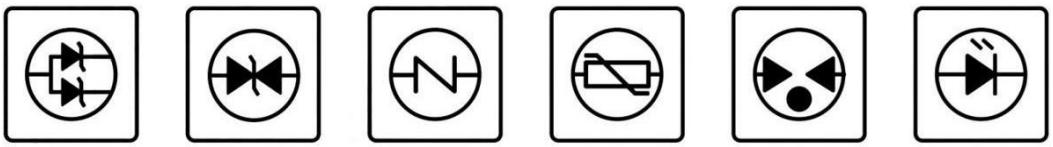
MSKSEMI 美森科
SEMICONDUCTOR



MS21867STRPBF

Product specification

产品概述

MS21867STRPBF 是一款半桥架构栅极驱动专用电路，用于大功率 MOS 管、IGBT 管栅极驱动。IC 内部集成了逻辑信号处理电路、死区时间控制电路、欠压保护电路、电平位移电路、脉冲滤波电路及输出驱动电路，可用于无刷电机控制器驱动、电动车控制器驱动。

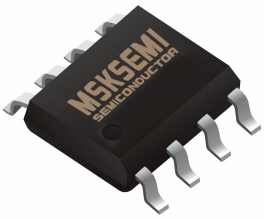
主要特点

- 高端悬浮自举电源，耐压 600V
- 适应 5V，3.3V 输入电压
- 输出电流能力 IO+/-为 7.0A/7.0A
- 栅极驱动电源范围为 6.8～20V
- 上下桥延时匹配
- 逻辑地/功率地可耐+/-5V 偏离
- 上下桥电源欠压保护

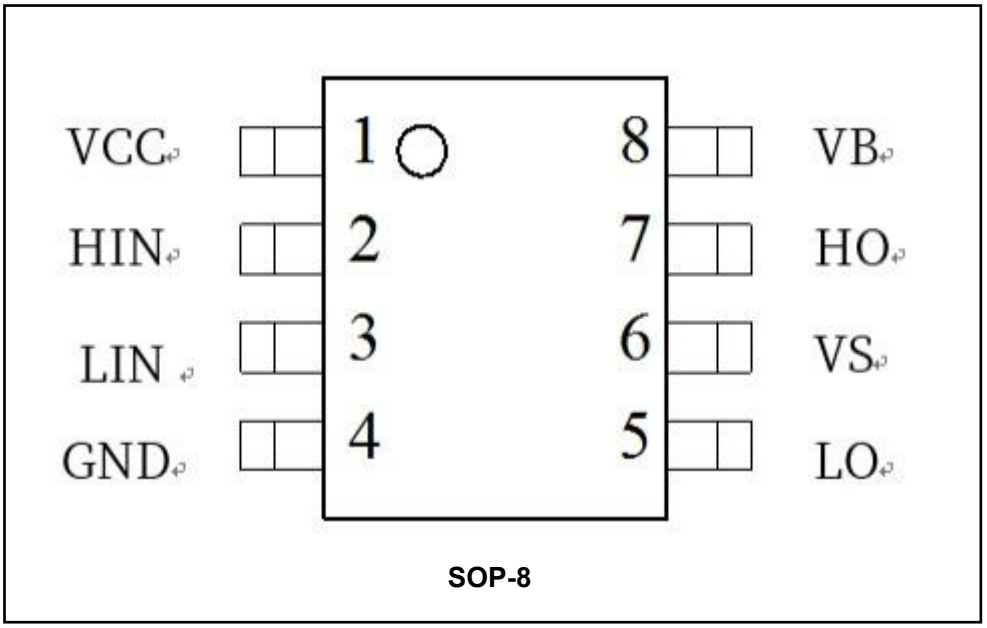
典型应用

- 无刷电机驱动器
- 工业应用和驱动器
- 电动车控制器

封装信息

SOP-8	管体标记
	

引脚排列



SOP-8

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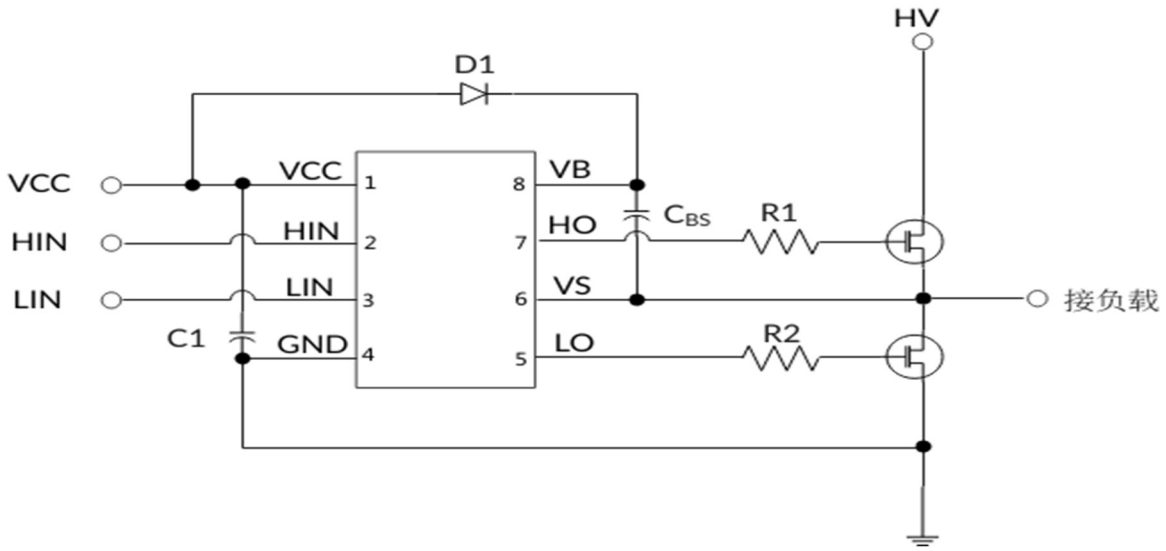
引出端功能

序号	符号	功能描述	序号	符号	功能描述
1	VCC	电源	5	LO	下桥端输出
2	HIN	上桥端逻辑信号输入	6	VS	上桥端悬浮地
3	LIN	下桥端逻辑信号输入	7	HO	上桥端输出
4	GND	地	8	VB	上桥端自举电源

订货信息

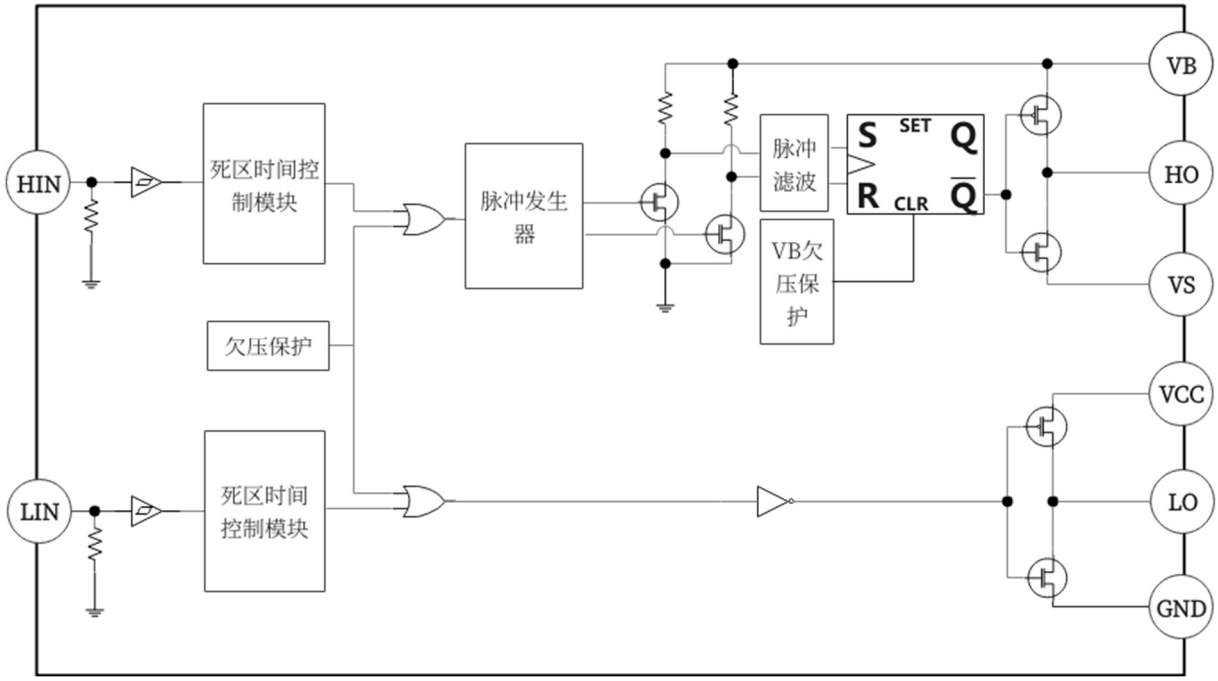
型号	封装形式	QTY
MS21867STRPBF	SOP-8	4000PCS

应用电路



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电路方框图



VCC	VCCUV+/UV-	输入逻辑	VBUV+/UV-	Io+/Io-
6.8V～20V	6.3V/5.6V	HIN，LIN	6.3V/5.6V	7.0A/7.0A

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最大额定值（无特别说明情况下，TA=25℃）

项目名称	符号	最小值	最大值	单位
上桥自举电源	VB	-0.3	625	V
上桥悬浮端	VS	VB-25	VB+0.3	V
上桥输出电压	V_{HO}	VS-0.3	VB+0.3	V
电源	VCC	-0.3	25	V
下桥输出电压	V_{LO}	-0.3	VCC+0.3	V
输入电压（HIN/LIN）	V_{IN}	GND-0.3	VCC+0.3	V
VS瞬态变化	dVs/dt	-	50	V/ns
最大功耗	P_D	_	625	mW
工作结温范围	T_J	_	150	℃
储存温度范围	T_{STG}	-50	150	℃
ESD(人体模型)		2000	_	V

注意：

(1)如果器件运行条件超过上述各项最大额定值，可能对器件造成永久性损坏。上述参数仅是运行条件的极大值，我们不建议器件在该规范范围外运行。如果器件长时间工作在最大极限条件下，其稳定性可能会受到影响。

(2)无特殊说明，所有的电压以 GND 作为参考。

推荐工作范围（无特别说明情况下，TA=25℃）

参数名称	符号	推荐值			单位
		最小	典型	最大	
电源	VCC	6.8		20	V
上桥臂悬浮端	VS	-5		600	V
上桥臂自举电源	VB	VS+10		VS+20	V
上、下桥臂负载电容	CL	_		22	nF
上、下桥臂输入电平	VIN	0		VCC	V
工作温度	T_J	-40		125	℃

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静态电气参数（无特别说明情况下，VCC=15V，VS=0V，VB=15V+VS，TA=25℃）

参数说明	符号	测试条件	CSC21867			
			最小值	典型值	最大值	单位
VCC静态电流	I_{QCC}	Vin =0V or 5V		65	250	μA
上桥臂VB静态电流	I_{QBS}	Vin =0V or 5V		45	100	μA
输入端高电平	V_{IH}		2.5			V
输入端低电平	V_{IL}				0.8	V
输出高电平	V_{HOH}	与 VB 或 VCC 差值，Io+=20mA			1.8	V
输出低电平	V_{HOL}	与VS或GND差值，Io-=20mA			0.1	V
VCC欠压保护电压	VCC_{UV+}	VCC正向抬升阈值		6.3		V
	VCC_{UV-}	VCC负向跌落阈值		5.6		
VB欠压保护电压	VB_{UV+}	VB正向抬升阈值		6.3		V
	VB_{UV-}	VB负向跌落阈值		5.6		
输入电流	I_{IN1}	HIN=5V或者LIN=5V		250		μA
	I_{IN2}	HIN=0V或者LIN=0V			5	μA
输出灌电流	IO+	VO=0V，$V_{IN}=V_{IH}$ PW≦10μS		7.0		A
输出拉电流	IO-	VO=15V，$V_{IN}=V_{IL}$ PW≦10μS		7.0		A

输入输出逻辑真值表

输入端	
HIN	LIN
低电平	低电平
低电平	高电平
高电平	低电平
高电平	高电平

输出端	
HO	LO
低电平	低电平
低电平	高电平
高电平	低电平
低电平	低电平

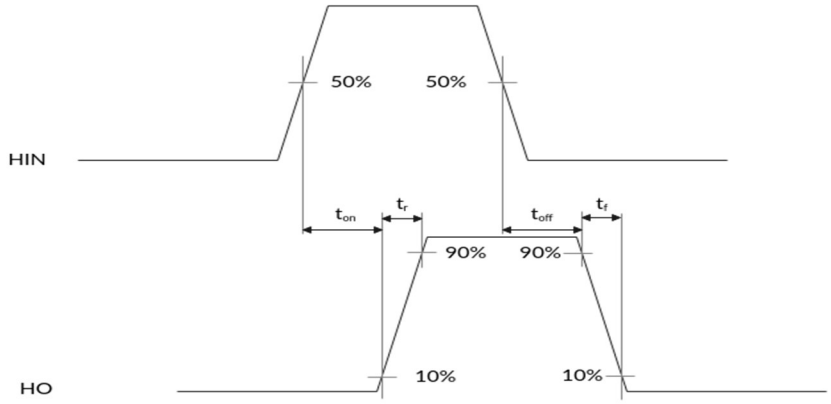
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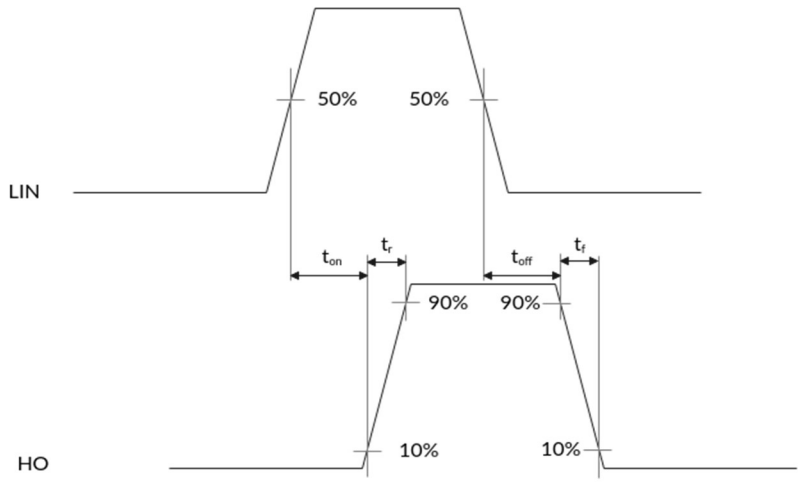
动态电气参数（无特别说明情况下， VCC=15V，VB=15V，VS=0V，CL=1000pF，TA=25℃）

参数说明	符号	测试条件	MS21867STRPBF			
			最小值	典型值	最大值	单位
输出HO/LO开关时间特性						
上升延时	t_{on}			160	250	ns
下降延时	t_{off}			160	250	ns
上升下降延时时间差值					35	ns
上升时间	t_r			10		ns
下降时间	t_f			8		ns

注：HO/LO 的死区时间由 HIN/LIN 输入给定。

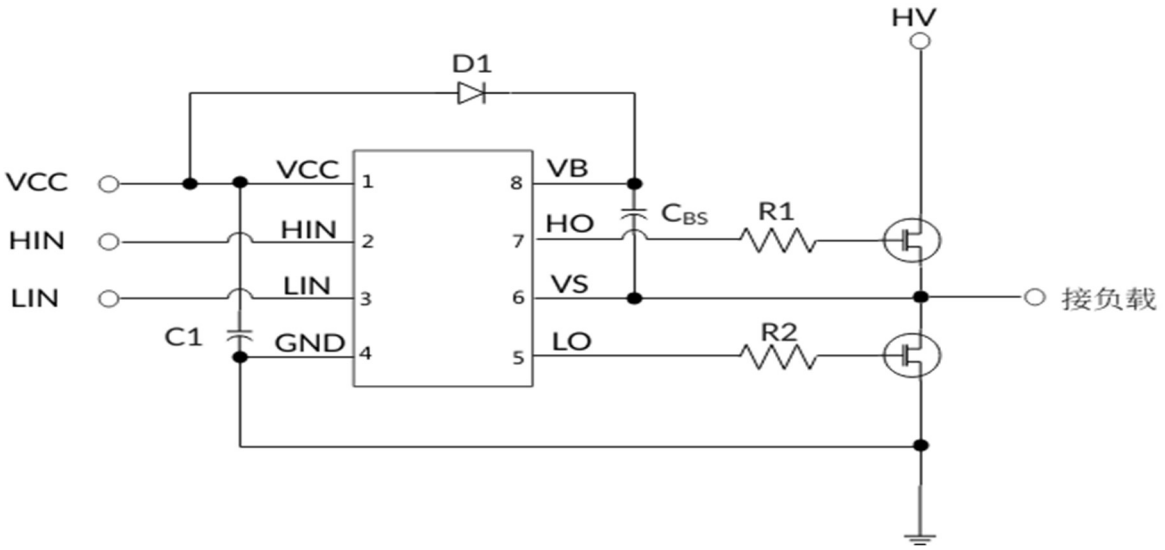
开关动作波形示意图





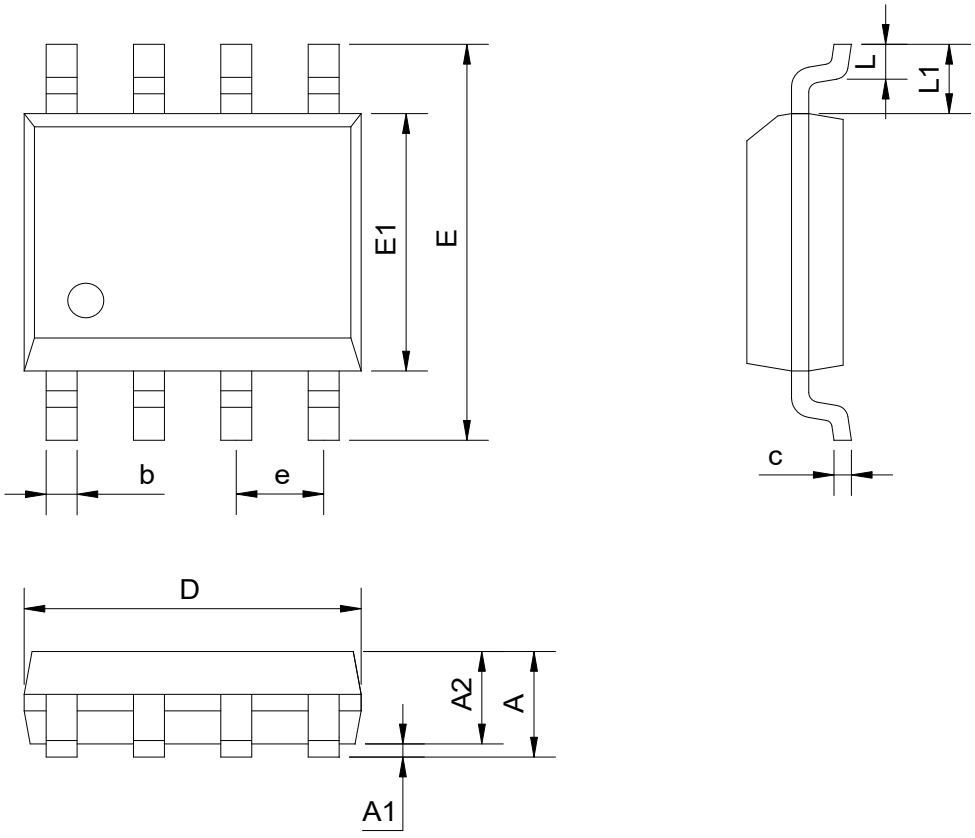
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应用电路


HV
D1
VCC
HIN
LIN
C1
VCC
HIN
LIN
GND
1
2
3
4
8
7
6
5
VB
HO
VS
LO
CBS
R1
R2
接负载

封装外形图和尺寸

SOP-8



SYMBOL	mm	
	min	max
A		1.75
A1	0.05	0.23
A2	1.30	1.50
b	0.35	0.45
c	0.18	0.25
D	4.70	5.10
E	5.80	6.20
E1	3.70	4.10
e	1.27BSC	
L	0.40	0.80
L1	1.05BSC	

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