



概述

HSPX3819 系列是一组低压差 (LDO) 转换器, 具有 2.8V 至 20V 宽电压输入范围、低压差、低功耗和小型化封装的等特性, 输出电压范围为 3.0-5.0V。

HSPX3819 低至 1.8uA 低静态电流特性, 电路也带有CE使能控制端口, 可使电路进入休眠状态。特别适合用于电池供电、长时间待机系统设备应用, 能帮助降低系统设备的待机功耗, 有效延长待机时间和电池使用寿命。

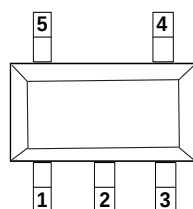
特点

- 输入输出电压差低
- 温度漂移系数小
- 耐压 20V
- 工作静态电流 1.8μA, 最大 4μA
- 休眠静态电流最大 0.2μA
- 输出电压精度: $\pm 2\%$
- 输出过载保护
- 带有 CE 使能控制端口
- 工作温度 $-20^{\circ}\text{C} \sim +105^{\circ}\text{C}$

应用场合

- 手持式、电池供电设备
- 通信设备
- 音频、视频设备
- 低功耗微处理器
- 笔记本电脑、掌上型电脑和 PDA
- 车载导航系统
- 工业控制
- 智能家居

封装脚位描述



SOT-23-5L

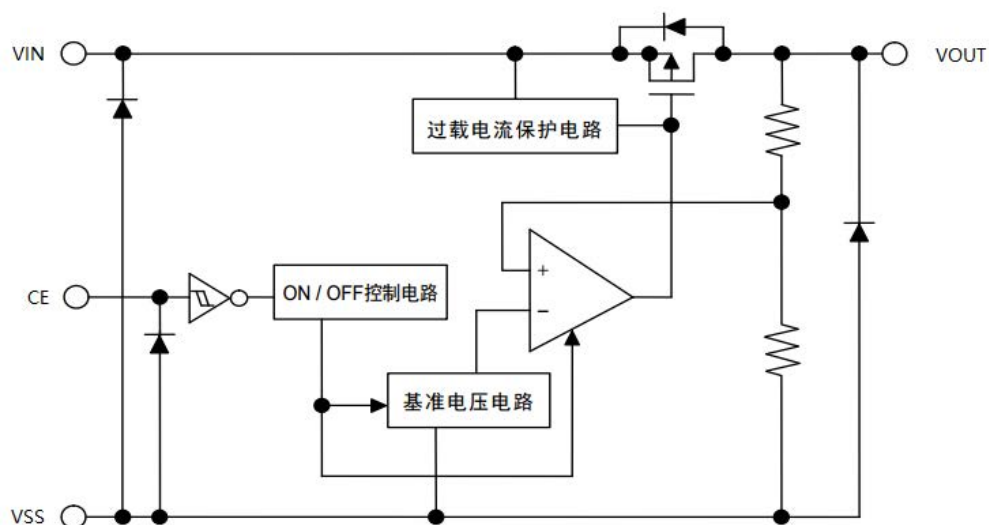
PIN脚位	符号	功能说明
SOT-23-5L		
1	V_{IN}	电源输入端
2	V_{SS}	地
3	CE	使能端
4	NC	悬空
5	V_{OUT}	电源输出端

型号介绍

型号名	封装	输出电压	包装信息
HSPX3819M5-L-3-0/TR	SOT-23-5L	3.0V	3000/盘
HSPX3819M5-L-3-3/TR	SOT-23-5L	3.3V	3000/盘
HSPX3819M5-L-5-0/TR	SOT-23-5L	5.0V	3000/盘



典型应用图



绝对最大额定值

参数	符号	范围	单位
输入电压	V_{IN}	$-0.3 \sim +22$	V
输出电流	I_{OUT}	500	mA
输出电压	V_{OUT}	$V_{SS}-0.3 \sim V_{IN} +0.3$	V
使能电压	V_{CE}	$V_{SS}-0.3 \sim V_{IN} +0.3$	V
耗散功率	P_D	200	mW
工作温度范围	T_{OPR}	$-40 \sim +80$	°C
存储温度范围	T_{STG}	$-40 \sim +150$	°C
焊接温度		260°C, 10sec	



电气参数 (无特别说明情况下, $T_A=25^{\circ}\text{C}$, $C_{IN}=C_{OUT}=1\mu\text{F}$)

参数说明	符号	测试条件	最小值	典型值	最大值	单位
输入电压	V_{IN}		3.0		20	V
输出电压	V_{OUT}		3.0		5.0	V
输出电压精度		$I_{OUT}=1\text{mA}$	-2		+2	%
输出电流	I_{OUT}	$V_{IN}=V_{OUT}+2.0\text{V}$		350		mA
负载调整率	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0\text{V}$ $1\text{mA}\leq I_{OUT}\leq 150\text{mA}$		15		mV
线性调整率	$\frac{\Delta V_{OUT}}{V_{OUT}} \cdot \Delta V_{IN}$	$V_{OUT}+1.0\text{V}\leq V_{IN}\leq 20\text{V}$ $I_{OUT}=10\text{mA}$		0.015	0.2	%/V
低压差	$V_{DIF}^{①}$	$I_{OUT}=100\text{mA}, V_{OUT}=3.3\text{V}$		200		mV
静态电流	I_{SS}	$V_{CE}=V_{IN}$		1.8	4	μA
休眠电流	$I_{STANDBY}$	$V_{CE}=V_{SS}$			0.2	μA
使能高电平	V_{CEH}	$V_{IN}=V_{OUT}+2.0\text{V}$	1.7		24	V
使能低电平	V_{CEL}	$V_{IN}=V_{OUT}+2.0\text{V}$	0		0.3	V
短路电流	I_{SHORT}	$V_{IN}=V_{OUT}+2.0\text{V}$		400		mA
温度系数	$\frac{\Delta V_{OUT}}{\Delta T_A} \cdot V_{OUT}$	$V_{IN}=V_{OUT}+2.0\text{V}$ $I_{OUT}=10\text{mA}$ $-40^{\circ}\text{C}\leq T_A\leq 125^{\circ}\text{C}$		± 100		ppm/ $^{\circ}\text{C}$
输出有源放电电阻	$R_{DIS}^{②}$	$V_{CE}<0.5\text{V}$		300		Ω

注：

①当 $V_{IN}=V_{OUT}+2.0\text{V}$, 固定负载条件下使输出电压下降 2%, 此时输入电压和输出电压的差值为低压差值 V_{DIF} 。

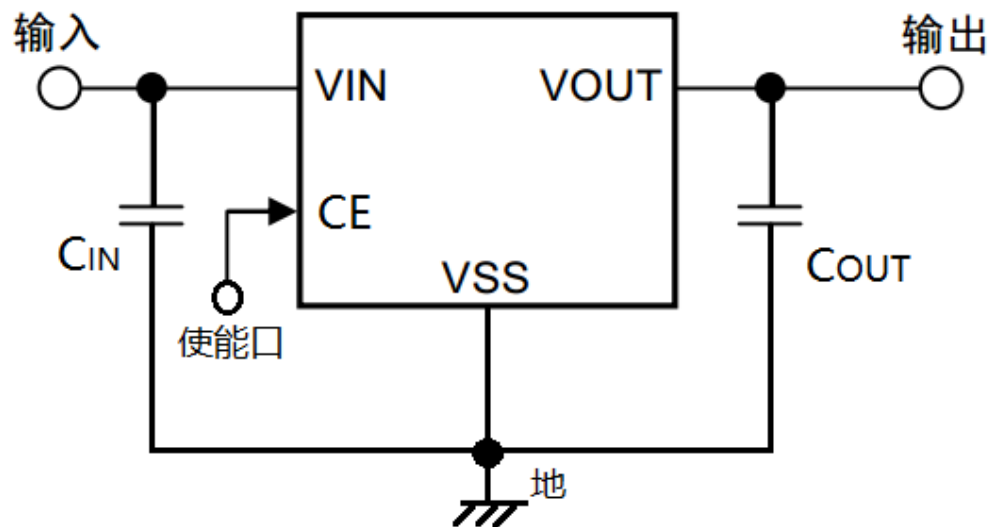
②输出有源放电电阻 R_{DIS} , 随着 V_{IN} 电压增大而降低。



应用说明

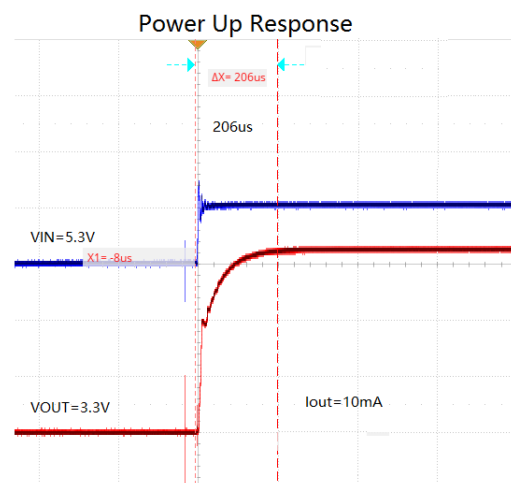
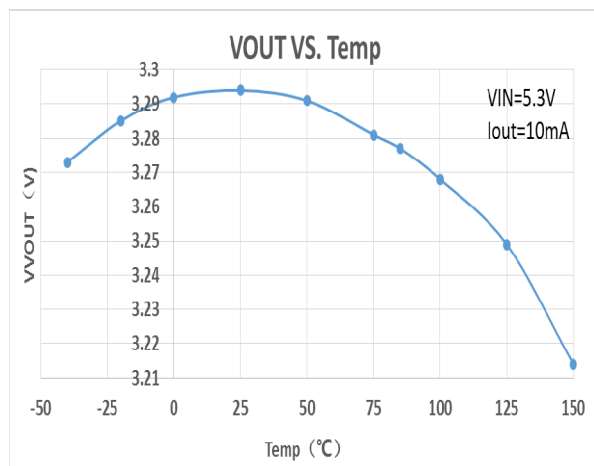
- 1、应用时尽量将电容接到 VIN 和 VOUT 脚位附近。
- 2、电路内部使用了相位补偿电路和利用输出电容的 ESR 来补偿。所以输出到地一定要接大于或者等于 $1\mu\text{F}$ 的电容器。
- 3、注意输入输出电压、负载电流的使用条件，避免 IC 内部的功耗超出封装允许的最大功耗值。

应用电路



1. C_{IN} 用于稳定输入电容
2. C_{OUT} 可以使用的大于或等于 $1\mu\text{F}$ 的陶瓷电容

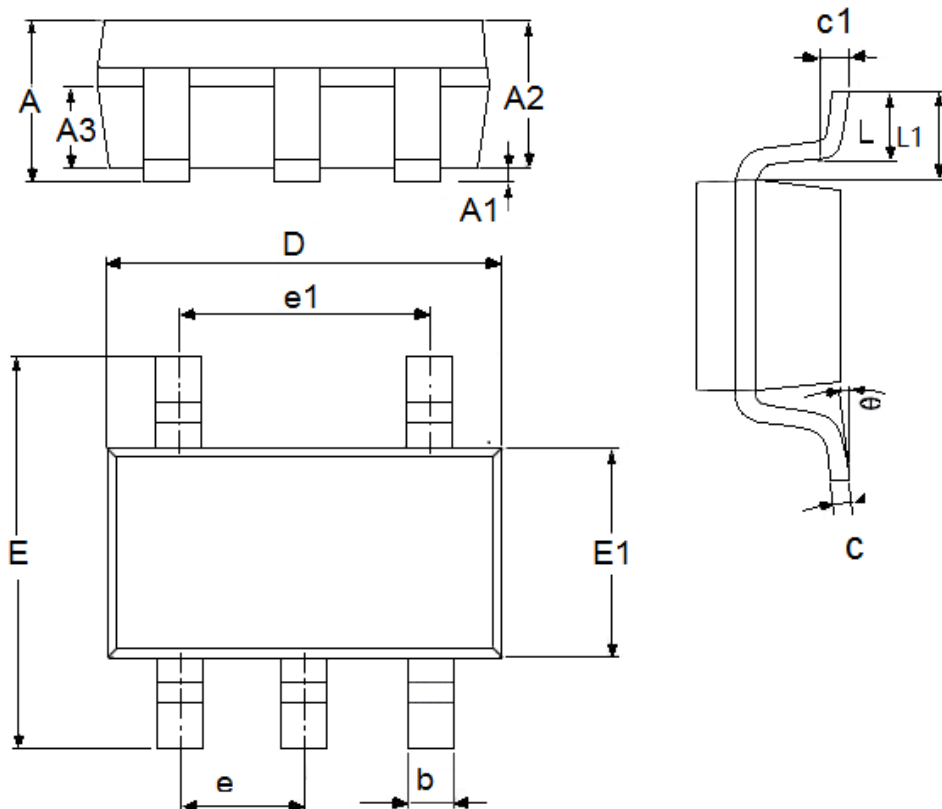
特性曲线





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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