概述

HLP2985IM5X-3.3 是一款高精度、低噪声、低压差、保护功能齐全的 LDO 线性稳压器，输入电压最高可达到 16V，输出电压精度在±2%。峰值电流最大能达到150MA，过流过热电路保护和快速动态响应。ON/OF 电路的使能脚能够关断输出电压，从而大大降低系统功耗。

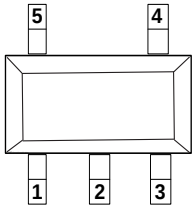
特点

- 最大输出电流：150MA
- 低压差：104mV@ IOUT =100mA
- 工作电压范围：2.5-16V
- 输出电压精度：± 2%
- 输出电压：3.3V
- 低静态功耗：65uA（典型值）
- 电源调整率：30mV（典型值）
- 温度稳定性：≤0.5%
- 热关断保护： 164℃

应用场合

- 消费类和工业设备供电
- 开关电源的后级稳压
- 驱动控制器

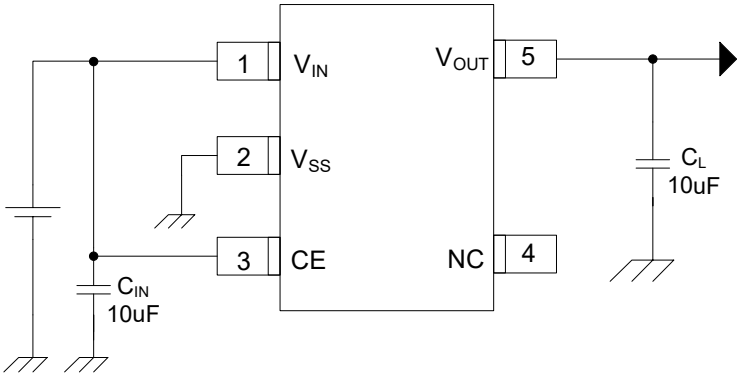
封装形式



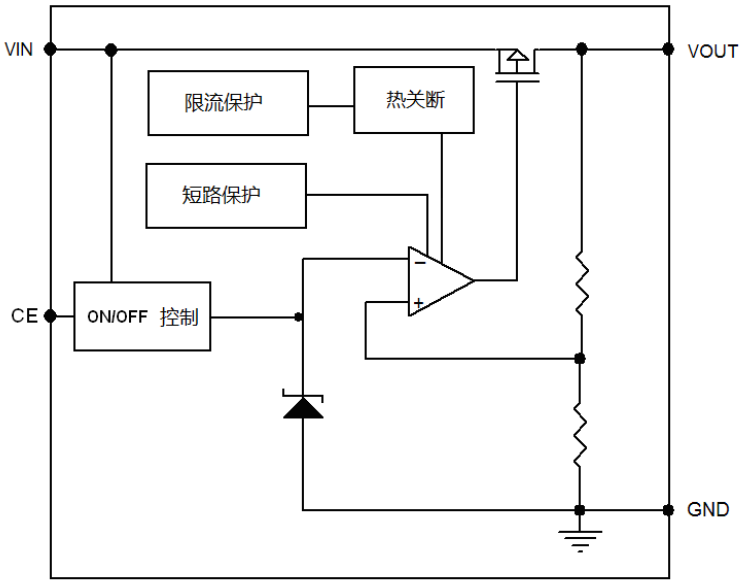
SOT-23-5L

PIN脚位 SOT-23-5L	符号	功能说明
1	V_{IN}	电源输入端
2	V_{SS}	地
3	CE	使能端
4	NC	悬空
5	V_{OUT}	电源输出端

典型应用图



功能框图



绝对最大额定值

参数	符号	范围	单位
输入电压	V_{IN}	16	V
输出电流	I_{OUT}	200	mA
输出电压	V_{OUT}	Vss-0.3～V_{IN} +0.3	V
使能电压	V_{CE}	Vss-0.3～V_{IN} +0.3	V
耗散功率	P_D	250	mW
工作温度范围	T_{OPR}	－40～＋125	℃
存储温度范围	T_{STG}	－40～＋150	℃
焊接温度		260℃，4sec	

电气参数

(Ci=Co=10uF, Ta=25℃ 除特别指定)

特性	符号	测试条件	最小值	典型值	最大值	单位
输出电压	V_{OUT}(E)	I_{OUT}=1mA，V_{IN}=5V，V_{CE}=1.6V	$V_{OUT(T)}$*0.975		$V_{OUT(T)}$*1.025	V
最大输出电流	I_{OUT} (max)	V_{IN}=4.3V	-	150	-	mA
负载稳定度	ΔV_{OUT}	V_{IN}=V_{CE}=4.3V，1mA≤I_{OUT}≤100mA	-	8	-	mV
输入稳定度	ΔV_{OUT}/(ΔV_{IN}•V_{OUT})	I_{OUT} =10mA，4.3V≤V_{IN}≤15V	-	0.39	-	%/V
跌落压差	V_{drop1}	V_{IN}=4.3V，I_{OUT}=10mA		30		mV
	V_{drop2}	V_{IN}=4.3V，I_{OUT} =100mA		310		mV
静态电流	I_{SS1}	V_{IN}=V_{CE}=5V	-	50	-	μA
	I_{SS2}	V_{IN}=5V，V_{CE}=V_{SS}	-	-	1	μA
CE 输入电压	V_{CEH}		0.3V_{IN}	-	V_{IN}	V
	V_{CEL}		0	-	0.5	V
CE 输入电流	I_{CE}	V_{CE}=0V to V_{IN}	-	-	1	μA
纹波抑制比	PSRR	V_{IN}=V_{CE}=4.3V+1$V_{p\text{-}pAC}$ I_{OUT}=10mA，f=1kHz	-	40	-	dB
输出电压温度系数	ΔV_{OUT}/(ΔTa•V_{OUT})	V_{IN}=V_{CE}=5V，I_{OUT}=10mA 0℃≤Ta≤60℃	-	±270	-	ppm/℃
输入电压	V_{IN}		1.8		15	V

注：1、V_{OUT} (T)：规定的输出电压。

2、V_{OUT} (E) ：有效输出电压。

3、I_{OUT} (max)：缓慢增加输出电流，当输出电压≤V_{OUT}(E)*95%时的电流值。

4、V_{drop}= V_{IN1} -V_{OUT} (E)s

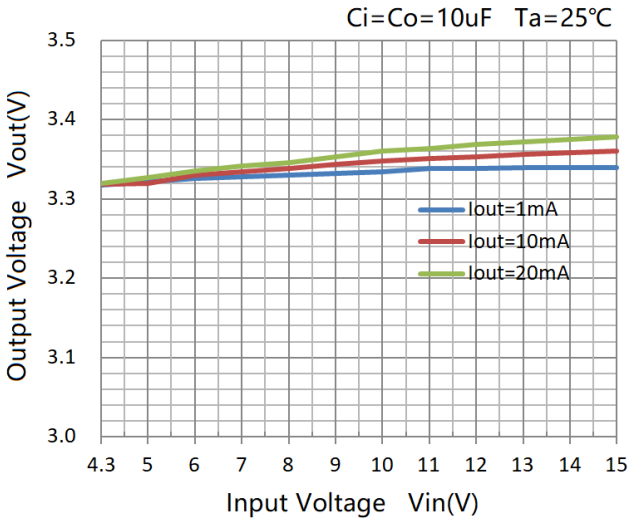
V_{IN1}= 逐渐减小输入电压，当输出电压降为 V_{OUT} (E)1 的 98%时的输入电压。

V_{OUT} (E)s = V_{OUT} (E)1*98%；

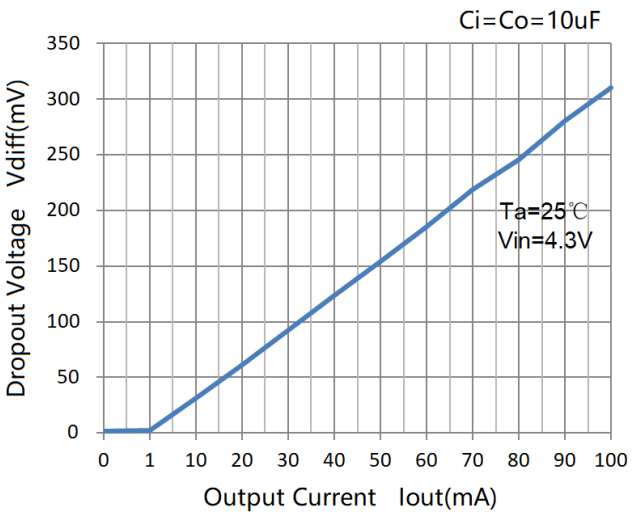
V_{OUT} (E)1=当 V_{IN}= V_{OUT}(T)+1V ， I_{out}=某一数值时的输出电压值。

特性曲线

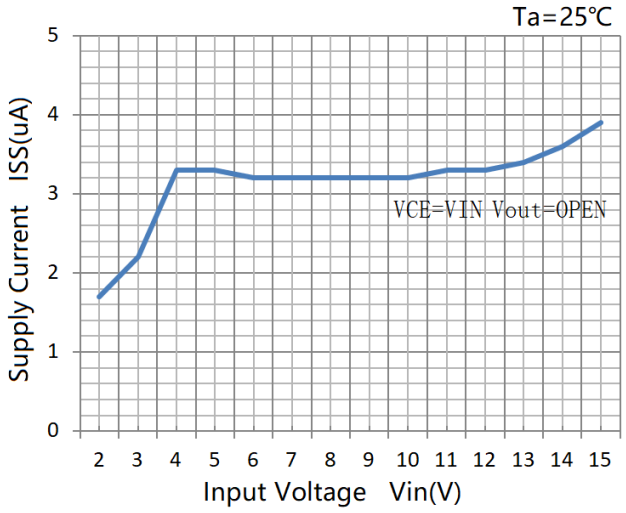
输出电压和输入电压



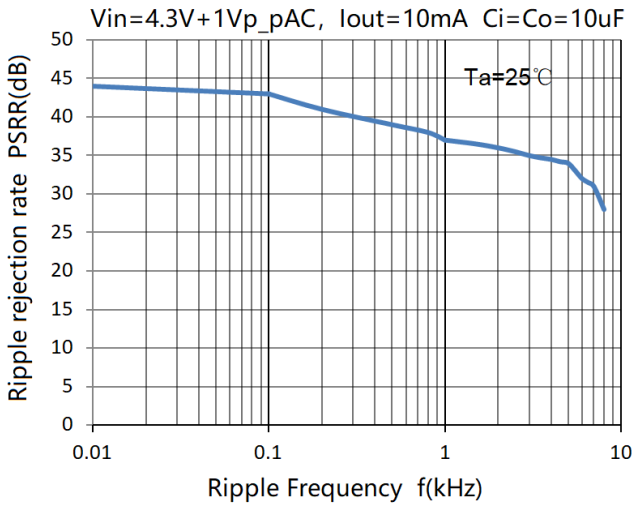
Dropout 电压和输出电流



输入电压和静态电流



纹波抑制



应用信息

1. 输入电容的选择

建议选用10uF的钽电容，可以兼容绝大多数的设备。

2. 输出电容的选择

输出电容对系统的稳定性有着至关重要的影响。输出电容的选用必须同时考虑容值和ESR(等效串联电阻)这两点。

HLP2985IM5X-3.3 使用的钽电容容值最小为10uF，电容ESR阻值应小于0.5Ω。增大输出电容有助于提高系统稳定性和瞬态响应。

3. 负载线性度

HLP2985IM5X-3.3 的输出电压指输出端管脚和地面之间的电压。在某些情况下,线电阻负载上的电压可能引起负载电压的误读。为了获得最佳的负载线性度,采取一些预防措施是很有必要的。

图1显示了一个典型应用电路。Rt1和Rt2也有阻抗。很明显,VLOAD小于输出电压Vout。在这种情况下,RLOAD两端的负载线性度将小于规格书参数表中的数据。为了改善这种情况,应该将负载直接接在输出和地两端。

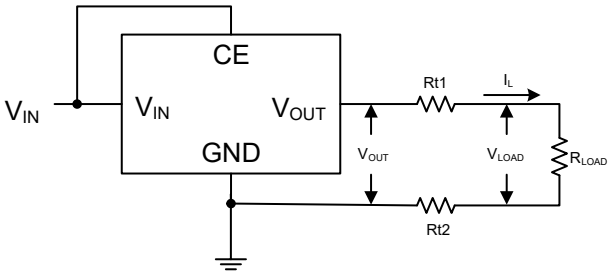
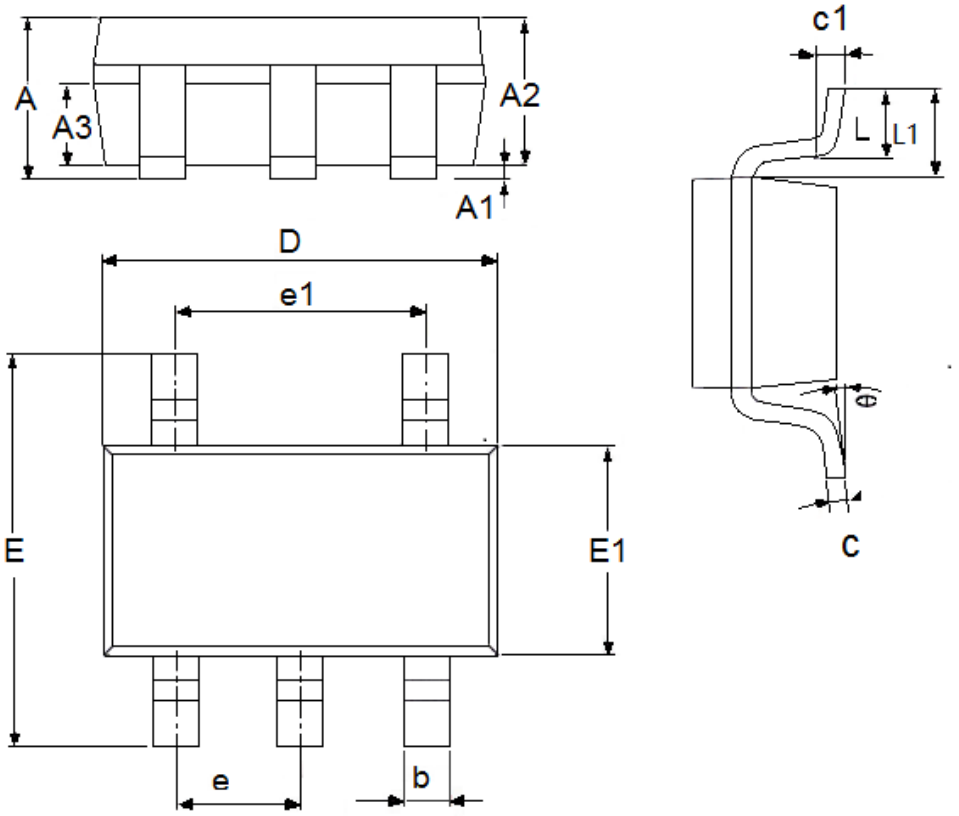


图1. 典型应用电路图

封装信息

- **SOT-23-5L**



参数	尺寸（mm）		尺寸（Inch）	
	最小值	最大值	最小值	最大值
A	1.05	1.45	0.0413	0.0571
A1	0	0.15	0.0000	0.0059
A2	0.9	1.3	0.0354	0.0512
A3	0.6	0.7	0.0236	0.0276
b	0.25	0.5	0.0098	0.0197
c	0.1	0.23	0.0039	0.0091
D	2.82	3.05	0.1110	0.1201
e1	1.9(TYP)		0.0748(TYP)	
E	2.6	3.05	0.1024	0.1201
E1	1.5	1.75	0.0512	0.0689
e	0.95(TYP)		0.0374(TYP)	
L	0.25	0.6	0.0098	0.0236
L1	0.59(TYP)		0.0232(TYP)	
θ	0	8°	0.0000	8°
c1	0.2(TYP)		0.0079(TYP)	

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