

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

**SN74AHC1G08DBVR-MS/SN74AHC1G08DCKR-MS**

**Product specification**

产品简介

SN74AHC1G08DBVR-MS/SN74AHC1G08DCKR-MS 是一款的 2 输入与门集成电路,可实现  $Y=A \cdot B$  和  $Y=\overline{A+B}$  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 SN74AHC1G08DBVR-MS/SN74AHC1G08DCKR-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。

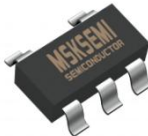
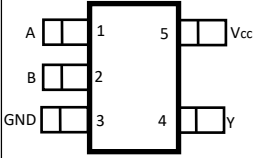
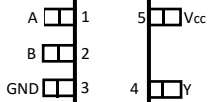
产品特点

- 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
- 高输出驱动: VCC=4.5V,大于 32MA
- 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                                                                                 |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |  |  |  |

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

订单信息

| 型号                 | 封装      | 最小包装    |
|--------------------|---------|---------|
| SN74AHC1G08DBVR-MS | SOT23-5 | 3000PCS |
| SN74AHC1G08DCKR-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      | B | Y      |
| L      | L | L      |
| L      | H | L      |
| H      | L | L      |
| H      | H | H      |

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 |          | $V_{CC} = 1.65V \sim 1.95V$ | —               | —   | $0.35 * V_{CC}$ | 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              |    |

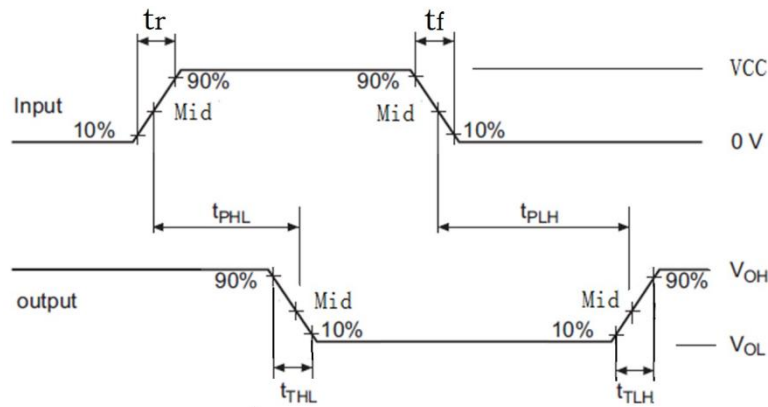
电学特性

直流电学特性：  $T_A=25^{\circ}\text{C}$

| 项目      | 符号                 |    | 测试条件                        | Vcc        | 典型值  | 最大值  | 单位 |
|---------|--------------------|----|-----------------------------|------------|------|------|----|
| 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  | VI =5.5V 或 GND              | 0~5.5V     | 0.01 | ± 5  |    |
|         |                    | B  |                             |            | 0.01 | ± 5  |    |
| 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 | $\Delta\text{ICC}$ |    | A=VCC -0.6V<br>B=VCC 或 GND  | 3V~5.5V    | 25   | -    | uA |
|         |                    |    | B=VCC -0.6V<br>A= VCC 或 GND |            | 25   | -    | uA |

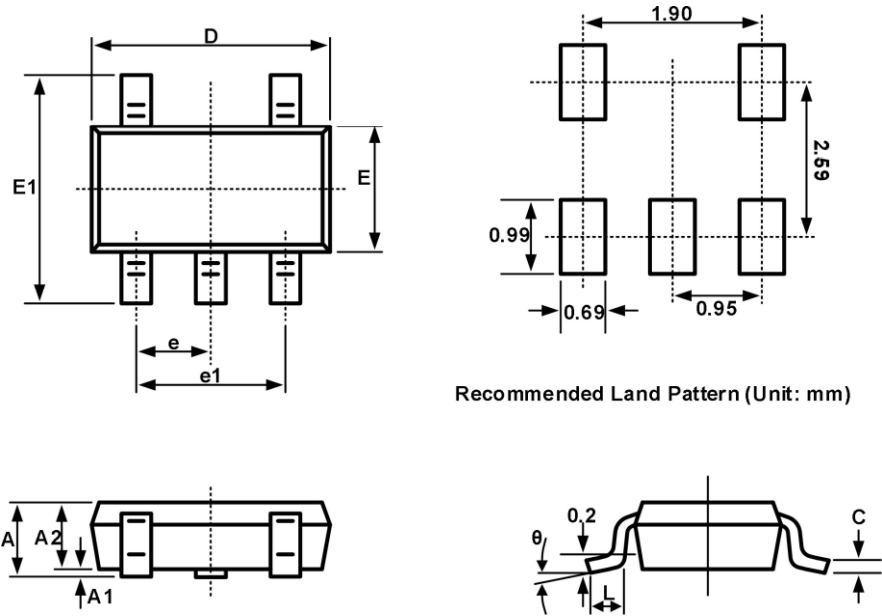
交流电学特性：  $T_A=25^{\circ}\text{C}$  Vcc=5.0V,  $t_r=t_f\leq 20\text{ns}$  见测试方法。

| 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<br>、B to Y | tPHL | CL=15pF | -   | 10  | -   | ns |
|                       | tPLH | CL=15pF | -   | 10  | -   | ns |



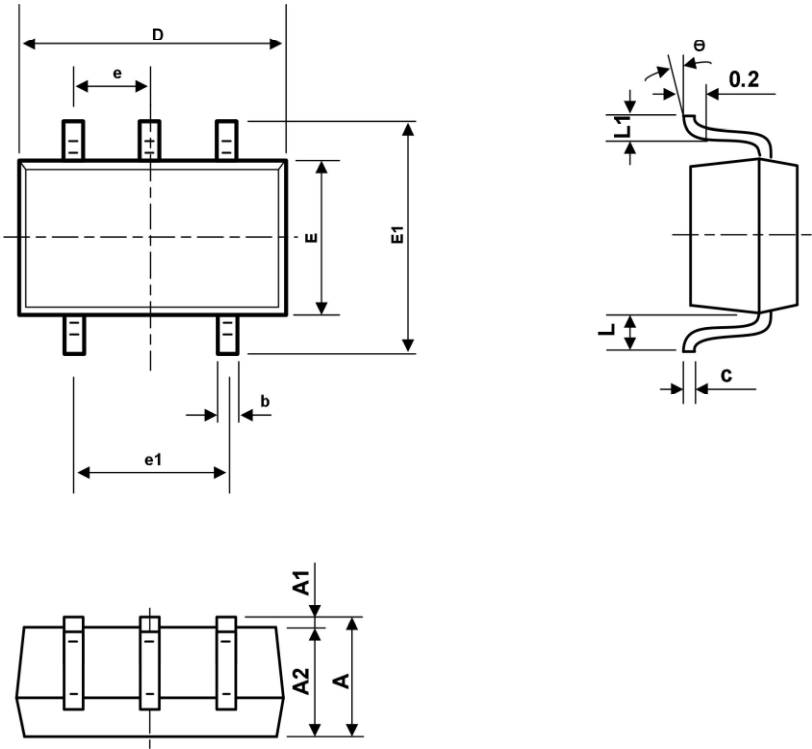
- 注：1、CL电容为外接贴片电容（0603），靠近输出管脚接入，电容地靠近芯片GND；  
2、Input：端口输入电平， $f=500\text{kHz}$ ,  $D=50\%$ ； $t_r=t_f\leq 20\text{ns}$ ；  
3、Output：Y端输出测试。

**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 |
| θ      | 0°                       | 8°    | 0°                   | 8°    |

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