



U74LVC1G07

CMOS IC

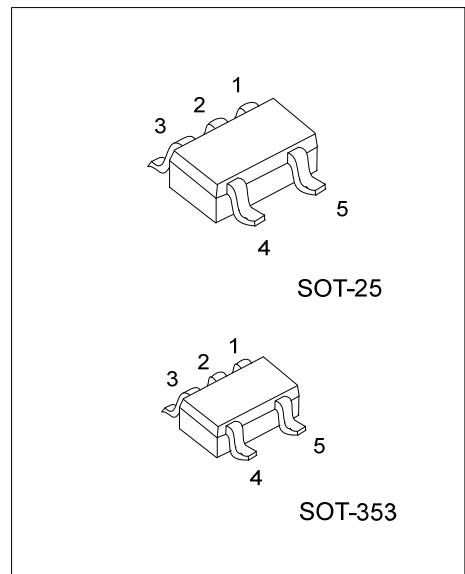
BUFFER/DRIVER WITH OPEN-DRAIN OUTPUT

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 dissipation: $I_{CC}=10\mu A(\text{Max})$
- * $\pm 24\text{mA}$ output drive($V_{CC}=3.3\text{V}$)
- * Power down protection



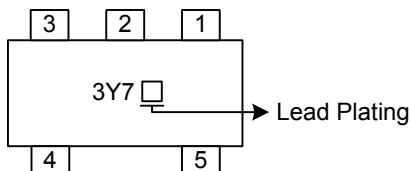
*Pb-free plating product number:
U74LVC1G07L

ORDERING INFORMATION

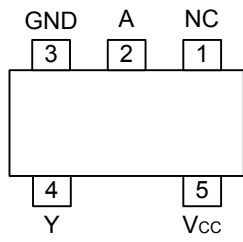
Ordering Number		Package	Packing
Normal	Lead Free Plating		
U74LVC1G07-AF5-R	U74LVC1G07L-AF5-R	SOT-25	Tape Reel
U74LVC1G07-AL5-R	U74LVC1G07L-AL5-R	SOT-353	Tape Reel

<p>U74LVC1G07L-AF5-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) R: Tape Reel (2) AF5: SOT-25, AL5: SOT-353 (3) L: Lead Free Plating, Blank: Pb/Sn</p>
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MARKING



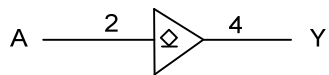
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)(Note 1)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	-0.5~6.5	V
Input Voltage	V _{IN}	-0.5~6.5	V
Output Voltage	Active	V _{OUT}	V
	Power-Down		
Input Clamp Current(V _{IN} <0)	I _{IK}	-50	mA
Output Clamp Current(V _{OUT} <0)	I _{OK}	-50	mA
Output Current	I _{OUT}	±50	mA
V _{CC} or GND Current	I _{CC}	±100	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}	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		85	°C

■ STATIC CHARACTERISTICS (T_A=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V _{IH}	V _{CC} =1.65V~1.95V	0.65*V _{CC}			V
		V _{CC} =2.3V~2.7V	1.7			V
		V _{CC} =3.0V~3.6V	2			V
		V _{CC} =4.5V~5.5V	0.7* V _{CC}			V
Low-Level Input Voltage	V _{IL}	V _{CC} =1.65V~1.95V			0.35* V _{CC}	V
		V _{CC} =2.3V~2.7V			0.7	V
		V _{CC} =3.0V~3.6V			0.8	V
		V _{CC} =4.5V~5.5V			0.3* V _{CC}	V
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65V ~ 5.5V, I _{OL} =100μA			0.1	V
		V _{CC} =1.65V, I _{OL} =4mA			0.45	V
		V _{CC} =2.3V, I _{OL} =8mA			0.3	V
		V _{CC} =3.0V, I _{OL} =16mA			0.4	V
		V _{CC} =3.0V, I _{OL} =24mA			0.55	V
V _{CC} =4.5V, I _{OL} =32mA			0.55	V		
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0V ~ 5.5V, V _{IN} =V _{CC} or GND			±5	μA
Power OFF Leakage Current	I _{OFF}	V _{CC} =0V, V _{IN} or V _{CC} =5.5V			±10	μA
Quiescent Supply Current	I _Q	V _{CC} =1.65V ~ 5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0			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	μA
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

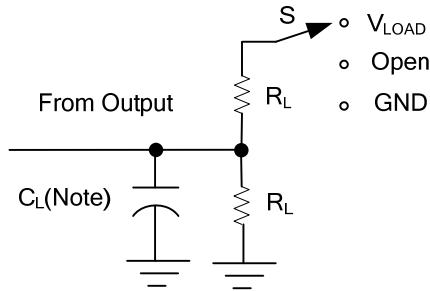
■ DYNAMIC CHARACTERISTICS (T_A=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (A) to output(Y)	t _{PLH} /t _{PHL}	V _{CC} =1.8V±0.15V, C _L =30 or 50 pF	2.4		8.3	ns
		V _{CC} =2.5V±0.2V, C _L =30 or 50 pF	1		5.5	ns
		V _{CC} =3.3V±0.3V, C _L =30 or 50 pF	1.5		4.2	ns
		V _{CC} =5V±0.5V, C _L =30 or 50 pF	1		3.5	ns

■ OPERATING CHARACTERISTICS (T_A=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C _{pd}	V _{CC} =1.8V, f=10MHz	3	3		pF
		V _{CC} =2.5V, f=10MHz	3	3		pF
		V _{CC} =3.3V, f=10MHz	3	4		pF
		V _{CC} =5V, f=10MHz	3	6		pF

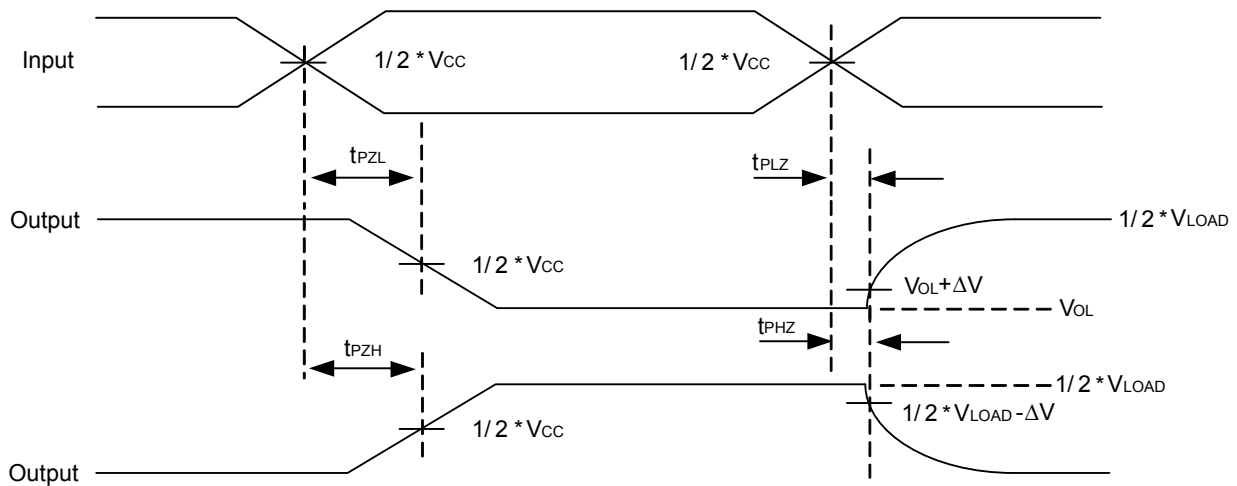
TEST CIRCUIT AND WAVEFORMS



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_{Δ}
$1.8V \pm 0.15V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	$2 * V_{CC}$	30pF	1K Ω	0.15V
$2.5V \pm 0.2V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	$2 * V_{CC}$	30pF	500 Ω	0.15V
$3.3V \pm 0.3V$	3 V	$\leq 2.5ns$	1.5V	6V	50pF	500 Ω	0.3V
$5V \pm 0.5V$	V_{CC}	$\leq 2.5ns$	$V_{CC}/2$	$2 * V_{CC}$	50pF	500 Ω	0.3V



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