TECH PUBLIC
台舟电子

74LVC3G17SS8-TP

TRIPLE SCHMITT-TRIGGER BUFFER

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Features

- Operate from 1.65V to 5.5V
- Inputs accept voltages up to 5.5V
- Low Power Consumption, ICC = 10 μA (Max.)
- I_{OFF} supports partial-power-down mode
- ESD Protection Exceeds JESD 22
  -2000-V Human-Body Model (A114-A)
  -200-V Machine Model (A115-A)
  -1000-V Charged-Device Model (C101)
- MSOP-8 Package Available

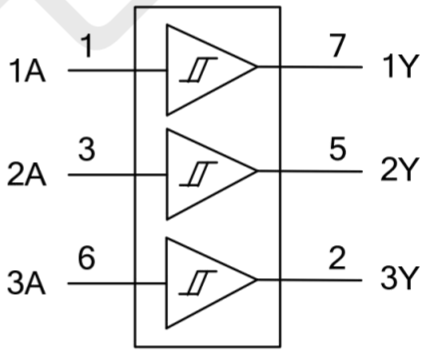
Applications

- AV Receiver
- Audio Dock:Portable
- Blu-ray Player and Home Theater
- Embedded PC
- Personal Digital Assistant(PDA)
- Power:Telecom/Server AC/DC Supply:Single Controller:Analog and Digital

General Description

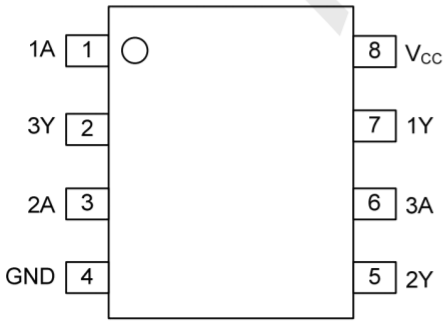
The is designed as three independent buffers with Schmitt-trigger action. it may have different input threshold levels for positive-going (VT+) and negative-going (VT−) signals.

Logic Diagram



Logic symbol

Pin Configuratio



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Function Table

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

Note:H: HIGH voltage level;L: LOW voltage level.

Absolute Maximum Ratings

(Unless otherwise specified)

PARAMETER	SYMBOL	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}	Output in the high or low state	-0.5 ~ +6.5	V
		Output in the power-off state	-0.5 ~ VCC+0.5	V
VCC 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	℃
Junction to Ambient	θ_{JA}		220	℃/W

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

(Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		1.65	--	5.5	V
Input Voltage	V_{IN}		0	--	5.5	V
Output Voltage	V_{OUT}	High or low state	0	--	V_{CC}	V
Operating Temperature (Note)	T_A		-40	--	+125	°C

Electrical Characteristics (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Positive-Going Input Threshold Voltage	V_{T+}	V_{CC}=1.65V		0.79	--	1.16	V
		V_{CC}=2.3V		1.11	--	1.56	V
		V_{CC}=3V		1.5	--	1.87	V
		V_{CC}=4.5V		2.16	--	2.74	V
		V_{CC}=5.5V		2.61	--	3.33	V
Negative-Going Input Threshold Voltage	V_{T-}	V_{CC}=1.65V		0.39	--	0.7	V
		V_{CC}=2.3V		0.58	--	1.1	V
		V_{CC}=3V		0.84	--	1.3	V
		V_{CC}=4.5V		1.41	--	2.0	V
		V_{CC}=5.5V		1.87	--	2.5	V
Hysteresis Voltage (V_{T+}-V_{T-})	$\triangle V_T$	V_{CC}=1.65V		0.3	--	0.62	V
		V_{CC}=2.3V		0.4	--	0.77	V
		V_{CC}=3V		0.4	--	0.87	V
		V_{CC}=4.5V		0.6	--	1.04	V
		V_{CC}=5.5V		0.7	--	1.11	V
High-Level Output Voltage	V_{OH}	V_{CC}=1.65 ~ 5.5V, I_{OH}=-100μA		V_{CC}-0.1	--	--	V
		V_{CC}=1.65V, I_{OH}=-4mA		1.2	--	--	V
		V_{CC}=2.3V, I_{OH}=-8mA		1.9	--	--	V
		V_{CC}=3V	I_{OH}=-16mA	2.4	--		V
			I_{OH}=-24mA	2.3	--	--	V
		V_{CC}=4.5V, I_{OH}=-32mA		3.8	--	--	V
Low-Level Output Voltage	V_{OL}	V_{CC}=1.65 ~ 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}=3V	I_{OL}=16mA	--	--	0.4	V
			I_{OL}=24mA	--	--	0.55	V
		V_{CC}=4.5V, I_{OL}=32mA		--	--	0.55	V
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=0 ~ 5.5V, V_{IN}=5.5V or GND		--	--	±5	μA
Power OFF Leakage Current	I_{OFF}	V_{CC}=0V, V_{IN} or V_{OUT}=5.5V		--	--	±10	μA
Quiescent Supply Current	ICC	VCC=1.65 ~ 5.5V, VIN=5.5V or GND, IOUT=0A		--	--	10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_{CC}	V_{CC}=3 ~ 5.5V, One input at V_{CC}-0.6V, Other inputs at V_{CC} or GND		--	--	500	μA
Input Capacitance	C_I	V_{CC}=3.3V, V_{IN}=V_{CC} or GND		--	4	--	pF

OPERATING CHARACTERISTICS

(f=10MHz, TA =25°C , unless otherwise specified)

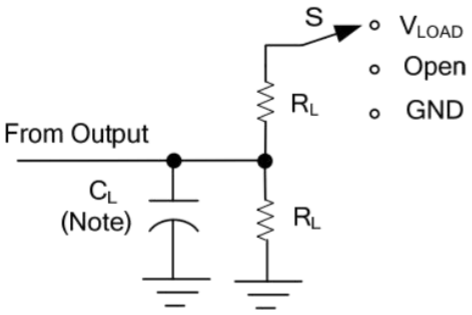
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	V_{CC}=1.8V	--	18	--	pF
		V_{CC}=2.5V	--	19	--	pF
		V_{CC}=3.3V	--	19	--	pF
		V_{CC}=5V	--	22	--	pF

DYNAMIC CHARACTERISTICS

(T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From input (A) to output(Y)	t_{PD}	V_{CC}=1.8±0.15V,C_L=30pF, R_L=1kΩ	4.3	--	9.2	ns
		V_{CC}=2.5±0.2V,C_L=30pF, R_L=500Ω	2	--	6.2	ns
		V_{CC}=3.3±0.3V,C_L=50pF, R_L=500Ω	1.2	--	5.4	ns
		V_{CC}=5±0.5V,C_L=50pF, R_L=500Ω	1	--	4.1	ns

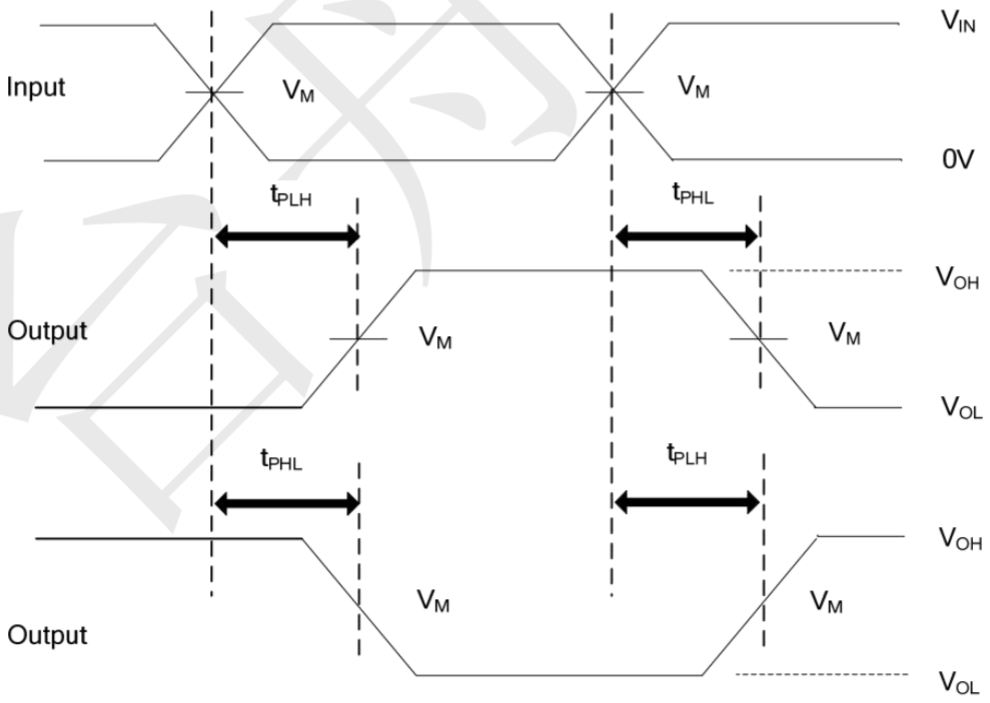
TEST CIRCUIT AND WAVEFORMS



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

Note: C_L includes probe and jig capacitance.

V_{CC}	Inputs		V_M	V_{LOAD}	C_L	R_L	V_Δ
	V_{IN}	t_R, t_F					
1.8V±0.15V	V_{CC}	≤2ns	$V_{CC}/2$	2 x V_{CC}	15pF	1MΩ	0.15V
2.5V±0.2V	V_{CC}	≤2ns	$V_{CC}/2$	2 x V_{CC}	15pF	1MΩ	0.15V
3.3V±0.3V	3V	≤2.5ns	1.5V	6V	15pF	1MΩ	0.3V
5V±0.5V	V_{CC}	≤2.5ns	$V_{CC}/2$	2 x V_{CC}	15pF	1MΩ	0.3V



PROPAGATION DELAY TIMES

Notes: 1. C_L includes probe and jig capacitance.

2. All input pulses are supplied by generators having the following characteristics: PRR ≤10MHz, Z_O = 50Ω.

Package information

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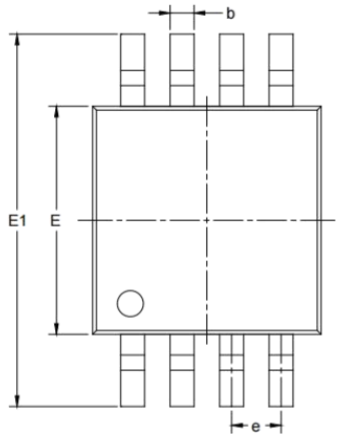
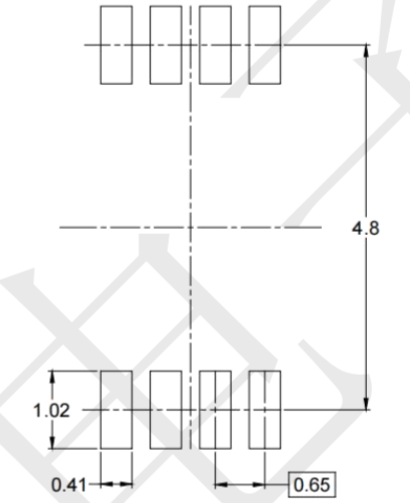
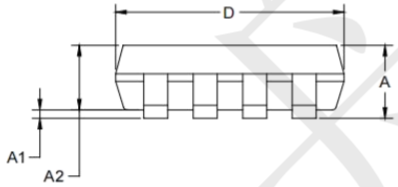
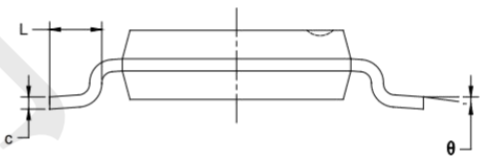




RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.820	1.100	0.032	0.043
A1	0.020	0.150	0.001	0.006
A2	0.750	0.950	0.030	0.037
b	0.250	0.380	0.010	0.015
c	0.090	0.230	0.004	0.009
D	2.900	3.100	0.114	0.122
E	2.900	3.100	0.114	0.122
E1	4.750	5.050	0.187	0.199
e	0.650 BSC		0.026 BSC	
L	0.400	0.800	0.016	0.031
θ	0°	6°	0°	6°