



U74HCT244

CMOS IC

OCTAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS

DESCRIPTION

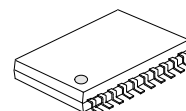
The **UTC U74HCT244** is a octal buffers and line drivers with 3-state outputs.

The **UTC U74HCT244** devices are organized as two 4-bit buffers or 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

* Operate from 4.5V to 5.5V

* Green & Pb Free



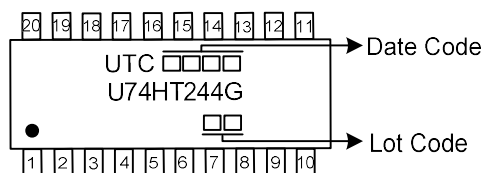
TSSOP-20U

ORDERING INFORMATION

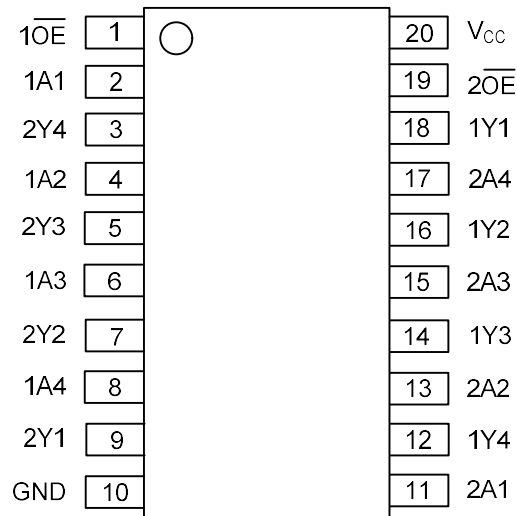
Ordering Number	Package	Packing
U74HCT244G-ULA-R	TSSOP-20U	Tape Reel

U74HCT244G-ULA-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) ULA: TSSOP-20U (3) G: Halogen Free and Lead Free
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MARKING



PIN CONFIGURATION

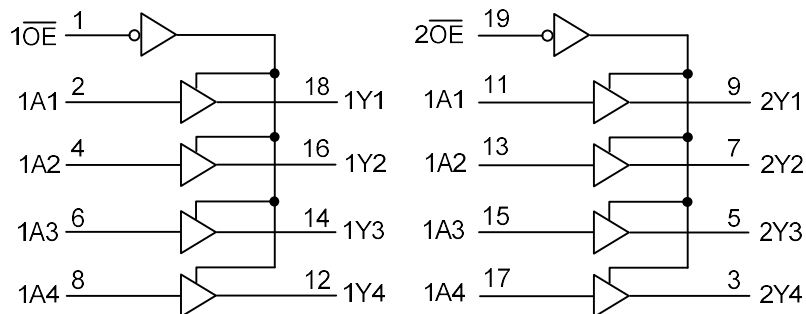


FUNCTION TABLE (each gate)

INPUT		OUTPUT
$\overline{OE}$	A	Y
L	H	H
L	L	L
H	X	Z

Note: H: HIGH voltage level; L: LOW voltage level; X: Don't Care.

LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified) (Note 1、2)

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V _{CC}		-0.5 ~ 7	V
V _{CC} or GND Current	I _{CC}		±70	mA
Output Current	I _{OUT}	V _{OUT} = 0 to V _{CC}	±35	mA
Input Clamp Current	I _{IK}	V _{IN} < 0 or V _{IN} > V _{CC}	±20	mA
Output Clamp Current	I _{OK}	V _{OUT} < 0 or V _{OUT} > V _{CC}	±20	mA
Storage Temperature	T _{STG}		-65 ~ + 150	°C

Notes: 1. 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.

2. It's guarantee by design, this parameter is not production tested.

■ RECOMMENDED OPERATING CONDITIONS (NOTE)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	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				500	ns/V
Operating Temperature	T _A		-40		+125	°C

Note: It's guarantee by design, this parameter is not production tested.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	135	°C/W

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V _{IH}	V _{CC} =4.5V	2.0			2.0			V
		V _{CC} =5.5V	2.0			2.0			V
Low-Level Input Voltage	V _{IL}	V _{CC} =4.5V			0.8			0.8	V
		V _{CC} =5.5V			0.8			0.8	V
High-Level Output Voltage	V _{OH}	V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OH} =-20μA	4.4			4.4			V
		V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OH} =-6mA	3.98			3.7			V
Output Voltage Low-Level	V _{OL}	V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OL} =20μA			0.1			0.1	V
		V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OL} =6mA			0.26			0.4	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =5.5V, V _{IN} = V _{CC} or 0			±100			±1000	nA
3-state Output Off-state Current	I _{OZ}	V _{CC} =5.5V, V _{OUT} = V _{CC} or 0, V _I =V _{IH} or V _{IL}			±0.5			±10	μA
Quiescent Supply Current	I _{CC}	V _{CC} =5.5V, V _{IN} =V _{CC} or 0, I _{OUT} =0			8			160	μA
Additional Quiescent Device Current Per Input Pin	ΔI _{CC}	V _{CC} =5.5V, One input at 0.5V or 2.4V, Other inputs at 0 or V _{CC}			2.4			3	mA

Note: It's guarantee by design, this parameter is not production tested.

■ SWITCHING CHARACTERISTICS (C_L=50pF or 150pF, unless otherwise specified)

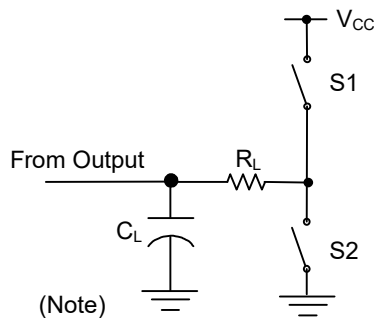
PARAMETER	SYMBOL	TEST CONDITIONS	TA=25°C			TA=-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay From Input (nAn) to Output (nYn)	t _{PLH} /t _{PHL}	C _L =50pF	V _{CC} =4.5V		9	28		42	ns
			V _{CC} =5.5V		7	25		38	ns
		C _L =150pF	V _{CC} =4.5V		12	45		68	ns
			V _{CC} =5.5V		10	40		61	ns
Propagation Delay From Input n $\overline{\text{OE}}$ to Output (nYn)	t _{PZL} /t _{PZH}	C _L =50pF	V _{CC} =4.5V		12	35		53	ns
			V _{CC} =5.5V		10	32		48	ns
		C _L =150pF	V _{CC} =4.5V		19	52		79	ns
			V _{CC} =5.5V		16	47		71	ns
Propagation Delay From Input n $\overline{\text{OE}}$ to Output (nYn)	t _{PLZ} /t _{PHZ}	C _L =50pF	V _{CC} =4.5V		9	35		53	ns
			V _{CC} =5.5V		8	32		48	ns
Propagation delay from Input (nYn)	t _t	C _L =50pF	V _{CC} =4.5V		7	12		18	ns
			V _{CC} =5.5V		6	11		16	ns
		C _L =150pF	V _{CC} =4.5V		12	42		63	ns
			V _{CC} =5.5V		10	38		57	ns

Note: It's guarantee by design, this parameter is not production tested.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _i	V _{CC} =4.5V~5.5V			10	pF
Power Dissipation Capacitance Per buffer/driver	C _{PD}	No Load		40		pF

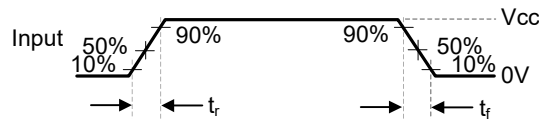
■ TEST CIRCUIT AND WAVEFORMS



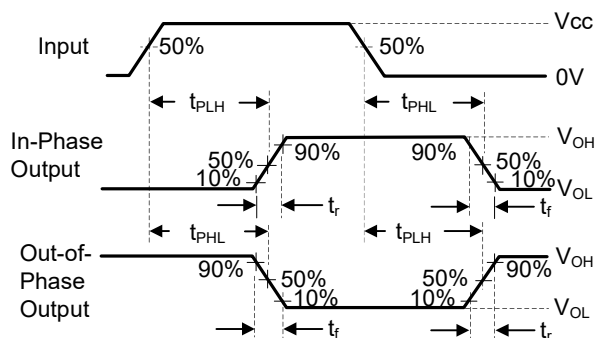
TEST		R _L	C _L	S1	S2
t _{en}	t _{PZH}	1kΩ	50pF or 150pF	Open	Close
	t _{PZL}			Close	Open
t _{dis}	t _{PHZ}	1kΩ	50pF	Open	Close
	t _{PLZ}			Close	Open
t _{PD} or t _t		-	50pF or 150pF	Open	Open

Note: 1. C_L includes probe and jig capacitance.

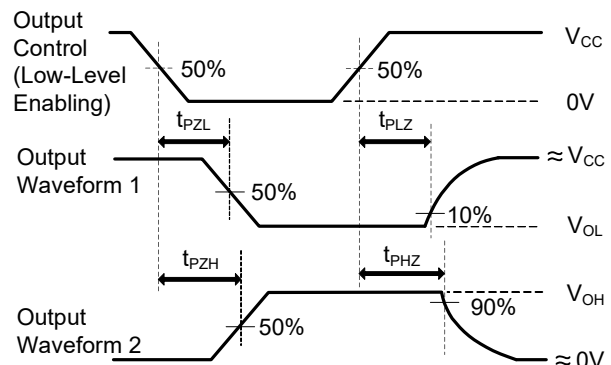
2. P_{RR} ≤ 1MHz, Z_O = 50Ω, t_R ≤ 6ns, t_F ≤ 6ns.



Voltage Waveform



Propagation Delay Times



Enable and Disable Times

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