

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

SN74AHC1G14DBVR-MS/SN74AHC1G14DCKR-MS

Product specification

产品简介

SN74AHC1G14DBVR-MS/SN74AHC1G14DCKR-MS 是一款的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 SN74AHC1G14DBVR-MS/SN74AHC1G14DCKR-MS 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。

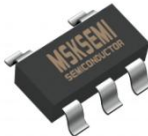
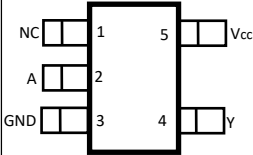
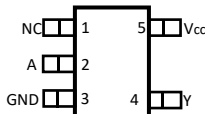
产品特点

- 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: 1.65V to 5.5V
- 封装形式: SOT23-5,SC70-5

产品用途

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

封装形式和管脚功能定义

SOT-23-5	管脚定义	管体标记	SC70-5	管脚定义	管体标记
					

名称	管脚	说明
	SOT23-5/SC70-5	
NC	1	空脚
A	2	输入
GND	3	电源地
Y	4	输出
VCC	5	电源正

注: NC----空脚, 内部无连接线

订单信息

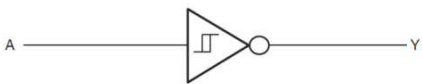
型号	封装	最小包装
SN74AHC1G14DBVR-MS	SOT23-5	3000PCS
SN74AHC1G14DCKR-MS	SC70-5	3000PCS

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}	-0.5~6.5	V
输出电压 (1)	V_{OUT}	-0.5~6.5	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	-65~150	°C
引脚焊接温度	T_W	260, 10s	°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}	$V_{CC} = 1.65V \sim 1.95V$	$0.65 \cdot V_{CC}$	—	—	V
		$V_{CC} = 2.3V \sim 2.7V$	1.7V	—	—	
		$V_{CC} = 3V \sim 5.5V$	$0.7 \cdot V_{CC}$	—	—	
输入高电平电压	V_{IH}	$V_{CC} = 1.65V \sim 1.95V$	—	—	$0.35 \cdot V_{CC}$	V
		$V_{CC} = 2.3V \sim 2.7V$	—	—	0.7	
		$V_{CC} = 3V \sim 5.5V$	—	—	$0.3 \cdot V_{CC}$	
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	

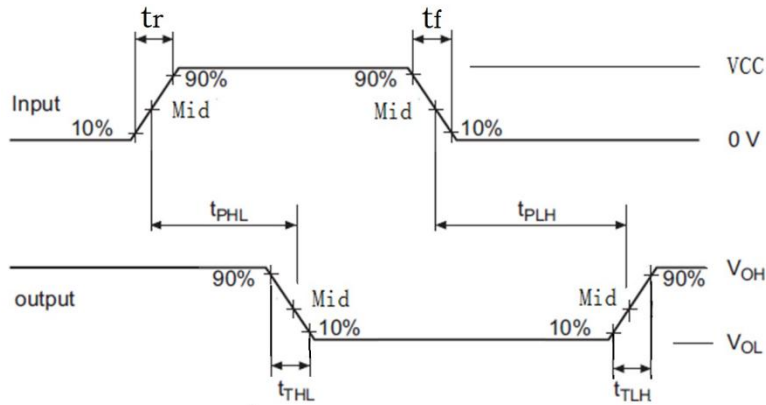
电学特性

直流电学特性: T=25℃

项 目	符号		测试条件	Vcc	典型值	最大值	单位
上临界电压	VT+	—	—	1. 65V	1	—	V
				2. 3V	1. 35	—	
				3V	1. 7	—	
				4. 5V	2. 5	—	
				5. 5V	3	—	
下临界电压	VT-	—	—	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	ΔVT (VT+-VT-)	—	—	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	VoH	IOH =-100uA	1. 65V~5. 5V	1. 64	—	V	
		IOH =-4 mA	1. 65V	1. 47	—		
		IOH =-8 mA	2. 3V	2. 15	—		
		IoH=-16 mA	3V	2. 73	—		
		IOH =-32 mA	4. 5V	4. 0	—		
低电平负载电压	VoL	IoH =100uA	1. 65V~5. 5V	0. 01	—	V	
		IoH =4 mA	1. 65V	0. 11	—		
		IoH =8 mA	2. 3V	0. 11	—		
		IoH =16 mA	3V	0. 2	—		
		IOH =32 mA	4. 5V	0. 35	—		
输入电流	Ii	A	Vr=5. 5V或GND	0~5. 5V	0. 01	±5	uA
关断电流	IoFF	VI	Vi=5. 5V	0	0. 01	±10	uA
		Vo	Vo=5. 5V	0	0. 01	±10	
工作电流	Icc		VI=5. 5V, Io=0	1. 65V~5. 5V	0. 01	10	uA
			VI=GND , Io=0		0. 01	10	
工作电流变化值	ΔIcc		A=Vcc-0. 6V	3V~5. 5V	25	—	uA

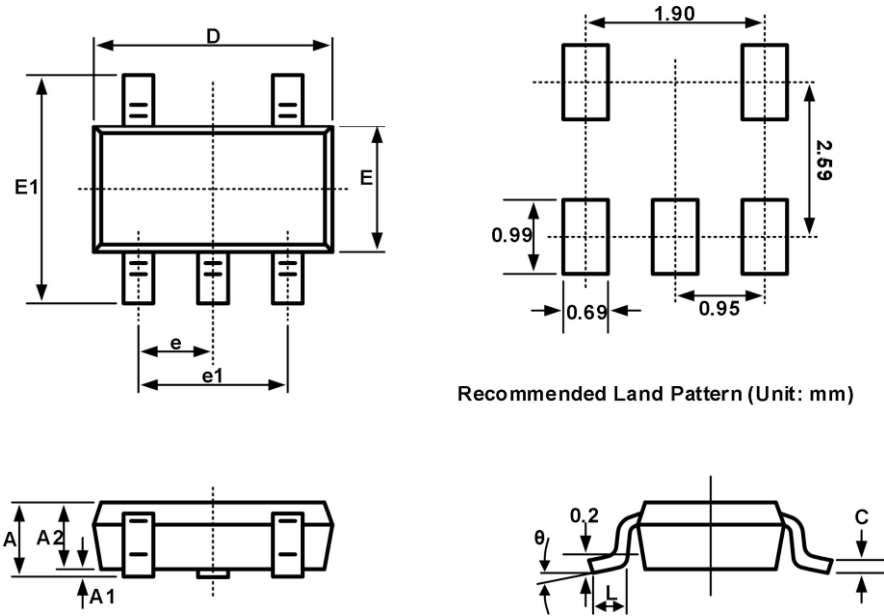
流电学特性：Ta=25℃ Vcc=5.0V, t_u=t_d≤20ns见测试方法。

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=15pF		20		ns
	t _{PLH}	CL=15pF		20		ns



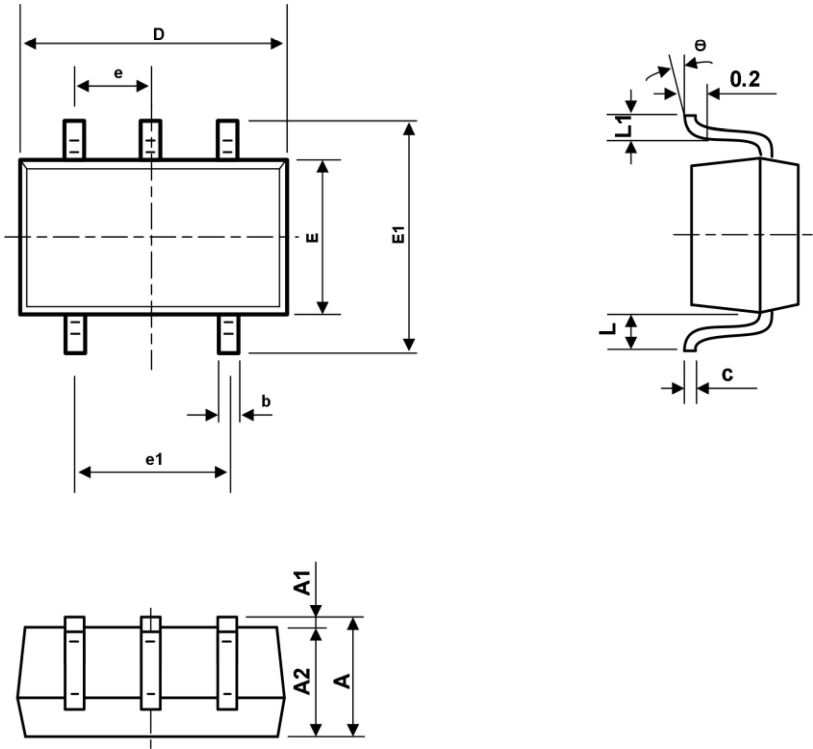
注：1、CL电容为外接贴片电容（0603），靠近输出管脚接入，电容地靠近芯片GND；
2、Input：端口输入电平，f=500kHz, D=50%； $t_r=t_f \leq 20\text{ns}$ ；
3、Output：Y端输出测试。

Package Outline
SOT23-5



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	0.950BSC		0.037BSC	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L1	0.600REF		0.024REF	
θ	0°	8°	0°	8°

Package Outline
SC70-5



symbol	Dimension 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	0.110	0.175	0.004	0.007
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
ø	0°	8°	0°	8°

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