

**U74ACT244****CMOS IC****OCTAL BUFFERS AND DRIVERS WITH 3-STATE OUTPUTS****DESCRIPTION**

The **U74ACT244** is a octal buffers and drivers are designed specifically to improve the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters.

The **U74ACT244** devices are organized as two 4-bit buffers and drivers with separate output-enable ($\overline{OE}$) inputs. When $\overline{OE}$ is low, the device passes non-inverted data from the A inputs to the Y outputs. When $\overline{OE}$ is high, the outputs are in the high-impedance state.

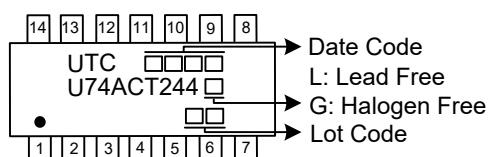
FEATURES

- * 4.5V to 5.5V V_{CC} operation
- * Inputs accept voltages to 5.5V
- * Low power consumption, $I_{CC} = 4\mu A$ (Max.) at 5.5V
- * TTL compatible
- * $\pm 24mA$ output driver at 5.5V

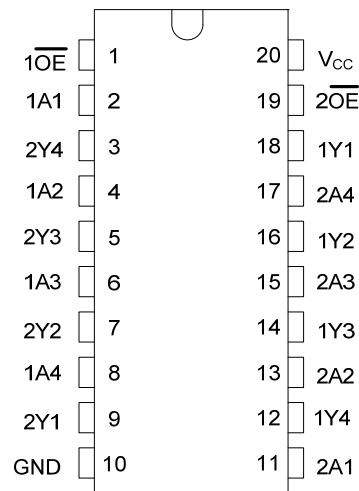
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74ACT244L-S20-R	U74ACT244G-S20-R	SOP-20	Tape Reel
U74ACT244L-R20-R	U74ACT244G-R20-R	SSOP-20	Tape Reel
U74ACT244L-P20-R	U74ACT244G-P20-R	TSSOP-20	Tape Reel
U74ACT244L-ULA-R	U74ACT244G-ULA-R	TSSOP-20U	Tape Reel

U74ACT244G-S20-R (1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) S20: SOP-20, R20: SSOP-20, P20: TSSOP-20 ULA: TSSOP-20U (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

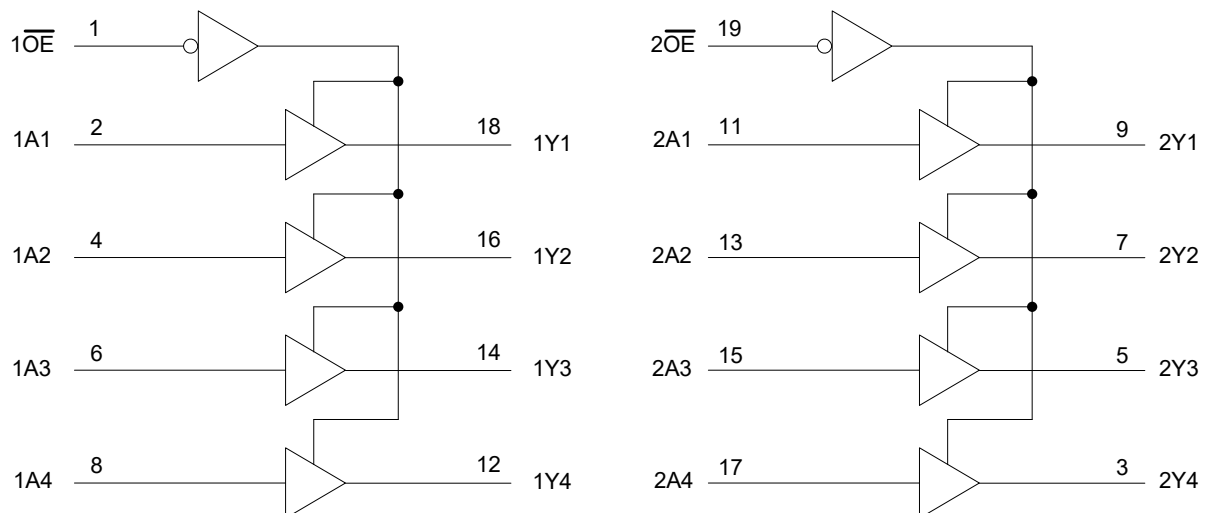
PIN CONFIGURATION



FUNCTION TABLE (each buffer)

INPUTS		OUTPUT
OE	A	Y
L	H	H
L	L	L
H	X	Hi-Z

LOGIC SYMBOL (positive logic)



■ **ABSOLUTE MAXIMUM RATING** ($T_A=25^{\circ}\text{C}$, 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	$^{\circ}\text{C}$

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	$\Delta t/\Delta v$	8	ns/V
Operating Temperature	T_A	-40 ~ +125	$^{\circ}\text{C}$

■ **ELECTRICAL CHARACTERISTICS** (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A=25^{\circ}\text{C}$			$T_A=-40\sim+125^{\circ}\text{C}$			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V_{IH}	$V_{CC}=4.5\text{V}\sim 5.5\text{V}$	2			2			V
Low-Level Input Voltage	V_{IL}	$V_{CC}=4.5\text{V}\sim 5.5\text{V}$			0.8			0.8	V
High-Level Output Voltage	V_{OH}	$V_{CC}=4.5\text{V}$, $I_{OH}=-50\mu\text{A}$	4.4	4.49		4.4			V
		$V_{CC}=5.5\text{V}$, $I_{OH}=-50\mu\text{A}$	5.4	5.49		5.4			V
		$V_{CC}=4.5\text{V}$, $I_{OH}=-24\text{mA}$	3.86			3.76			V
		$V_{CC}=5.5\text{V}$, $I_{OH}=-24\text{mA}$	4.86			4.76			V
		$V_{CC}=5.5\text{V}$, $I_{OH}=-75\text{mA}$ (Note)	3.85			3.75			V
Low-Level Output Voltage	V_{OL}	$V_{CC}=4.5\text{V}$, $I_{OL}=50\mu\text{A}$		0.001	0.1			0.1	V
		$V_{CC}=5.5\text{V}$, $I_{OL}=50\mu\text{A}$		0.001	0.1			0.1	V
		$V_{CC}=4.5\text{V}$, $I_{OL}=24\text{mA}$			0.36			0.44	V
		$V_{CC}=5.5\text{V}$, $I_{OL}=24\text{mA}$			0.36			0.44	V
		$V_{CC}=5.5\text{V}$, $I_{OL}=75\text{mA}$ (Note)			1.65			1.75	V
Input Leakage Current (A or $\overline{\text{OE}}$ inputs)	$I_{I(\text{LEAK})}$	$V_{CC}=5.5\text{V}$, $V_{IN}=V_{CC}$ or GND			± 0.1			± 1	μA
High-impedance state Current	I_{OZ}	$V_{CC}=5.5\text{V}$, $V_O=V_{CC}$ or GND, $V_{I(\text{OE})}=V_{IL}$ or V_{IH}			± 0.25			± 2.5	μA
Quiescent Supply Current	I_Q	$V_{CC}=5.5\text{V}$, $V_{IN}=V_{CC}$ or GND, $I_{OUT}=0$			4			40	μA
Additional quiescent Supply Current	ΔI_Q	$V_{CC}=5.5\text{V}$, One input at 3.4V; other inputs at V_{CC} or GND		0.6	1.5			1.5	mA

Note: Not more than one output should be tested at a time, and the duration of the test should not exceed 2 ms.

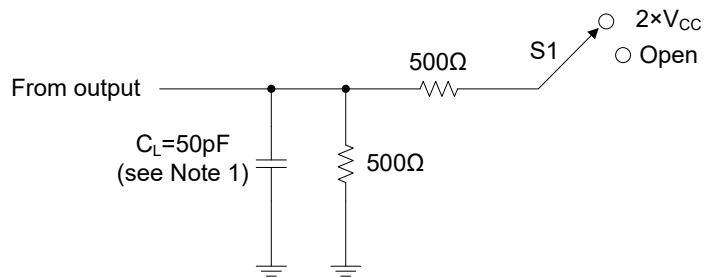
■ SWITCHING CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation delay from input A to output Y, t _{PD}	t _{PLH}	V _{CC} =5±0.5V, C _L =50pF, R _L =500Ω	2	6.5	9	1		11	ns
	t _{PHL}	V _{CC} =5±0.5V, C _L =50pF, R _L =500Ω	2	7	9	1		11	ns
Propagation delay from input OE to output Y, t _{en}	t _{PZH}	V _{CC} =5±0.5V, C _L =50pF, R _L =500Ω	1.5	7	8.5	1		10.5	ns
	t _{PZL}	V _{CC} =5±0.5V, C _L =50pF, R _L =500Ω	2	7	9.5	1		11.5	ns
Propagation delay from input OE to output Y, t _{dis}	t _{PHZ}	V _{CC} =5±0.5V, C _L =50pF, R _L =500Ω	2	8	9.5	1		11.5	ns
	t _{PLZ}	V _{CC} =5±0.5V, C _L =50pF, R _L =500Ω	2.5	7.5	10	1		12	ns

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

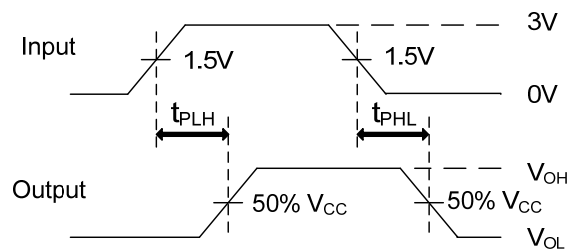
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _{IN}	V _{CC} =5.5V, V _{IN} = V _{CC} or GND		2.5		pF
Output Capacitance	C _{OUT}	V _{CC} =5.5V, V _{IN} = V _{CC} or GND		8		pF
Power Dissipation Capacitance (Notes 1, 2)	C _{PD}	V _{CC} =5V, C _L =50pF, f=1MHz		45		pF

■ TEST CIRCUIT AND WAVEFORMS

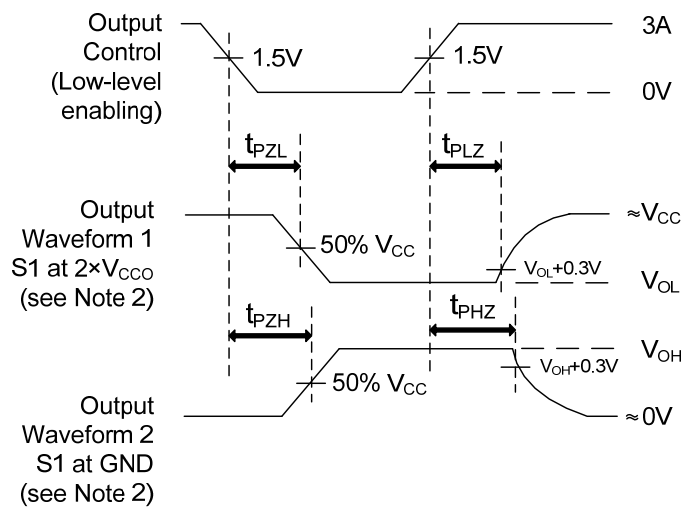


TEST CIRCUIT

TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	$2 \times V_{CC}$
t_{PHZ}/t_{PZH}	Open



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

Notes: 1. C_L includes probe and jig capacitance.

2. All input pulses are supplied by generators having the following characteristics: $PRR \leq 1\text{MHz}$, $Z_O = 50\Omega$.

3. The outputs are measured one at a time with one input transition per measurement.

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