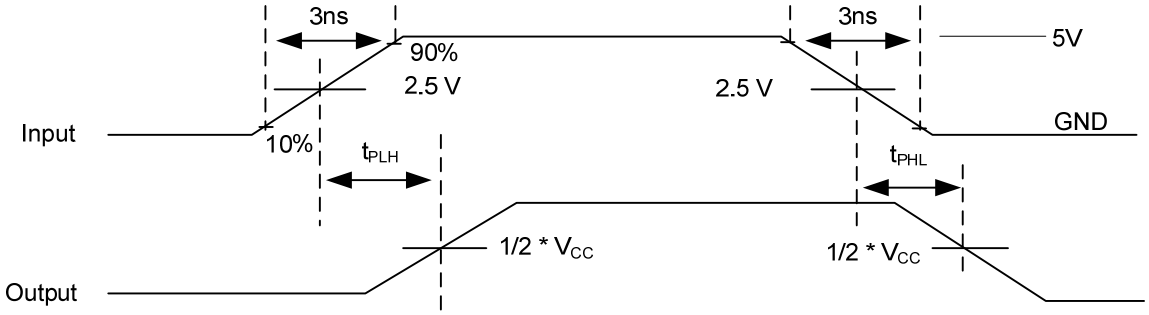
■ OPERATING CHARACTERISTIC (T_A=25°C, unless otherwise specified)

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.



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