

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

## OCH477H-MS

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Product specification

产品概述

OCH477H-MS 系列是一款带有 H 桥输出驱动器的集成式霍尔传感器，专为单相直流无刷电机应用而设计。该产品采用 BCD 工艺，包括用于磁感应的片上霍尔传感器、用于放大霍尔电压的放大器、用于提供开关迟滞以抑制噪声的比较器、用于下沉和驱动大电流负载的双向驱动器。

该产品功耗低，静态工作电流 1.5mA，远低于市场同类产品，有助于提高风扇的效率和可靠性。

用途

- PC/服务器电源散热风扇
- 充电器/变频器/电磁炉散热风扇
- 鼓风机
- 水泵
- 直流无刷电机

推荐工作条件

工作温度范围  
 $T_{MIN} \leq T_A \leq T_{MAX}$   $-20^{\circ}C \leq T_A \leq 120^{\circ}C$

工作电压范围  $3.5V \leq V_{DD} \leq 24V$

产品特点

- 内置霍尔元件及输出单线圈驱动，降低风扇制造成本
- 低功耗，静态工作电流低至 1.5mA
- 电流驱动能力强，可达 350mA
- 内置电源反接保护电路，节省外挂防反接二极管
- 内置温度补偿电路，优异的温度稳定性
- 抗机械应力强，有效减少磁灵敏度漂移

封装（符合 RoHS）

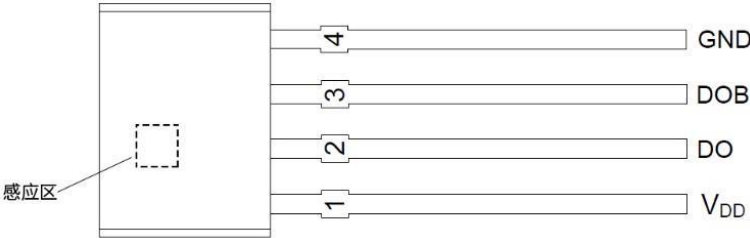
- SIP-4L

包装和订单信息

| 产品编号       | 封装     |                                                                                     | 管体标记                                                                                 | 最小包装 (PCS) |
|------------|--------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------|
| OCH477H-MS | SIP-4L |  |  | 1000       |

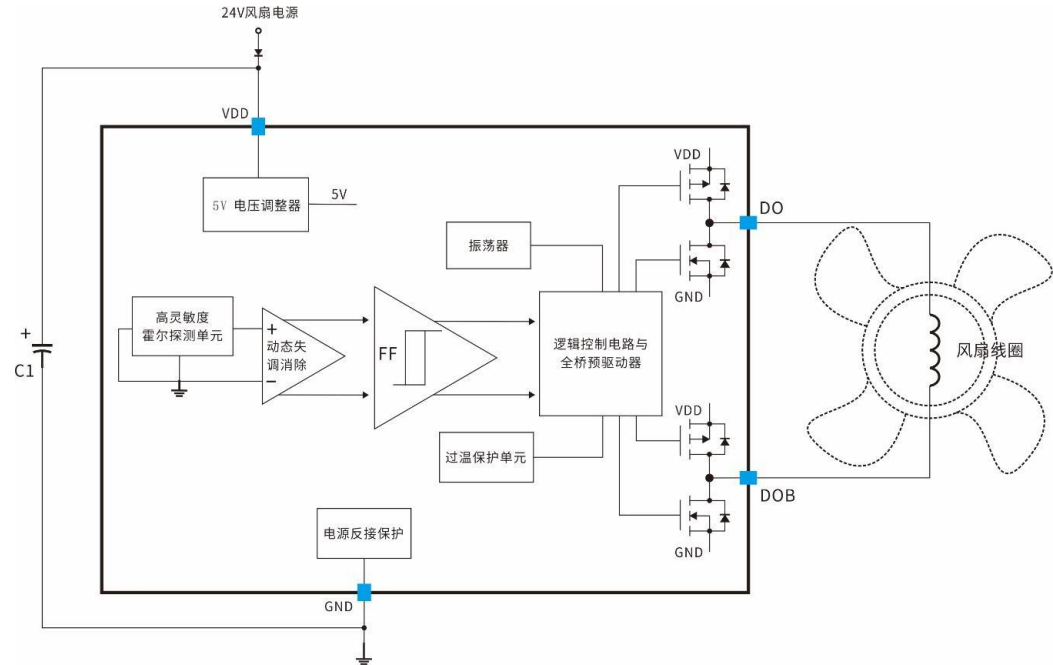
| 工作电流<br>最小值<br>(mA) | 输出持续电流<br>(mA) | 工作点 $B_{op}$<br>最大值<br>(GS) | 释放点 $B_{RP}$<br>最小值<br>(GS) | 磁滞窗口 $B_{HYST}$<br>最大值<br>(GS) | 输出形式   |
|---------------------|----------------|-----------------------------|-----------------------------|--------------------------------|--------|
| 1.5                 | 350            | 35                          | -35                         | 70                             | 双向 H 桥 |

引脚定义



| 引脚号 | 引脚名 | 功能        |
|-----|-----|-----------|
| 1   | VDD | 电源电压      |
| 2   | DO  | H 桥输出 1 脚 |
| 3   | DOB | H 桥输出2 脚  |
| 4   | GND | 接地端       |

功能框图

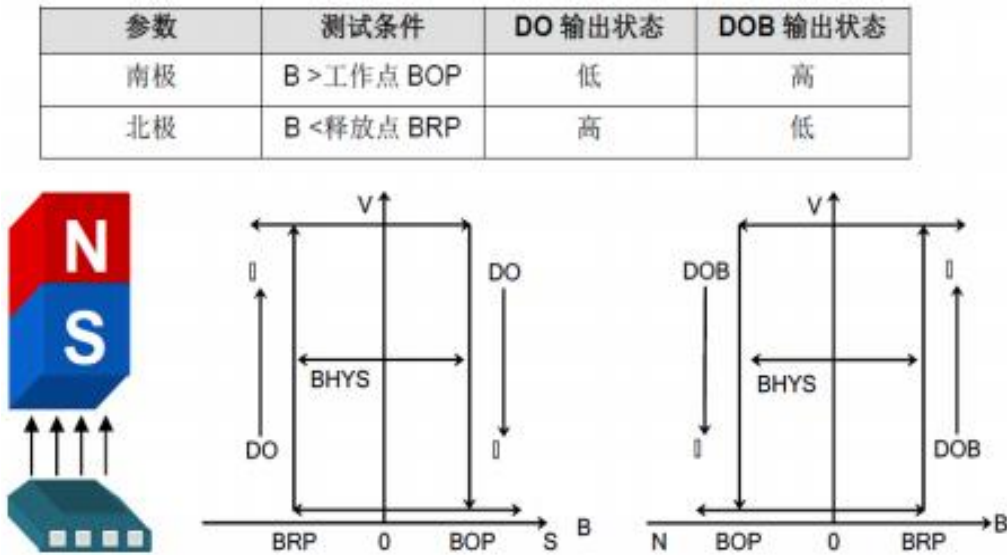


磁性参数的定义

| 符号    | 术语                | 定义                                                                             |
|-------|-------------------|--------------------------------------------------------------------------------|
| BOP   | Operating Point   | 磁通密度作用于器件的品牌标签侧时驱动打开器件输出。<br>( $V_{out} = V_{Dson}$ ) ( $V_{out} = V_{Dson}$ ) |
| BRP   | Release Point     | 磁通密度作用于器件的品牌标签侧时驱动关闭器件输出。<br>( $V_{out} = HIGH$ ) ( $V_{out} = HIGH$ )         |
| BHYST | Hysteresis Window | 磁滞窗口 $B_{OP} - B_{RP}$                                                         |

输出状态和磁场极性

当南极磁场接近 IC 标记面，直到磁场的磁通密度高于工作点（BOP），DO 引脚输出变为低，DOB 引脚输出变为高；当南极磁场远离 IC 标记面和北极磁场接近 IC 标记面，直到磁场的磁通密度小于释放点（BRP），DO 引脚输出变为高，DOB 引脚输出变低。



最大额定值

最大额定值是偶尔应用的极限值，超过该限值，电路可能造成不可逆损坏。长时间暴露在最大额定值条件下虽然功能不一定失效，但可能会影响设备的可靠性。

| 项目         | 符号                  | 值             | 单位    |
|------------|---------------------|---------------|-------|
| 工作电压       | $V_{DD}$            | 30            | V     |
| 反向VDD 极性电压 | $V_{RDD}$           | -30           | V     |
| 磁通密度       | B                   | Unlimited     | Gauss |
| 输出电流       | $I_{O(CONT)}$       | 350           | mA    |
|            | $I_{O(HOLD)}$       | 700           | mA    |
|            | $I_{O(PEAK)}$       | 1000          | mA    |
| 封装功耗       | $P_d$               | 500mW         | mA    |
| 结晶温度       | $T_j$               | 270°C         | Us    |
| 热阻         | Die to atmosphere   | $\theta_{JA}$ | °C/W  |
|            | Die to package case | $\theta_{JC}$ | °C/W  |
| 工作温度       | $T_A$               | -20 ~ +85     | °C    |
| 贮存温度       | $T_s$               | -50 ~ +150    | °C    |

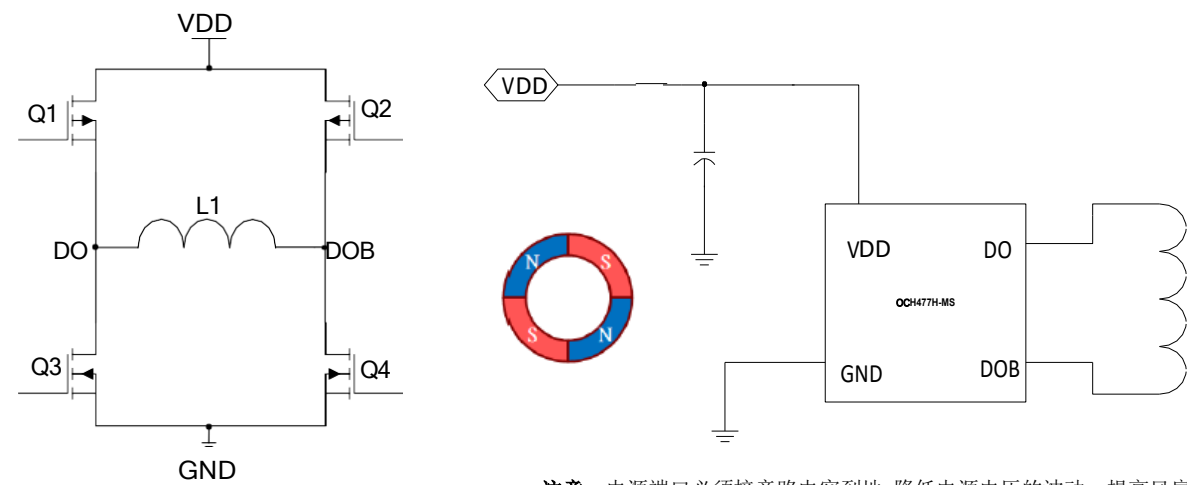
电气和磁特性

除非另有说明，以下参数基于 TA=25℃

| 符号                | 参数             | 测试条件                                                               | 最小                    | 典型                    | 最大              | 单位 | 备注 |
|-------------------|----------------|--------------------------------------------------------------------|-----------------------|-----------------------|-----------------|----|----|
| V <sub>SAT</sub>  | 输出饱和电压 (Sink)  | V <sub>DD</sub> =14V , I <sub>o</sub> =300mA                       | —                     | 0.30                  | 0.45            | V  |    |
|                   | 输出饱和电压 (Drive) |                                                                    | V <sub>DD</sub> - 1.3 | V <sub>DD</sub> - 1.0 | V <sub>DD</sub> | V  |    |
| I <sub>DD</sub>   | 工作电流           | V <sub>DD</sub> =20V, 输出打开                                         | 1.5                   | 2.5                   | 5               | mA |    |
| t <sub>r</sub>    | 输出上升时间         | V <sub>DD</sub> =14V , R <sub>L</sub> =820<br>C <sub>L</sub> =20pF | —                     | 15                    | 20              | uS |    |
| t <sub>f</sub>    | 输出下降时间         |                                                                    |                       | 15                    | 20              | uS |    |
| B <sub>OP</sub>   | 磁性工作点          |                                                                    | 5                     |                       | 35              | GS |    |
| B <sub>RP</sub>   | 磁性释放点          |                                                                    | -35                   |                       | -5              | GS |    |
| B <sub>HYST</sub> | 磁滞窗口           |                                                                    | 30                    |                       | 70              | GS |    |

H 桥输出简介及典型应用图

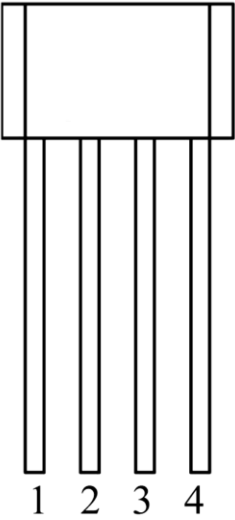
通过开关管控制流过单线圈 L1 上的电流方向来实现单相马达转换。当磁场为 N 极时，Q2 、Q3 关断，Q1 、Q4 开启，线圈 L1 上电流从 DO 流向 DOB。当磁场为 S 极时，Q1 、Q4 关断，Q2 、Q3 开启，线圈 L1 上电流从 DOB 流向 DO。



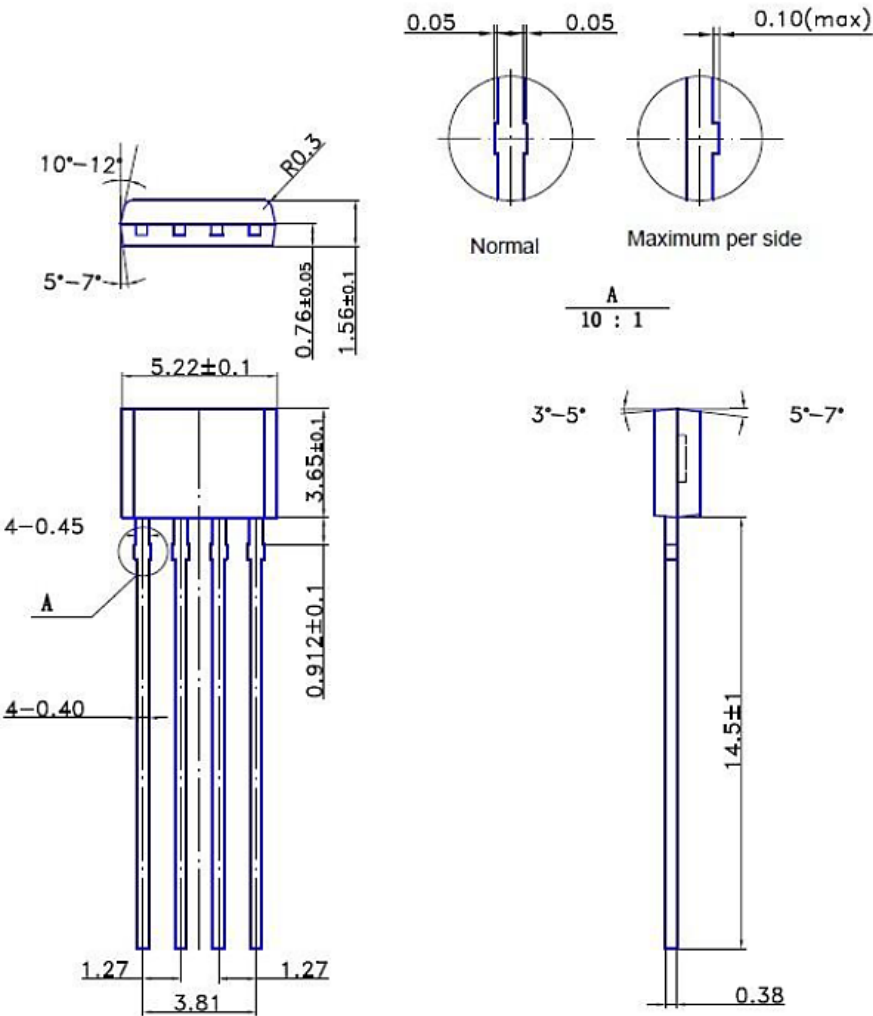
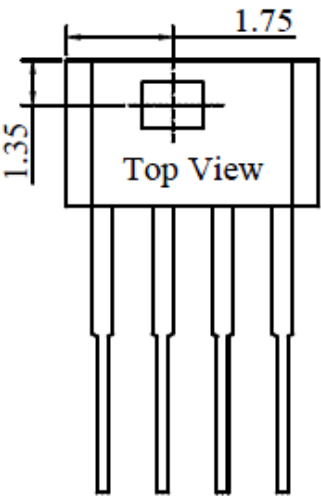
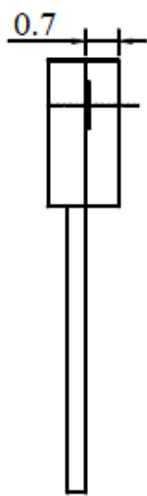
注意：电源端口必须接旁路电容到地, 降低电源电压的波动，提高风扇的稳定性。

封装信息

SIP-4L



Y:Year 0~9  
WW:Weeks 01~52  
X:Internal Code



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