



U74HC244

CMOS IC

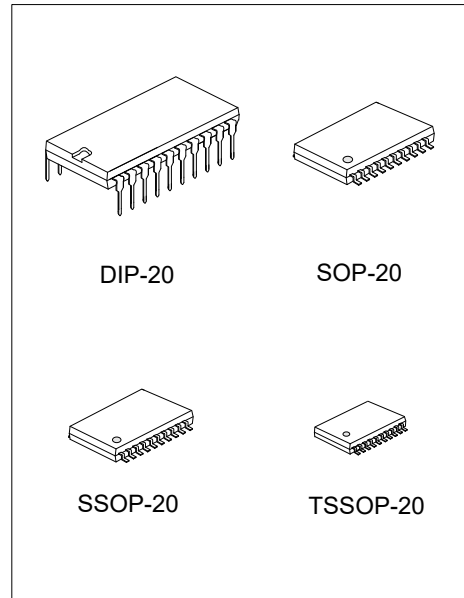
OCTAL BUFFER AND LINE DRIVER WITH 3-STATE OUTPUT

DESCRIPTION

The **U74HC244** are octal buffer and line drivers with non-inverting 3-state outputs. When \overline{OE} is High, the outputs nQ will be in the high impedance.

FEATURES

- * Operation voltage range: 2 ~ 6V
- * 3-state output
- * Output Drive Capability: 15 LSTTL Loads

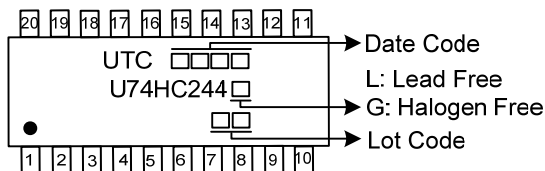


ORDERING INFORMATION

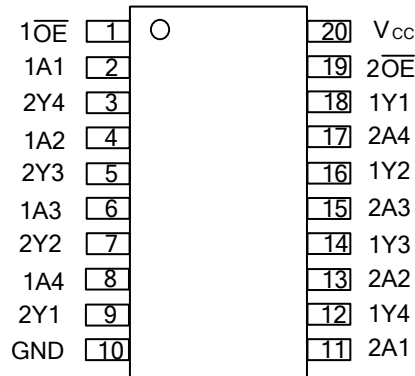
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HC244L-D20-T	U74HC244G-D20-T	DIP-20	Tube
U74HC244L-S20-R	U74HC244G-S20-R	SOP-20	Tape Reel
U74HC244L-R20-R	U74HC244G-R20-R	SSOP-20	Tape Reel
U74HC244L-P20-R	U74HC244G-P20-R	TSSOP-20	Tape Reel

<p>U74HC244G-D20-T</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) D20: DIP-20, S20: SOP-20, R20: SSOP-20 P20: TSSOP-20 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
---	---

MARKING



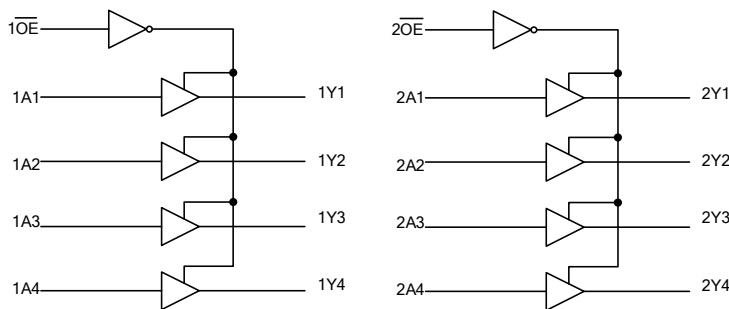
■ PIN CONFIGURATION



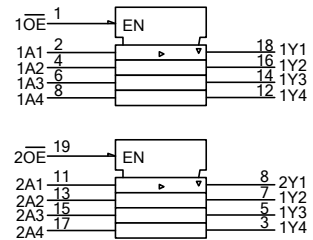
■ FUNCTION TABLE (each gate)

INPUT(nOE)	INPUT(nAn)	OUTPUT(nYn)
H	X	Z
L	H	H
L	L	L

■ LOGIC DIAGRAM (positive logic)



Logic symbol



IEC logic symbol

■ ABSOLUTE MAXIMUM RATINGS (Unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ 7	V
Input Clamp Current	I_{IK}	±20	mA
Output Clamp Current	I_{OK}	±20	mA
Output Current	I_{OUT}	±35	mA
V_{CC} or GND Current	I_{CC}	±70	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	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2		6	V
Input Voltage	V_{IN}		0		V_{CC}	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input Rise or Fall Times	t_R, t_F	$V_{CC}=2V$			1000	ns
		$V_{CC}=4.5V$			500	ns
		$V_{CC}=6V$			400	ns
Operating Temperature	T_A		-40		+125	°C

■ STATIC CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A=25^{\circ}C$			$T_A=-40\sim+125^{\circ}C$			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V_{IH}	$V_{CC}=2V$	1.5			1.5			V
		$V_{CC}=4.5V$	3.15			3.15			V
		$V_{CC}=6V$	4.2			4.2			V
Low-Level Input Voltage	V_{IL}	$V_{CC}=2V$			0.5			0.5	V
		$V_{CC}=4.5V$			1.35			1.35	V
		$V_{CC}=6V$			1.8			1.8	V
High-Level Output Voltage	V_{OH}	$V_{CC}=2V, I_{OH}=-20\mu A$	1.9	1.998		1.9			V
		$V_{CC}=4.5V, I_{OH}=-20\mu A$	4.4	4.499		4.4			V
		$V_{CC}=6V, I_{OH}=-20\mu A$	5.9	5.999		5.9			V
		$V_{CC}=4.5V, I_{OH}=-6mA$	3.98	4.3		3.7			V
		$V_{CC}=6V, I_{OH}=-7.8mA$	5.48	5.8		5.2			V
Low-Level Output Voltage	V_{OL}	$V_{CC}=2V, I_{OL}=20\mu A$		0.002	0.1			0.1	V
		$V_{CC}=4.5V, I_{OL}=20\mu A$		0.001	0.1			0.1	V
		$V_{CC}=6V, I_{OL}=20\mu A$		0.001	0.1			0.1	V
		$V_{CC}=4.5V, I_{OL}=6mA$		0.17	0.26			0.4	V
		$V_{CC}=6V, I_{OL}=7.8mA$		0.15	0.26			0.4	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=6V, V_{IN}=V_{CC}$ or 0			±100			±1000	nA
Output OFF-State Current	I_{OZ}	$V_{CC}=6V, V_{OUT}=V_{CC}$ or 0, $V_{IN}=V_{IH}$ or V_{IL}			±0.5			±10	μA
Quiescent Supply Current	I_Q	$V_{CC}=6V, V_{IN}=V_{CC}$ or 0, $I_{OUT}=0$			8			160	μA

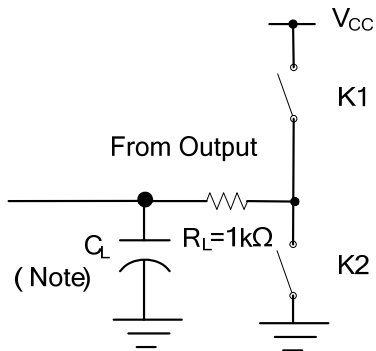
■ DYNAMIC CHARACTERISTICS (Input: t_R , $t_F=6ns$, unless otherwise specified)

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 _{PLH} /t _{PHL}	V _{CC} =2V, C _L =50pF		30	115	1		145	ns
		V _{CC} =2V, C _L =150pF		56	165	1		245	ns
		V _{CC} =4.5V, C _L =50pF		17	23	1		34	ns
		V _{CC} =4.5V, C _L =150pF		25	33	1		49	ns
		V _{CC} =6V, C _L =50pF		11	20	1		25	ns
		V _{CC} =6V, C _L =150pF		15	28	1		42	ns
3-state output enable time n \overline{OE} to nYn	t _{PZH} /t _{PZL}	V _{CC} =2V, C _L =50pF		30	150	1		190	ns
		V _{CC} =2V, C _L =150pF		100	200	1		300	ns
		V _{CC} =4.5V, C _L =50pF		15	30	1		45	ns
		V _{CC} =4.5V, C _L =150pF		20	40	1		60	ns
		V _{CC} =6V, C _L =50pF		10	26	1		32	ns
		V _{CC} =6V, C _L =150pF		17	34	1		51	ns
3-state output disable time n \overline{OE} to nYn	t _{PHZ} /t _{PLZ}	V _{CC} =2V, C _L =50pF		26	150	1		190	ns
		V _{CC} =4.5V, C _L =50pF		17	30	1		45	ns
		V _{CC} =6V, C _L =50pF		14	26	1		32	ns

■ OPERATING CHARACTERISTICS

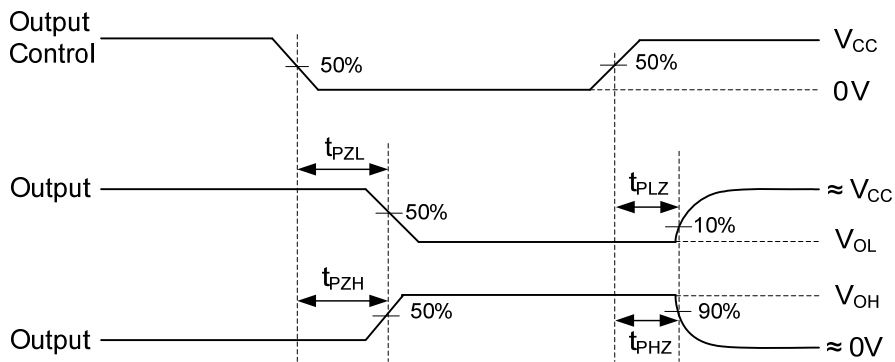
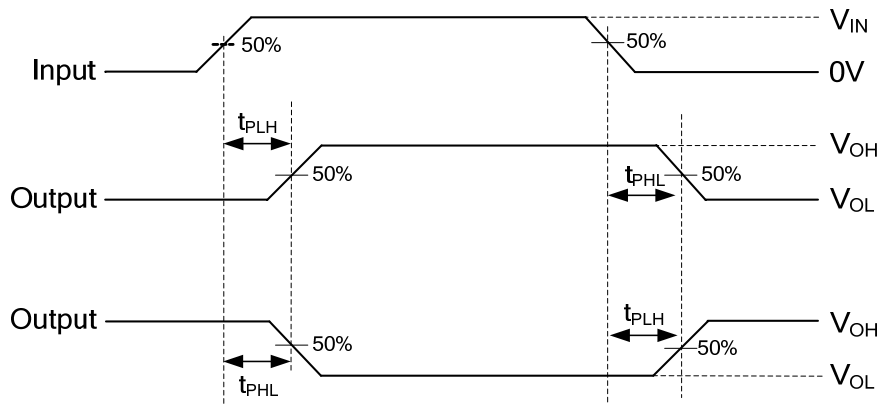
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _{IN}	V _{CC} =2V~6V		3	10	pF
Power Dissipation Capacitance	C _{PD}	No load		35		pF

■ TEST CIRCUIT AND WAVEFORMS

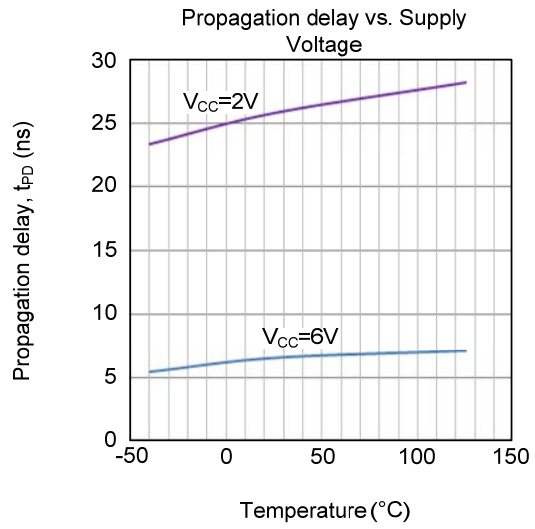
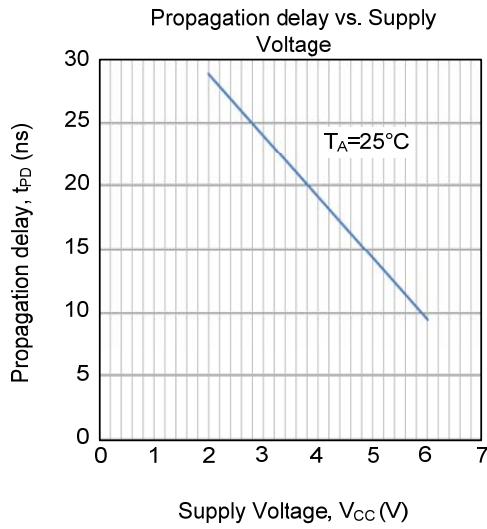


TEST	K1	K2
t_{PLH}/t_{PHL}	Open	Open
t_{PHZ}/t_{PZH}	Open	Close
t_{PLZ}/t_{PZL}	Close	Open

Note: C_L includes probe and jig capacitance.



■ TYPICAL CHARACTERISTICS



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.