

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

AH477AZ4-MS

Product specification

产品概述

AH477AZ4-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

$T_{MIN} \leq T_A \leq T_{MAX} \quad -20^{\circ}\text{C} \leq T_A \leq 120^{\circ}\text{C}$

工作电压范围 $3.5\text{V} \leq V_{DD} \leq 24\text{V}$



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）

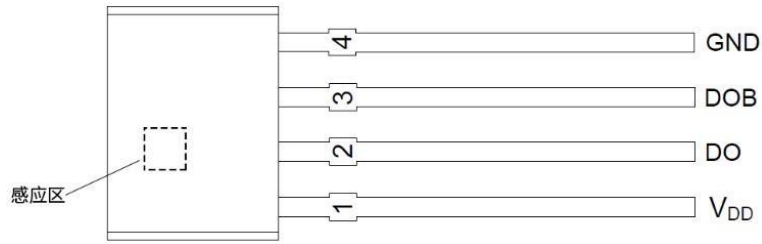
- SIP-4L

包装和订单信息

产品编号	封装		管体标记	最小包装 (PCS)
AH477AZ4-MS	SIP-4L			1000

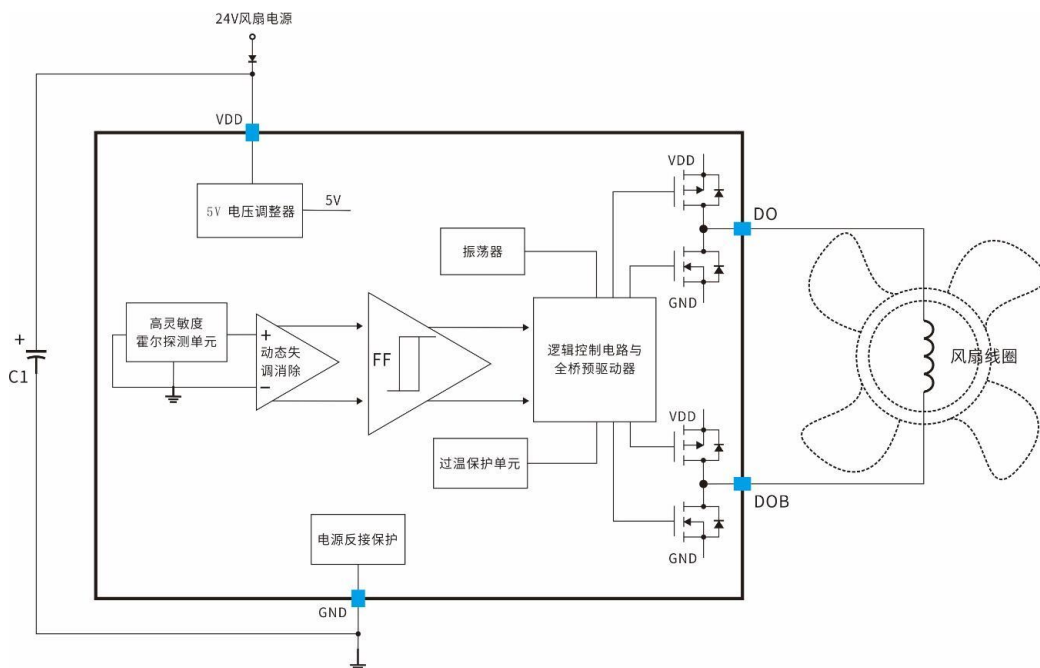
工作电流 最小值 (mA)	输出持续电流 (mA)	工作点 B_{op} 最大值 (GS)	释放点 B_{RP} 最小值 (GS)	磁滞窗口 B_{HYST} 最大值 (GS)	输出形式
1.5	350	35	-35	70	双向 H 桥

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



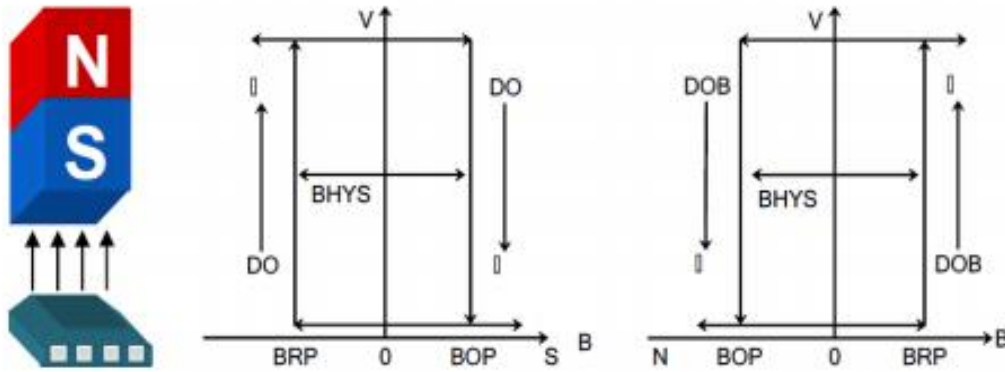
磁性参数的定义

符号	术语	定义
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。 ($V_{out} = V_{Dson}$) ($V_{out} = V_{Dson}$)
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。 ($V_{out} = HIGH$) ($V_{out} = HIGH$)
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。

参数	测试条件	DO 输出状态	DOB 输出状态
南极	$B > \text{工作点 BOP}$	低	高
北极	$B < \text{释放点 BRP}$	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	P_d	500mW	mA
结晶温度	T_j	270°C	Us
热阻	Die to atmosphere	θ_{JA}	°C/W
	Die to package case	θ_{JC}	°C/W
工作温度	T_A	-20 ~ +85	°C
贮存温度	T_s	-50 ~ +150	°C

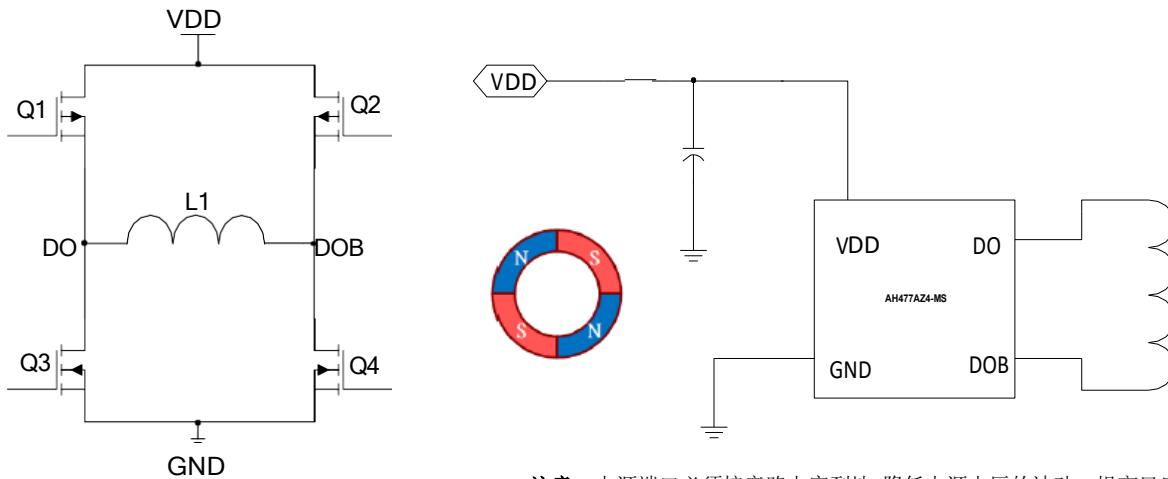
电气和磁特性

除非另有说明，以下参数基于 $T_A=25^{\circ}\text{C}$

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)	$V_{DD}=14\text{V}$, $I_o=300\text{mA}$	—	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	$V_{DD}=20\text{V}$, 输出打开	1.5	2.5	5	mA	
t_r	输出上升时间	$V_{DD}=14\text{V}$, $R_L=820$ $C_L=20\text{pF}$	—	15	20	μs	
t_f	输出下降时间		15	20	μs		
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

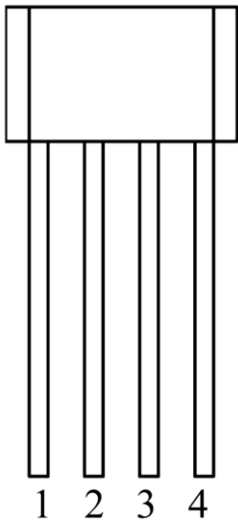
通过开关管控制流过单线圈 $L1$ 上的电流方向来实现单相马达转换。当磁场为 N 极时， $Q2$ 、 $Q3$ 关断， $Q1$ 、 $Q4$ 开启，线圈 $L1$ 上电流从 DO 流向 DOB 。当磁场为 S 极时， $Q1$ 、 $Q4$ 关断， $Q2$ 、 $Q3$ 开启，线圈 $L1$ 上电流从 DOB 流向 DO 。



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

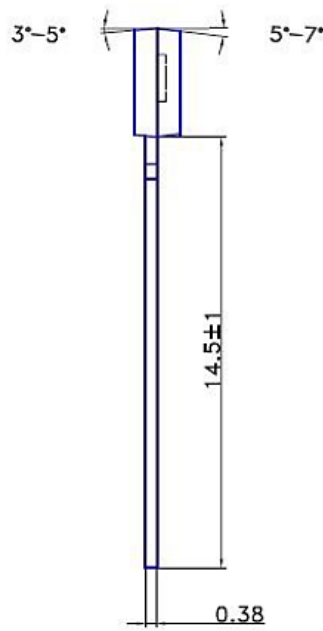
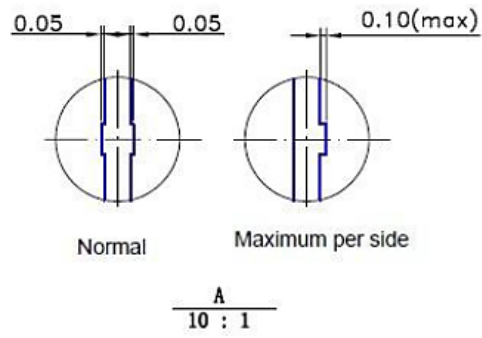
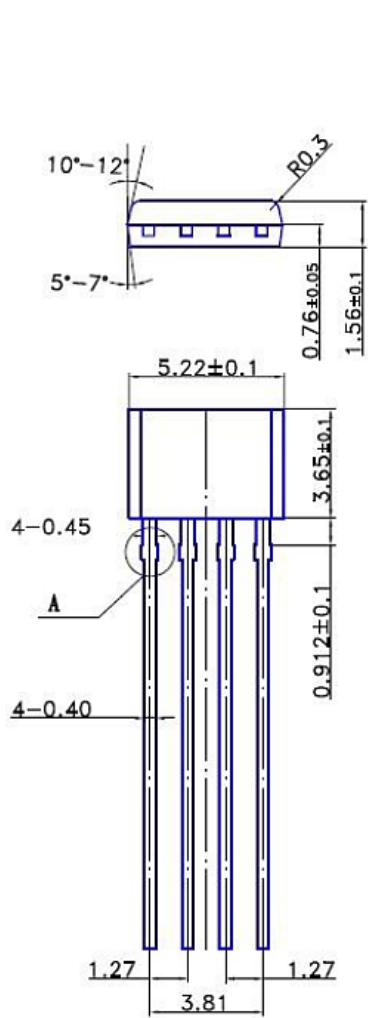
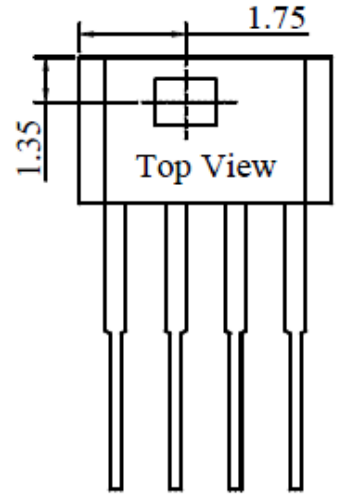
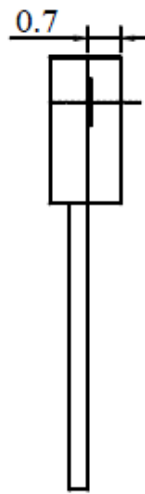
SIP-4L



Y:Year 0~9

WW:Weeks 01~52

X:Internal Code



Attention

- Any and all MSKSEMI Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your MSKSEMI Semiconductor representative nearest you before using any MSKSEMI Semiconductor products described or contained herein in such applications.
- MSKSEMI Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all MSKSEMI Semiconductor products described or contained herein.
- Specifications of any and all MSKSEMI Semiconductor products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- MSKSEMI Semiconductor strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all MSKSEMI Semiconductor products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of MSKSEMI Semiconductor.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. MSKSEMI Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the MSKSEMI Semiconductor product that you intend to use.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MSKSEMI](#) manufacturer:

Other Similar products are found below :

[1.5SMC15A\(MS\)](#) [1.5SMC15CA\(MS\)](#) [1.5SMC16CA\(MS\)](#) [1.5SMC18A\(MS\)](#) [1.5SMC18CA\(MS\)](#) [1.5SMC22A\(MS\)](#) [1.5SMC30A\(MS\)](#)
[1.5SMC33A\(MS\)](#) [1.5SMC33CA\(MS\)](#) [1.5SMC36CA\(MS\)](#) [1.5SMC39A\(MS\)](#) [1.5SMC39CA\(MS\)](#) [1.5SMC43A\(MS\)](#) [1.5SMC43CA\(MS\)](#)
[1.5SMC51CA\(MS\)](#) [1.5SMC56A\(MS\)](#) [1.5SMC68A\(MS\)](#) [1.5SMC68CA\(MS\)](#) [1.5SMC75A\(MS\)](#) [1.5SMC75CA\(MS\)](#) [1N4001](#) [1N4004](#)
[1N4007](#) [1N4007 A7](#) [1N4007W](#) [1N4007WS](#) [1N4148W-7-MS](#) [1N4148WL-MS](#) [1N4148W-MS](#) [1N4148WS-MS](#) [1N4148WT](#) [1N4148WT-MS](#)
[1N4448WT](#) [1N4448X](#) [1N5819HW-MS](#) [1SMA4728A-MS](#) [1SMA4729A-MS](#) [1SMA4730A-MS](#) [1SMA4731A-MS](#) [1SMA4732A-MS](#)
[1SMA4733A-MS](#) [1SMA4734A-MS](#) [1SMA4735A-MS](#) [1SMA4736A-MS](#) [1SMA4737A-MS](#) [1SMA4738A-MS](#) [1SMA4739A-MS](#)
[1SMA4740A-MS](#) [1SMA4741A-MS](#) [1SMA4742A-MS](#)