



概述

HRT9013 系列是高纹波抑制率、低功耗、低压差，具有过流和短路保护的 CMOS 降压型电压稳压器。这些器件具有很低的静态偏置电流(80 μ A Typ.)，它们能在输入、输出电压差极小的情况下提 500mA 的输出电流，并且仍能保持良好的调整率。由于输入输出间的电压差很小和静态偏置电流很小，这些器件特别适用于希望长有用电池寿命的电池供电类产品，如计算机、消费类产品和工业设备等。

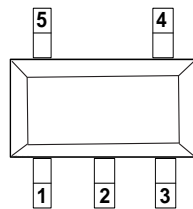
特点

- 输出范围：1.2V-3.3V
- 500mA输出电流
- 高电源抑制比: 75分贝1千赫
- 极低的静态偏置电流: 75uA(典型)
- 在关机模式下小于1uA
- 交界处的温度运作为-40°C至+85°C

应用场合

- CDMA/GSM 移动电话
- PDAS/MP3
- WLAN和蓝牙设备
- 无绳电话
- 电池供电系统

封装脚位描述



SOT-23-5L

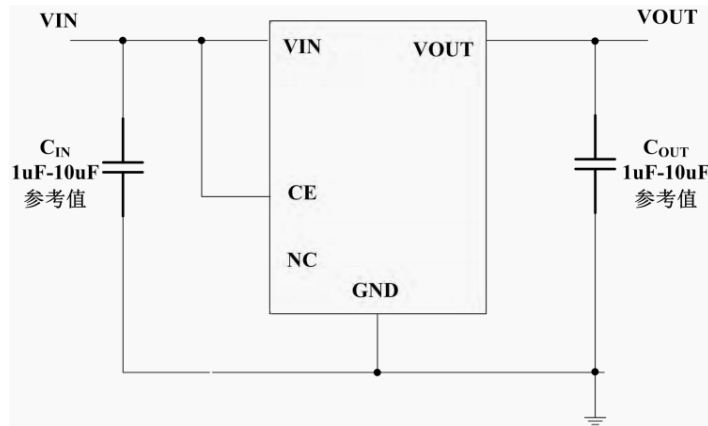
PIN脚位	符号	功能说明
SOT-23-5L		
1	V_{IN}	电源输入端
2	V_{SS}	地
3	CE	使能端
4	NC	悬空
5	V_{OUT}	电源输出端

型号介绍

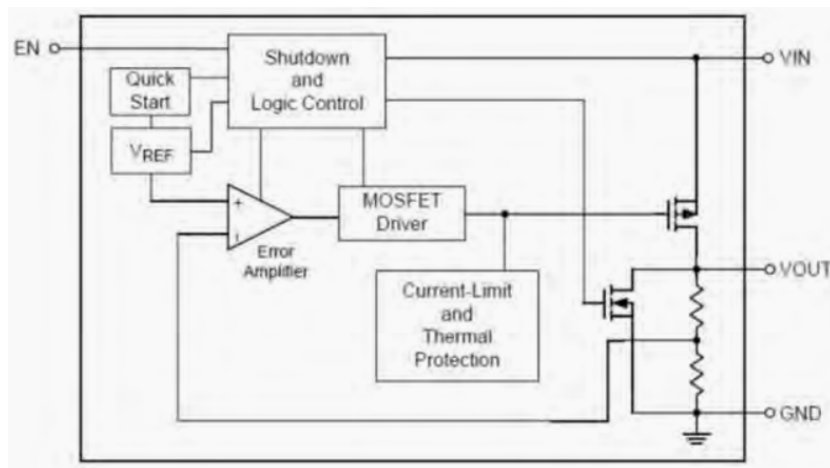
型号名	封装	输出电压	包装信息
HRT9013-12GB	SOT-23-5L	1.2V	3000/盘
HRT9013-15GB	SOT-23-5L	1.5V	3000/盘
HRT9013-18GB	SOT-23-5L	1.8V	3000/盘
HRT9013-25GB	SOT-23-5L	2.5V	3000/盘
HRT9013-28GB	SOT-23-5L	2.8V	3000/盘
HRT9013-30GB	SOT-23-5L	3.0V	3000/盘
HRT9013-33GB	SOT-23-5L	3.3V	3000/盘



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}	7	V
输出电流	I_{OUT}	600	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	300	mW
工作温度范围	T_{OPR}	$-40 \sim +80$	$^{\circ}C$
存储温度范围	T_{STG}	$-40 \sim +150$	$^{\circ}C$
焊接温度		$260^{\circ}C, 10sec$	



电气参数

($C_i=C_o=10\mu\text{F}$, $T_a=25^\circ\text{C}$ 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	$V_{\text{OUT}}(\text{E})$	$I_{\text{OUT}}=1\text{mA}$, $V_{\text{IN}}=5\text{V}$, $V_{\text{CE}}=1.6\text{V}$	$V_{\text{OUT}}(\text{T})^*$ 0.98	$V_{\text{OUT}}(\text{T})$	$V_{\text{OUT}}(\text{T})^*$ 1.02	V
最大输出电流	$I_{\text{OUT}}(\text{max})$	$V_{\text{IN}}=V_{\text{OUT}}+1\text{V}$		500		mA
负载稳定度	ΔV_{OUT}	$V_{\text{IN}}=V_{\text{OUT}}+1\text{V}$, $1\text{mA}\leq I_{\text{OUT}}\leq 100\text{mA}$		50		mV
输入稳定度	$\Delta V_{\text{OUT}}/(\Delta V_{\text{IN}} \cdot V_{\text{OUT}})$	$I_{\text{OUT}}=40\text{mA}$, $4.3\text{V}\leq V_{\text{IN}}\leq 15\text{V}$		0.39		%/V
跌落压差	V_{drop1}	$V_{\text{IN}}=4.3\text{V}$, $I_{\text{OUT}}=100\text{mA}$		100		mV
	V_{drop2}	$V_{\text{IN}}=4.3\text{V}$, $I_{\text{OUT}}=200\text{mA}$		300		mV
静态电流	I_{SS1}	$V_{\text{IN}}=V_{\text{CE}}=5\text{V}$		75		μA
	I_{SS2}	$V_{\text{IN}}=5\text{V}$, $V_{\text{CE}}=V_{\text{SS}}$			1	μA
CE 输入电压	V_{CEH}		0.3		V_{IN}	V
	V_{CEL}		0		0.5	V
CE 输入电流	I_{CE}	$V_{\text{CE}}=0\text{V to } V_{\text{IN}}$			1	μA
纹波抑制比	PSRR	$V_{\text{IN}}=(V_{\text{OUT}}+1)+1V_{\text{p-pAC}}$ $I_{\text{OUT}}=40\text{mA}$, $f=1\text{kHz}$		75		dB
输出噪声	en	$I_{\text{OUT}}=40\text{mA}$, 300Hz~50kHz		50		μVrms
输入电压	V_{IN}				7	V

注：1、 $V_{\text{OUT}}(\text{T})$ ：规定的输出电压。

2、 $V_{\text{OUT}}(\text{E})$ ：有效输出电压(即当 I_{OUT} 保持一定数值， $V_{\text{IN}}=(V_{\text{OUT}}(\text{T})+1.0\text{V})$ 时的输出电压。

3、 V_{CE} ：考虑到高低温和工艺偏差，建议客户将 CE PIN 的使能电压设置为 1.1V，保留有余量。
芯片内部 CE PIN 对 GND PIN 之间有内置 1M 电阻。

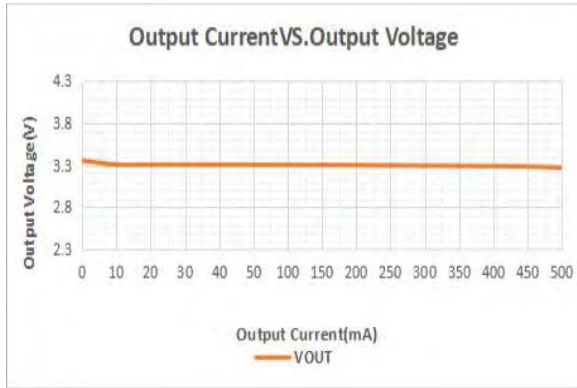
4、 $V_{\text{dif}}: V_{\text{IN1}} - V_{\text{OUT}}(\text{E})'$

V_{IN1} ：逐渐减小输入电压，当输出电压降为 $V_{\text{OUT}}(\text{E})98\%$ 时的输入电压。

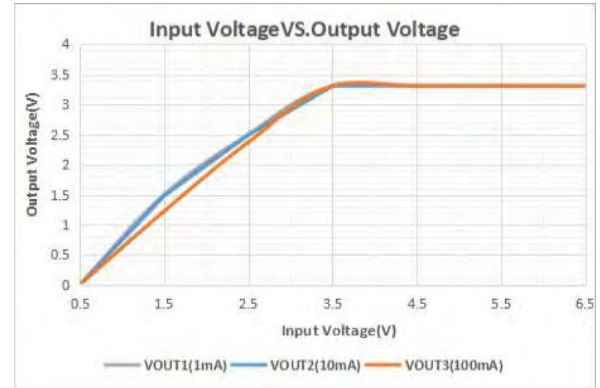
$V_{\text{OUT}}(\text{E})' = V_{\text{OUT}}(\text{E}) \times 98\%$ 。



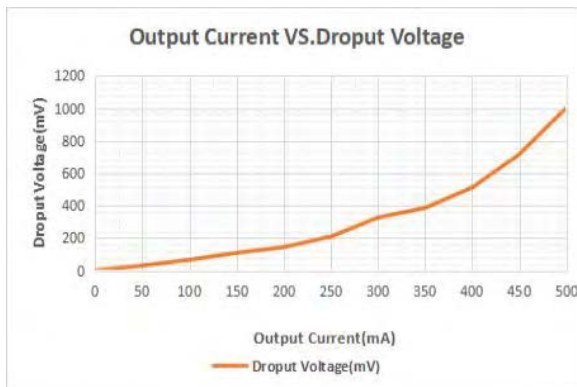
特性曲线



输出电流与输出电压关系



输入电压与输出电压关系

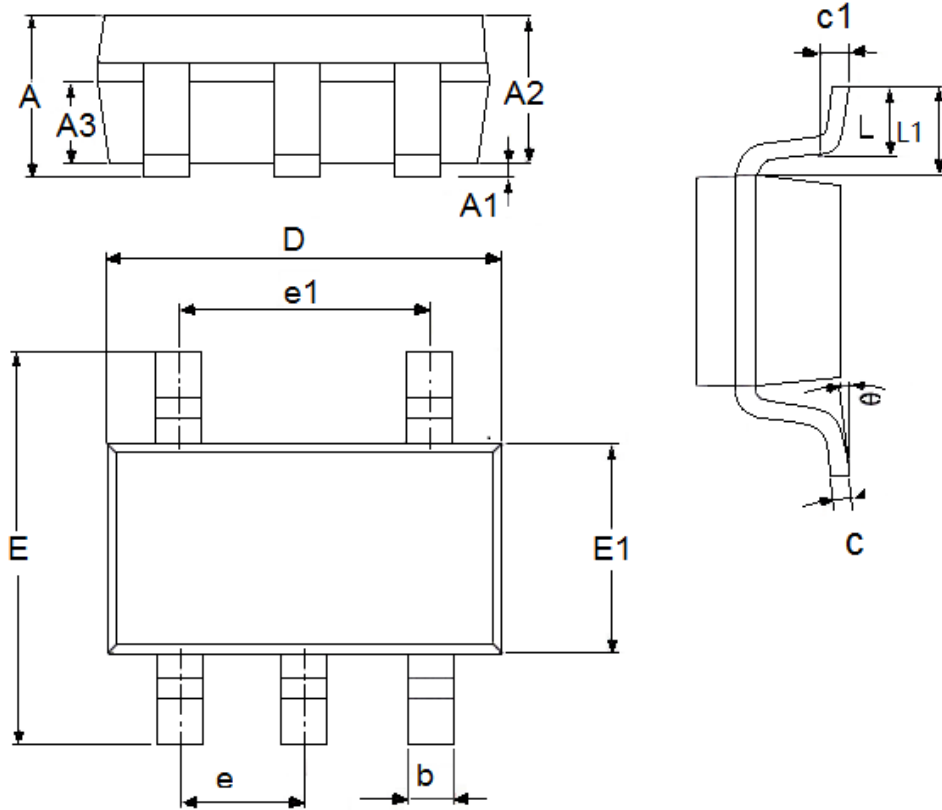


输出电流与压差的关系



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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