



U74ACT125

CMOS IC

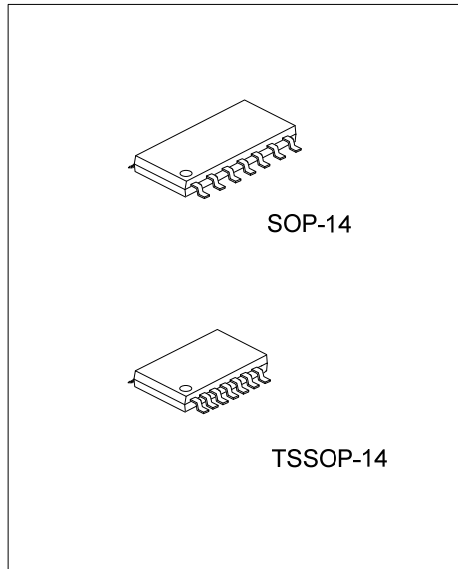
QUAD BUFFER WITH 3-STATE OUTPUTS

■ **DESCRIPTION**

The **U74ACT125** contains four independent non-inverting buffers with 3-STATE outputs.

■ **FEATURES**

- * Outputs source/sink 24mA
- *ACT125 has TTL-compatible outputs

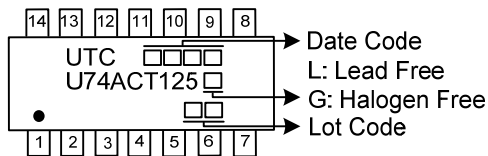


■ **ORDERING INFORMATION**

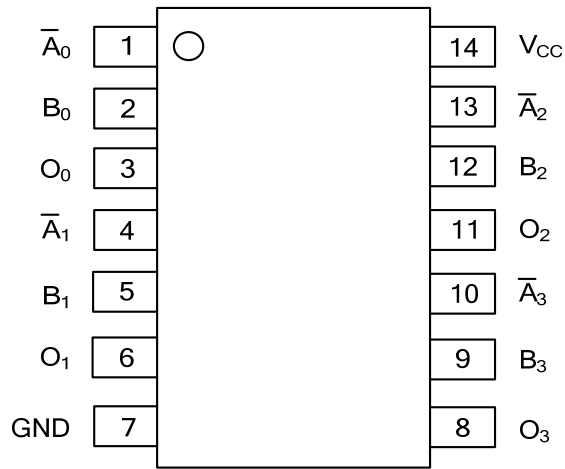
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74ACT125L-S14-R	U74ACT125G-S14-R	SOP-14	Tape Reel
U74ACT125L-P14-R	U74ACT125G-P14-R	TSSOP-14	Tape Reel

<p>U74ACT125G-S14-R</p>	<p>(1) R: Tape Reel (2) S14: SOP-14, P14: TSSOP-14 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
-------------------------	--

■ **MARKING**



■ PIN CONFIGURATION

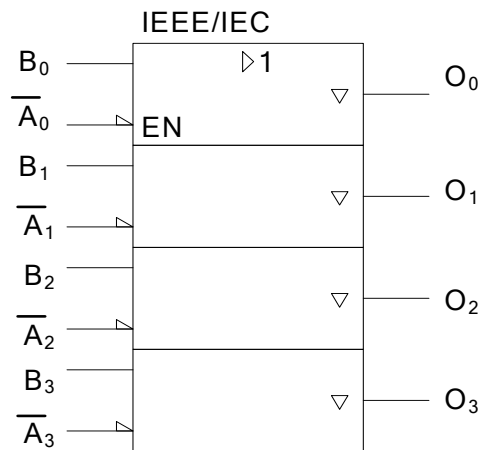
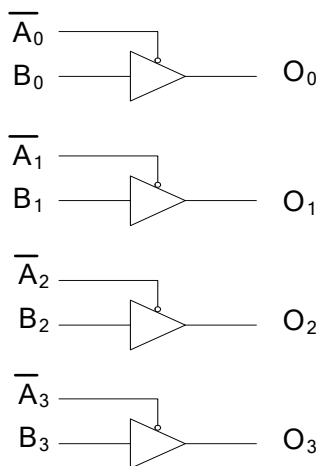


■ FUNCTION TABLE (each gate)

INPUTS		OUTPUT
A _n	B _n	O _n
L	L	L
L	H	H
H	X	Z

H=HIGH Voltage Level; L=LOW Voltage Level
Z=HIGH Impedance; X=Immaterial

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified) (Note 2)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	-0.5 ~ 7.0	V
Input Voltage	V _{IN}	-0.5 ~ V _{CC} +0.5	V
Output Voltage	V _{OUT}	-0.5 ~ V _{CC} +0.5	V
Input Clamp Current (V _{IN} < 0 or V _{IN} > V _{CC})	I _{IK}	±20	mA
Output Clamp Current (V _{OUT} < 0 or V _{OUT} > V _{CC})	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 Temperature	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	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} =V _{CC} or GND			±0.1	μA	
Quiescent Supply Current	I _Q	V _{CC} = 5.5V, V _{IN} =5.5V or GND, I _{OUT} =0			4	μA	
Additional Quiescent Supply Current	ΔI _Q	V _{CC} = 5.5V, V _I =V _{CC} -2.1V		0.6		mA	
Input Capacitance	C _{IN}	V _{CC} = OPEN		4.5		pF	
3-STATE Current	I _{OZ}	V _{CC} =5.5V, V _I =V _{IL} , V _{IH} V _O =V _{CC} , GND			±0.5	μA	

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

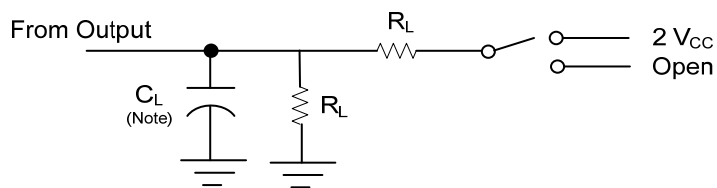
See Fig. 1 and Fig. 2 for test circuit and waveforms.

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Data to Output	t _{PLH}	V _{CC} =5V, t _r = t _f =3ns, C _L =50pF, R _L =500Ω, f=1MHz	1	6.5	9	ns
	t _{PHL}		1	7	9	
Output Enable Time	t _{PZH}		1	6.0	8.5	ns
	t _{PZL}		1	7.0	9.5	ns
Output disable Time	t _{PHZ}		1	7.0	9.5	ns
	t _{PLZ}		1	7.5	10	ns

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C _{PD}	V _{CC} =5V		45		pF

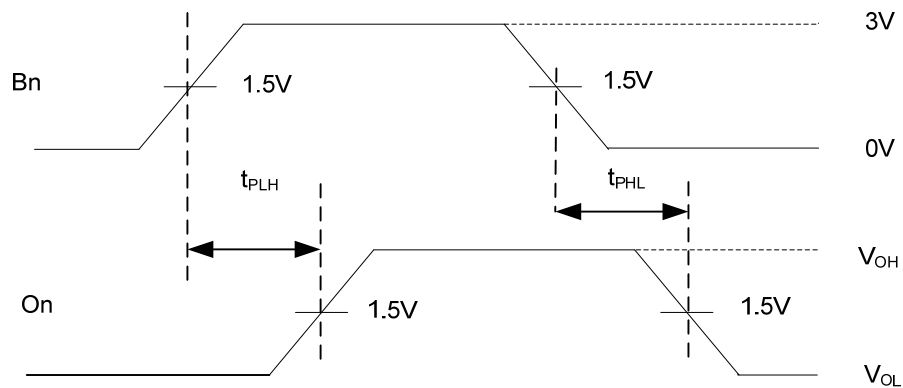
■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.

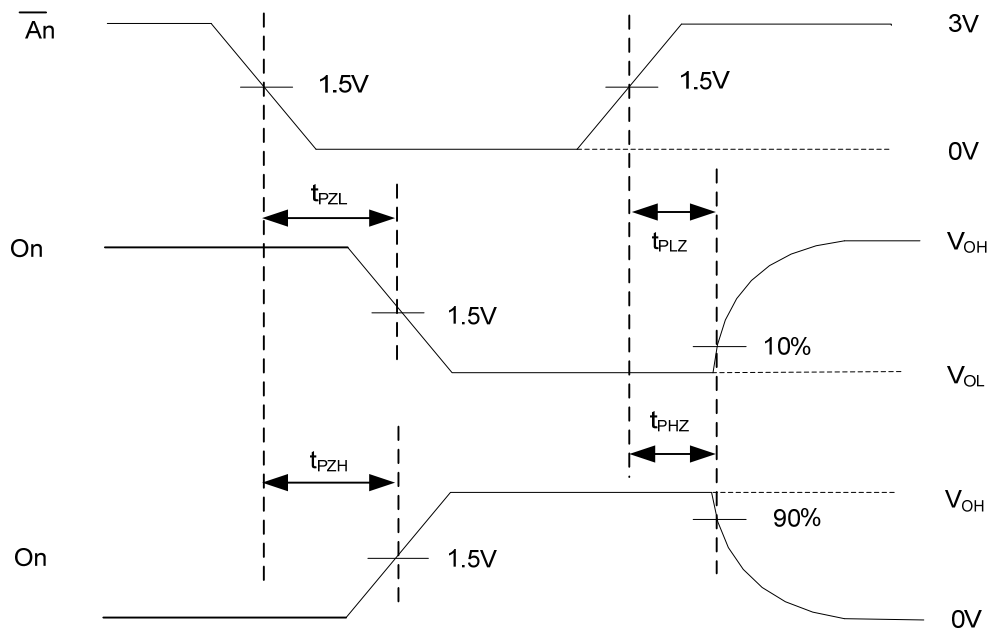
TEST	SWITCH
t_{PLH} , t_{PHL}	Open
t_{PLZ} , t_{PZL}	$2V_{CC}$
t_{PZH} , t_{PHZ}	Open

Fig. 1 Load circuitry for switching times.



PROPAGATION DELAY TIMES

■ TEST CIRCUIT AND WAVEFORMS (Cont.)



ENABLE AND DISABLE TIMES

Fig. 2 Propagation delay from input to output and Output transition time

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.