



产品简介

SN74LVC1G14DBVR是一款施密特触发功能的非门集成电路,可实现 $Y=\bar{A}$ 的数学逻辑运算。采用先进CMOS 工艺设计,具有低功耗和高输出驱动能力的工作特点,电源电压 VCC 在 1.65V 和 5.5V 之间芯片均可正常工作。并且 74LVC1G14 具有多种小型封装外形,可广泛应用于高端精密仪器和小型化低功耗的手持设备,以及人工智能等领域。

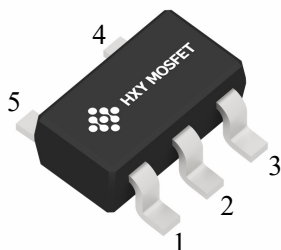
产品特点

- 低输入电流:典型值0.1uA
- 低静态功耗:典型值0.1uA
- 高输出驱动:VCC=4.5V,大于32MA
- 宽工作电压范围:1.65Vto5.5V
- 封装形式:SOT-23-5L/SO-70-5L

产品用途

- 便携式音频接口
- 蓝光播放器和家庭影院
- 数字电视
- 固态硬盘
- 无线耳机,智能手表等
- 智能穿戴设备

封装形式和管脚功能定义



SOT-23-5L/SO-70-5L

名称	管脚	说明
NC	1	空脚
A	2	输入
GND	3	电源地
Y	4	输出
V _{CC}	5	电源正



极限参数

参数	符号	极限值	单位
工作电压	V_{CC}	6.5	V
输入	V_{IN}	$-0.5 \sim 6.5$	V
输出电压 (1)	V_{OUT}	$-0.5 \sim 6.5$	V
单个管脚输出电流	I_{OUT}	25	mA
V_{CC} 或 GND 电流	I_{CC}	50	mA
存储温度	T_S	$-65 \sim 150$	$^{\circ}\text{C}$
引脚焊接温度	T_W	260, 10s	$^{\circ}\text{C}$

注：1、在 $V_{CC}=0V$ 断电状态下，输出所能承受的极限电压，

2、极限参数是指无论在任何条件下都不能超过的极限值。万一超过此极限值，将有可能造成产品劣化等物理性损伤；同时在接近极限参数下，不能保证芯片可以正常工作。

原理逻辑图



真值表

Inputs	Output
A	Y
L	H
H	L

工作条件

项目	符号	测试条件	最小值	典型值	最大值	单位
工作电压	V_{CC}	—	1.65	—	5.5	V
输入高电平电压	V_{IH}	$V_{CC} = 1.65V \sim 1.95V$	$0.65 * V_{CC}$	—	—	V
		$V_{CC} = 2.3V \sim 2.7V$	1.7V	—	—	
		$V_{CC} = 3V \sim 5.5V$	$0.7 * V_{CC}$	—	—	
输入高电平电压	V_{IH}	$V_{CC} = 1.65V \sim 1.95V$	—	—	$0.35 * V_{CC}$	V
		$V_{CC} = 2.3V \sim 2.7V$	—	—	0.7	
		$V_{CC} = 3V \sim 5.5V$	—	—	$0.3 * V_{CC}$	
输入电压	V_I	—	0	—	5.5	V
输出电压	V_O	—	0	—	V_{CC}	V
高电平输出电流	I_{OH}	$V_{CC} = 1.65V$	—	—	-4	mA
		$V_{CC} = 2.3V$	—	—	-8	
		$V_{CC} = 3V$	—	—	-16	
		$V_{CC} = 4.5V$	—	—	-32	
低电平输出电流	I_{OL}	$V_{CC} = 1.65V$	—	—	4	mA
		$V_{CC} = 2.3V$	—	—	8	
		$V_{CC} = 3V$	—	—	16	
		$V_{CC} = 4.5V$	—	—	32	



电学特性

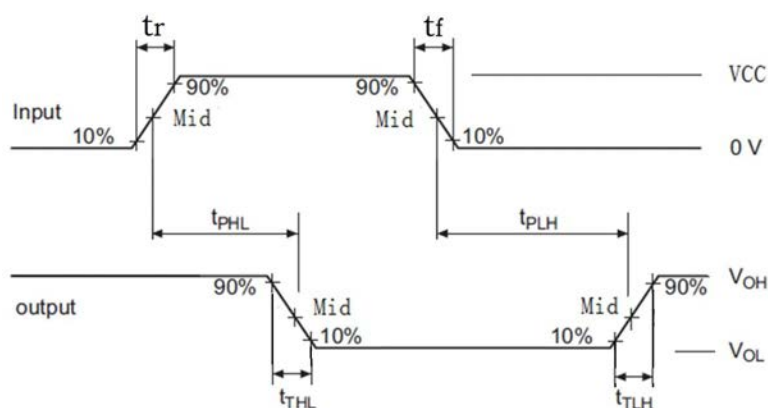
直流电学特性: $T=25^{\circ}\text{C}$

项目	符号		测试条件	V _{CC}	典型值	最大值	单位
上临界电压	V _{T+}		—	1.65V	1	—	V
				2.3V	1.35	—	
				3V	1.7	—	
				4.5V	2.5	—	
				5.5V	3	—	
下临界电压	V _{T-}		—	1.65V	0.5	—	V
				2.3V	0.7	—	
				3V	1.1	—	
				4.5V	1.65	—	
				5.5V	1.9	—	
滞后宽度电压	Δ V _T (V _{T+} - V _{T-})		—	1.65V	0.5	—	V
				2.3V	0.65	—	
				3V	0.6	—	
				4.5V	0.85	—	
				5.5V	1.1	—	
高电平负载电压	V _{OH}		I _{OH} =-100uA	1.65V~5.5V	1.64	—	V
			I _{OH} =-4 mA	1.65V	1.47	—	
			I _{OH} =-8 mA	2.3V	2.15	—	
			I _{OH} =-16 mA	3V	2.73	—	
			I _{OH} =-32 mA	4.5V	4.0	—	
低电平负载电压	V _{OL}		I _{OH} =100uA	1.65V~5.5V	0.01	—	V
			I _{OH} =4 mA	1.65V	0.11	—	
			I _{OH} =8 mA	2.3V	0.11	—	
			I _{OH} =16 mA	3V	0.2	—	
			I _{OH} =32 mA	4.5V	0.35	—	
输入电流	I _I	A	V _I =5.5V 或 GND	0~5.5V	0.01	±5	uA
关断电流	I _{OFF}	V _I	V _I =5.5V	0	0.01	±10	uA
		V _O	V _O =5.5V	0	0.01	±10	
工作电流	I _{CC}		V _I =5.5V， I _O =0	1.65V~5.5V	0.01	10	uA
			V _I =GND ， I _O =0		0.01	10	
工作电流变化值	ΔI _{CC}		A=V _{CC} -0.6V	3V~5.5V	25	—	uA



交流电学特性： $T_a=25^{\circ}\text{C}$ $V_{CC}=5.0\text{V}$, $t_r=t_f\leq 20\text{ns}$ 见测试方法。

项目	符号	测试条件	最小值	典型值	最大值	单位
最大传输延迟时间 A、B to Y	t_{PHL}	$C_L=15\text{pF}$	—	20	—	ns
	t_{PLH}	$C_L=15\text{pF}$	—	20	—	ns



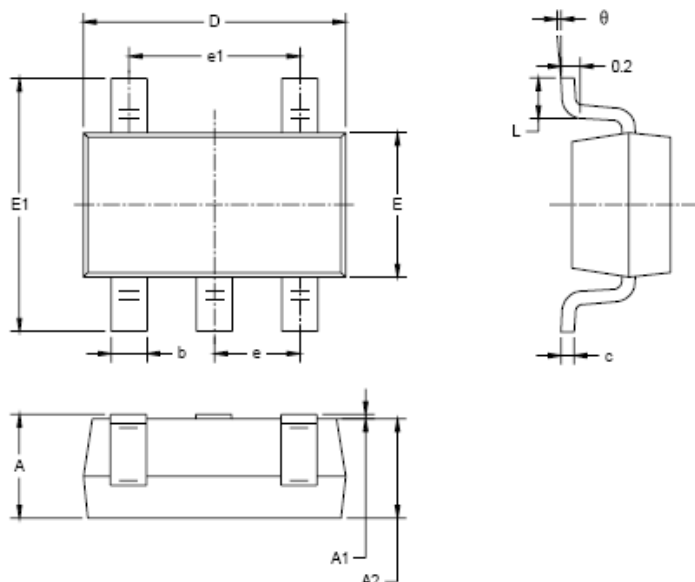
注：1、CL电容为外接贴片电容（0603），靠近输出管脚接入，电容地靠近芯片GND；

2、Input：端口输入电平， $f=500\text{kHz}$, $D=50\%$ ； $t_r=t_f\leq 20\text{ns}$ ；

3、Output：Y端输出测试。



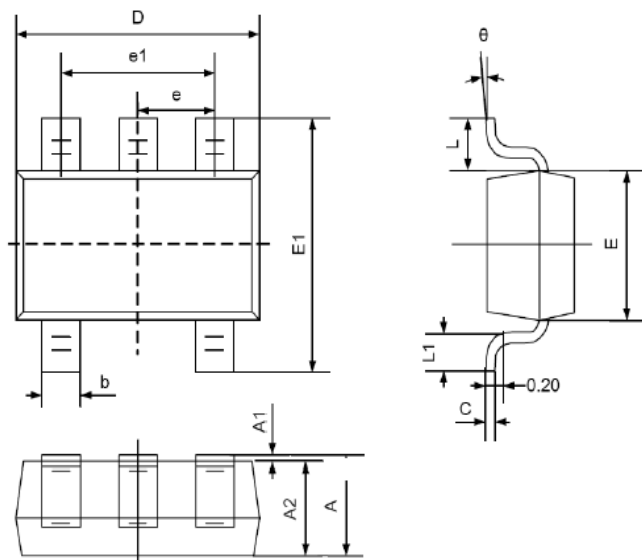
电学特性
S0T-23-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.800	0.012	0.024
θ	0°	8°	0°	8°



S0-70-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
C	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



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