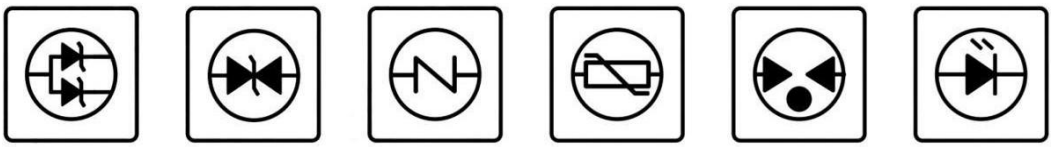
MSKSEMI 美森科
SEMICONDUCTOR



SDC477-MS

Product specification

产品概述

SDC477-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

$T_{MIN} \le T_A \le T_{MAX}$　$-20°C \le T_A \le 120°C$

工作电压范围　$3.5V \le V_{DD} \le 24V$

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）

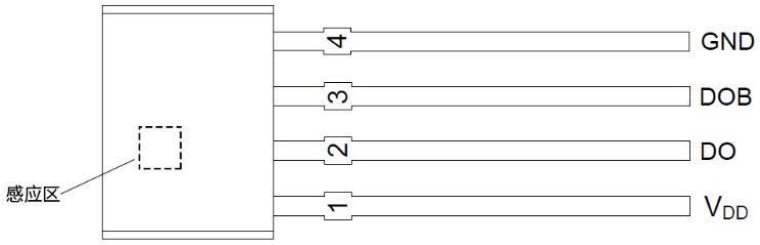
- SIP-4L

包装和订单信息

产品编号	封装		管体标记	最小包装(PCS)
SDC477-MS	SIP-4L		477h XXXX	1000

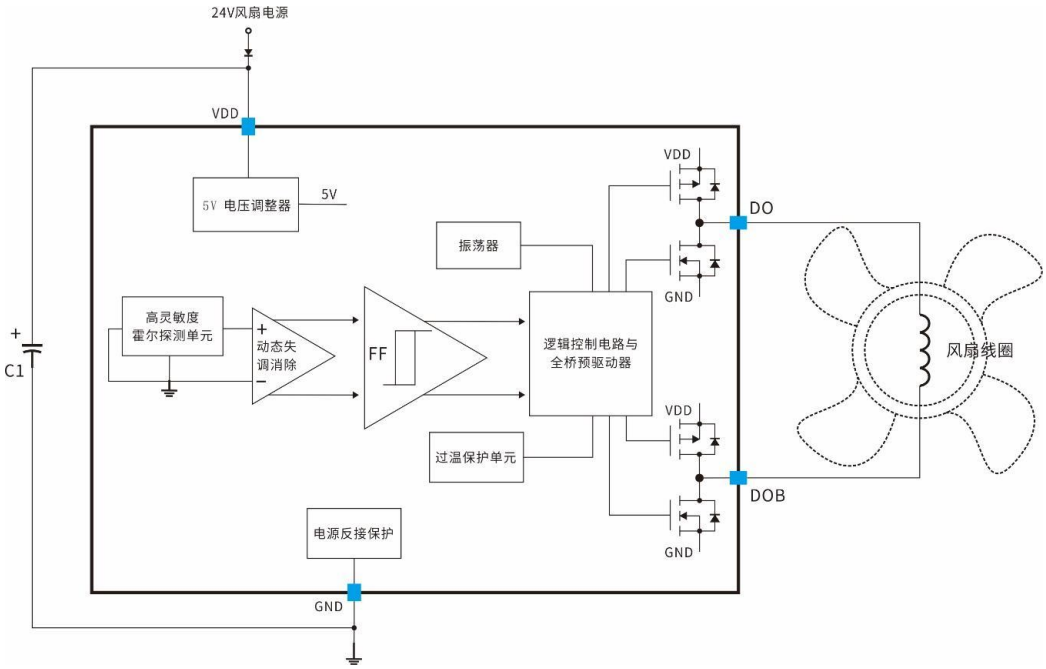
工作电流 最小值 （mA）	输出持续电流 （mA）	工作点 B_{op} 最大值 （GS）	释放点 B_{RP} 最小值 （GS）	磁滞窗口 B_{HYST} 最大值 （GS）	输出形式
1.5	350	35	-35	70	双向H 桥

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



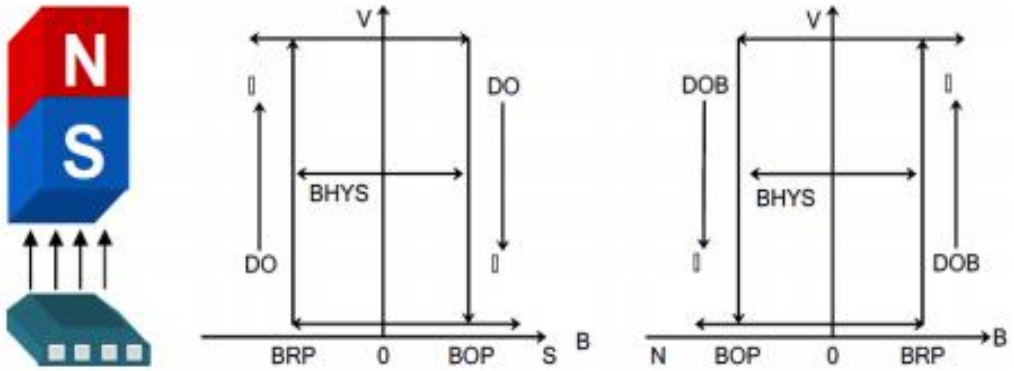
磁性参数的定义

符号	术语	定义
B_{OP}	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。(V_{out} = V_{DSon}) (V_{out} = V_{DSon})
B_{RP}	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。(V_{out} = HIGH) (V_{out} = HIGH)
B_{HYST}	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。

参数	测试条件	DO 输出状态	DOB 输出状态
南极	B >工作点 BOP	低	高
北极	B <释放点 BRP	高	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	Pd	500mW	mA
结晶温度	Tj	270℃	Us
热阻	Die to atmosphere	θJA	℃/W
	Die to package case	θJC	℃/W
工作温度	T_A	-20 ~ +85	℃
贮存温度	T_S	-50 ~ +150	℃

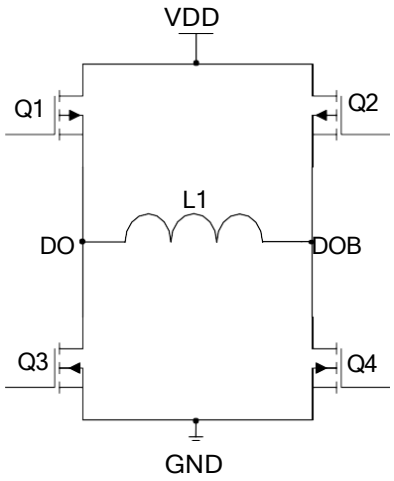
电气和磁特性

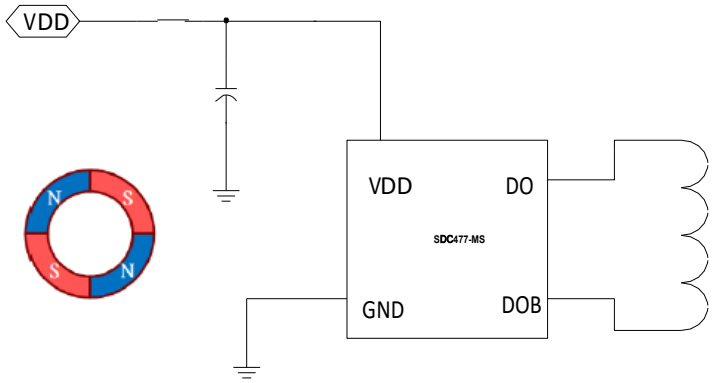
除非另有说明，以下参数基于 T_A=25℃

符号	参数	测试条件	最小	典型	最大	单位	备注
V_{SAT}	输出饱和电压（Sink）	V_{DD}=14V，Io=300mA	—	0.30	0.45	V	
	输出饱和电压（Drive）		V_{DD} - 1.3	V_{DD} - 1.0	V_{DD}	V	
I_{DD}	工作电流	V_{DD}=20V，输出打开	1.5	2.5	5	mA	
tr	输出上升时间	V_{DD}=14V，R_L=820 C_L=20pF	—	15	20	uS	
tf	输出下降时间			15	20	uS	
B_{OP}	磁性工作点		5		35	GS	
B_{RP}	磁性释放点		-35		-5	GS	
B_{HYST}	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。

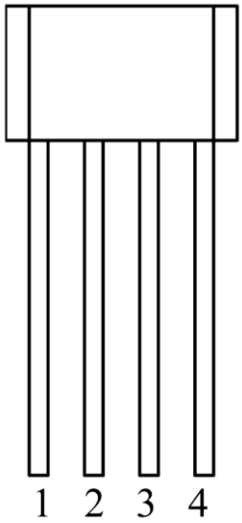




注意：电源端口必须接旁路电容到地，降低电源电压的波动，提高风扇的稳定性。

封装信息

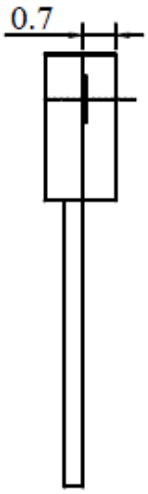
SIP-4L

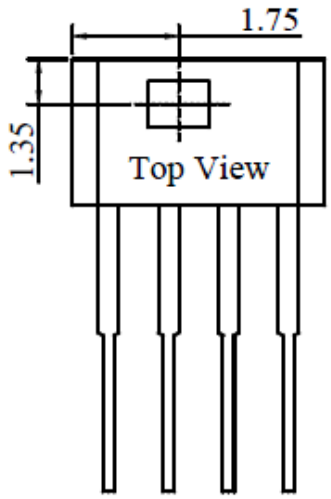


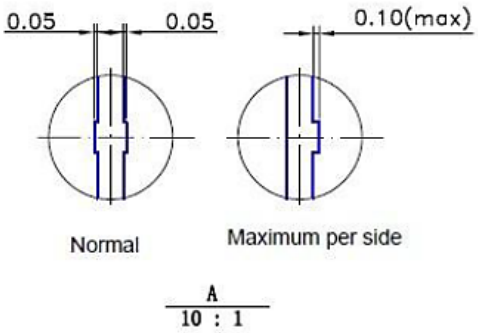
Y:Year 0~9

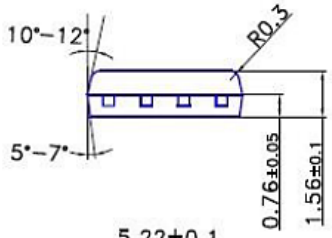
WW:Weeks 01~52

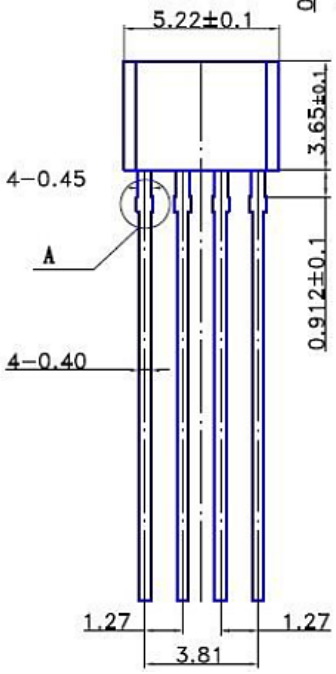
X:Internal Code

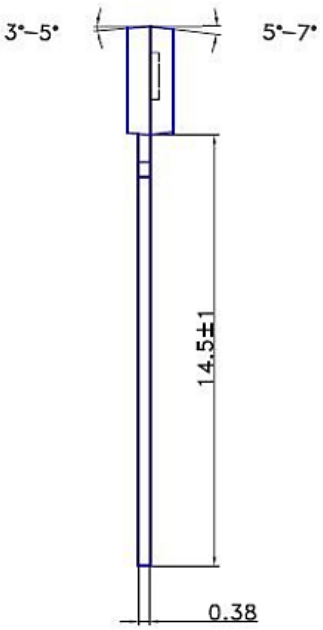












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