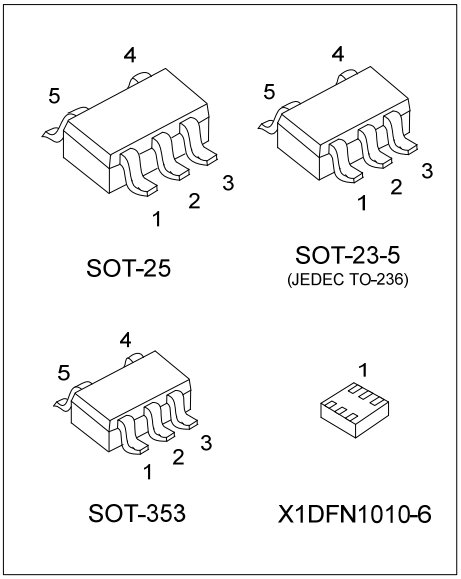
U74LVC1G07

CMOS IC

BUFFER/DRIVER WITH OPEN-DRAIN OUTPUT



■ DESCRIPTION

The **U74LVC1G07** is a single Buffer/Driver with open-drain output. This device has power-down protective circuit, preventing device destruction when it is powered down.

■ FEATURES

* Inputs and open-drain output accept voltage up to 5.5V
* Low power Current: I_{CC}=10μA(Max)
*±24mA output drive(V_{CC}=3.3V)
* Power down protection

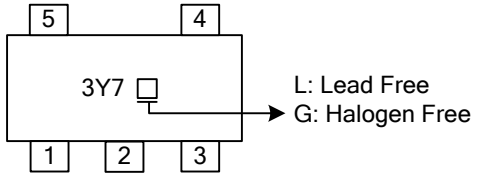
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC1G07L-AE5-R	U74LVC1G07G-AE5-R	SOT-23-5	Tape Reel
U74LVC1G07L-AF5-R	U74LVC1G07G-AF5-R	SOT-25	Tape Reel
U74LVC1G07L-AL5-R	U74LVC1G07G-AL5-R	SOT-353	Tape Reel
U74LVC1G07L-K06-1010X1-R	U74LVC1G07G-K06-1010X1-R	X1DFN1010-6	Tape Reel

U74LVC1G07G-AE5-R
(1)Packing Type
(2)Package Type
(3)Green Package

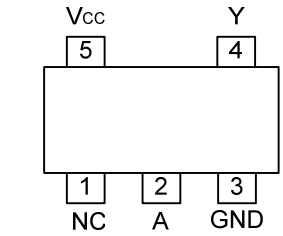
(1) R: Tape Reel
(2) AE5: SOT-23-5, AF5: SOT-25, AL5: SOT-353
K06-1010X1: X1DFN1010-6
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

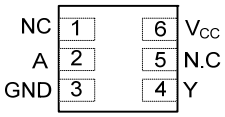
SOT-23-5 / SOT-25 / SOT-353	X1DFN1010-6
	

Copyright © 2022 Unisonic Technologies Co., Ltd

■ PIN CONFIGURATION



SOT-23-5 / SOT-25 / SOT-353

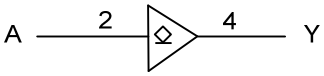


X1DFN1010-6
(TOP VIEW)

■ FUNCTION TABLE (each gate)

INPUT(A)	OUTPUT(Y)
H	Z
L	L

■ LOGIC DIAGRAM (positive logic)



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

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ 6.5	V
Input Voltage	V_{IN}		-0.5 ~ 6.5	V
Output Voltage	V_{OUT}	Active	-0.5 ~ 6.5	V
		Power-Down	-0.5 ~ 6.5	V
Continuous V_{CC} or GND Current	I_{CC}		±100	mA
Continuous Output Current	I_{OUT}		±50	mA
Input Clamp Current	I_{IK}	V_{IN}<0	-50	mA
Output Clamp Current	I_{OK}	V_{OUT}<0	-50	mA
Storage Temperature Range	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}	Operating	1.65		5.5	V
		Data retention only	1.5			V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}		0		5.5	V
Operating Temperature	T_A		-40		+125	°C

■ STATIC CHARACTERISTICS (T_A=25°C, 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} =1.65V~1.95V	0.65× V_{CC}			0.65× V_{CC}			V
		V_{CC} =2.3V~2.7V	1.7			1.7			V
		V_{CC} =3.0V~3.6V	2			2			V
		V_{CC} =4.5V~5.5V	0.7× V_{CC}			0.7× V_{CC}			V
Low-Level Input Voltage	V_{IL}	V_{CC} =1.65V~1.95V			0.35× V_{CC}			0.35× V_{CC}	V
		V_{CC} =2.3V~2.7V			0.7			0.7	V
		V_{CC} =3.0V~3.6V			0.8			0.8	V
		V_{CC} =4.5V~5.5V			0.3× V_{CC}			0.3× V_{CC}	V
Low-Level Output Voltage	V_{OL}	V_{CC} =1.65V ~ 5.5V, I_{OL}=100μA			0.1			0.1	V
		V_{CC} =1.65V, I_{OL}=4mA			0.45			0.7	V
		V_{CC} =2.3V, I_{OL}=8mA			0.3			0.45	V
		V_{CC} =3.0V, I_{OL}=16mA			0.4			0.6	V
		V_{CC} =3.0V, I_{OL}=24mA			0.55			0.8	V
		V_{CC} =4.5V, I_{OL}=32mA			0.55			0.8	V

■ STATIC CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	T_A=25°C			T_A=-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Input Leakage Current	$I_{I(LEAK)}$	V_{CC} =0V~5.5V, V_{IN}=V_{CC} or GND			±5			±5	μA
Power OFF Leakage Current	I_{OFF}	V_{CC} =0V, V_{IN} or V_{OUT}=5.5V			±10			±10	μA
OFF-state output current	I_{OZ}	V_{CC}=5.5V, V_{IN}=V_{IH} or V_{IL}, V_{OUT}=V_{CC} or GND		±0.1	±10			±10	μA
Quiescent Supply Current	I_Q	V_{CC}=1.65V~5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0			10			10	μA
Additional Quiescent Supply Current	ΔI_Q	V_{CC} =3V~5.5V, One input at V_{CC}-0.6V, other inputs at V_{CC} or GND			500			500	μA

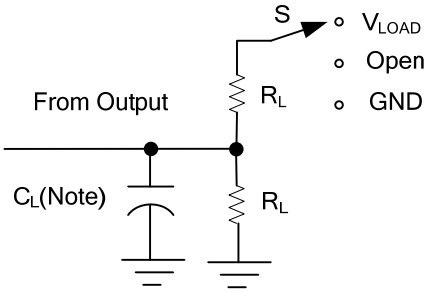
■ DYNAMIC CHARACTERISTICS (T_A=25°C, unless otherwise specified)

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_{PLZ}/t_{PZL}	V_{CC}=1.8V±0.15V, C_L=30pF, R_L=1KΩ	1		13.6	1		14	ns
		V_{CC}=2.5V±0.2V,C_L=30pF, R_L=500Ω	0.5		9.8	0.5		10	ns
		V_{CC}=3.3V±0.3V,C_L= 50 pF, R_L=500Ω	1		7.5	1		8	ns
		V_{CC}= 5V±0.5V, C_L= 50 pF, R_L=500Ω	0.5		6.6	0.5		7	ns

■ OPERATING CHARACTERISTICS (f=10MHz, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C_{IN}	V_{CC} =3.3V, V_{IN}=V_{CC} or GND		4		pF
Output Capacitance	C_{OUT}	V_{CC} =3.3V, V_{OUT}=V_{CC} or GND		5		pF
Power Dissipation Capacitance	C_{PD}	V_{CC}=1.8V	3	3		pF
		V_{CC}=2.5V	3	3		pF
		V_{CC}=3.3V	3	4		pF
		V_{CC}=5V	3	6		pF

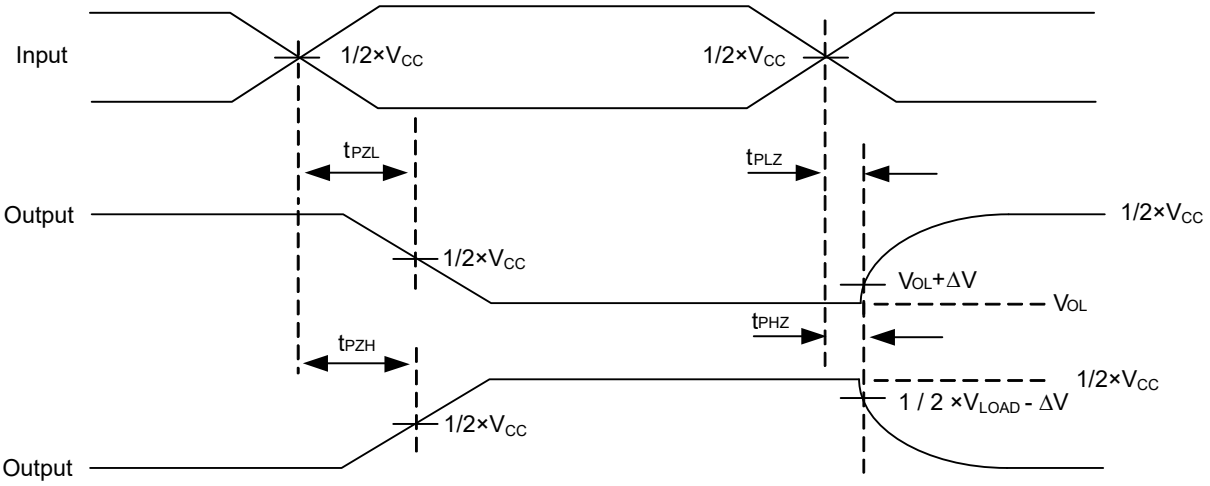
■ TEST CIRCUIT AND WAVEFORMS



TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{LOAD}

Note: C_L includes probe and jig capacitance.

V_{CC}	V_{IN}	t_R / t_F	V_M	V_{LOAD}	C_L	R_L	$V_\triangle$
1.8V±0.15V	V_{CC}	≤2ns	$V_{CC}/2$	$2\times V_{CC}$	30pF	1KΩ	0.15V
2.5V±0.2V	V_{CC}	≤2ns	$V_{CC}/2$	$2\times V_{CC}$	30pF	500Ω	0.15V
3.3V±0.3V	3 V	≤2.5ns	1.5V	6V	50pF	500Ω	0.3V
5V±0.5V	V_{CC}	≤2.5ns	$V_{CC}/2$	$2\times V_{CC}$	50pF	500Ω	0.3V



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.