

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

RT9013

产品手册

概述

RT9013 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（60 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延长有 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。

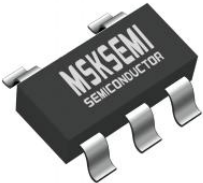
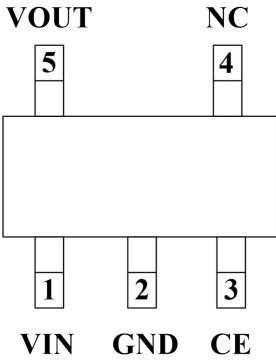
特点

- 输出范围：1.2V-5.0V
- 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：60uA（典型）
- 在关机模式下小于 1 μ A
- 交界处的温度运作为-40℃至+85℃

应用范围

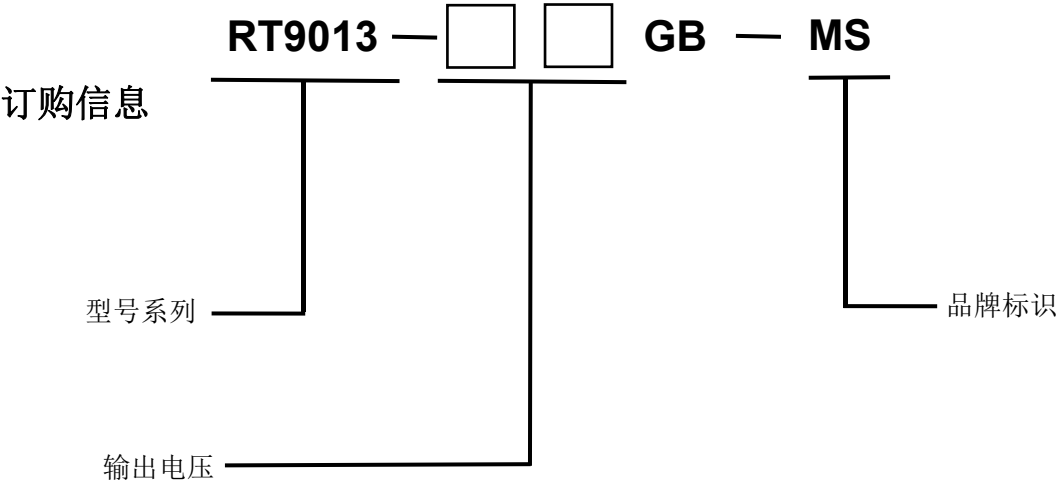
- CDMA / GSM 移动电话
- PDAS/MP3
- WLAN 和蓝牙设备
- 无绳电话
- 电池供电系统

参考信息

封装	管脚分布图
	
SOT-23-5	

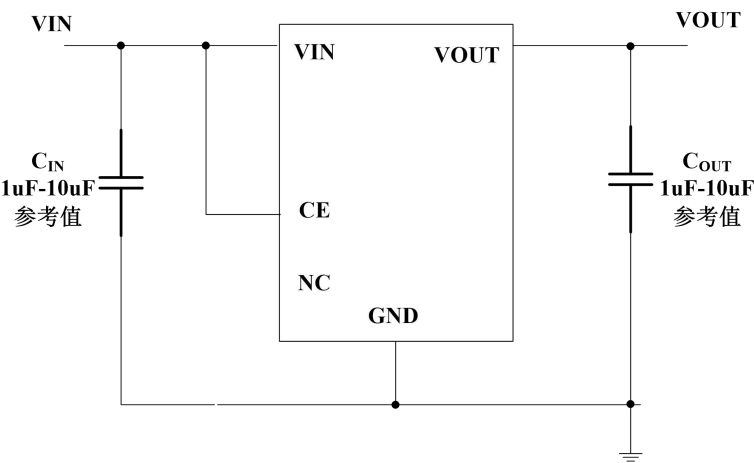
管脚描述

管脚号	管脚名	描述
1	VIN	电源端
2	GND	接地端
3	CE	即EN，使能端
4	NC	悬空
5	VOUT	输出端



型号	封装	输出电压
RT9013-12GB-MS	SOT-23-5	1.2V
RT9013-15GB-MS	SOT-23-5	1.5V
RT9013-18GB-MS	SOT-23-5	1.8V
RT9013-25GB-M	SOT-23-5	2.5V
RT9013-28GB-MS	SOT-23-5	2.8V
RT9013-30GB-MS	SOT-23-5	3V
RT9013-33GB-MS	SOT-23-5	3.3V

典型应用



封装耗散等级

封装	Pd (mW)
SOT-23-5L	300

ESD 与 Latch-up 等级

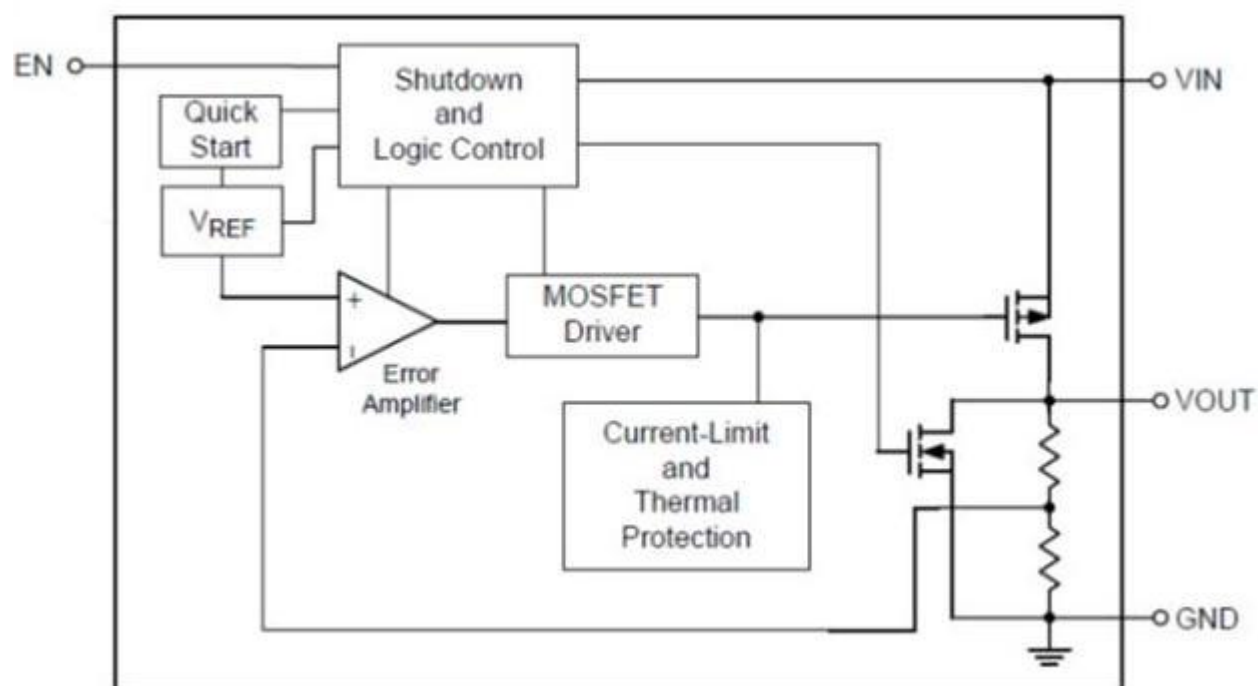
人体模型 ESD 级别	4000V
机器模型 ESD 级别	400V
Latcu-up 级别	400mA

极限参数

参数	符号	极限值	单位
Vin 脚电压	VIN	7	V
Vout 脚电流	Iout	600	mA
Vout 脚电压	Vout	Vss-0.3 ~ Vout+0.3	V
工作温度	T0pr	-40~+85	℃
存贮温度	Tstg	-55~+125	℃
焊接温度和时间	Tsolder	260℃, 10s	℃

注释：超出“绝对极限参数”可能损毁器件。推荐工作范围内器件可以工作，但不保证其特性。长时间运行在绝对极限参数条件下可能会影响器件的可靠性。

结构框图



主要参数及工作特性

(Vin=Vout+1V, Cin=Cout=1u, Ta=25C。除特别指定)

特性	符号	条件	最小值	典型值	最大值	单位
输出电压	VOUT (E) (Note 2)	IOUT=40mA, VIN=Vout+1V	X 0.98	VOUT (T) (Note 1)	X 1.02	V
输入电压	VIN				5.5	V
最大输出电流	IOUTmax	VIN=Vout+1V		500		mA
CE 使能电压	VCE (Note3)	VIN=Vout+1V		1.1		mV
负载特性	ΔVOUT	VIN=Vout+1V, 1mA ≤ IOUT ≤ 100mA		50		mV
压差 (Note 3)	Vdif1	IOUT =100mA		100		mV
	Vdif2	IOUT =200mA		300		mV
静态电流	ISS	VIN=Vout+1V		60		uA
关断电流	ICEL	Vce= 0V		1		uA
电源电压调整率	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	IOUT=40mA Vout+1V ≤ VIN ≤ 8V		0.03		%/V
输出噪声	en	IOUT =40mA, 300Hz~50kHz		50		uVrms
纹波抑制比	PSRR	Vin= [Vout+1] V + 1Vp-pAC IOUT=40mA, f=1kHz		75		dB

注释： 1. VOUT (T) : 规定的输出电压

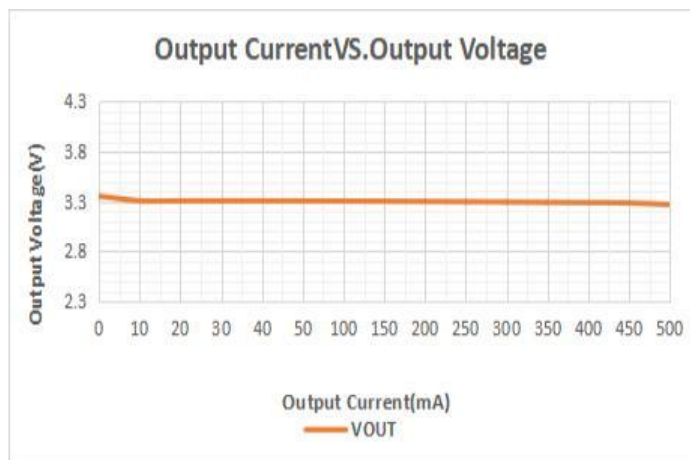
2. VOUT (E) : 有效输出电压 (即当 IOUT 保持一定数值, VIN = (VOUT (T)+1.0V)时的输出电压。

3. VCE : 考虑到高温和工艺偏差, 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 1MΩ 电阻。

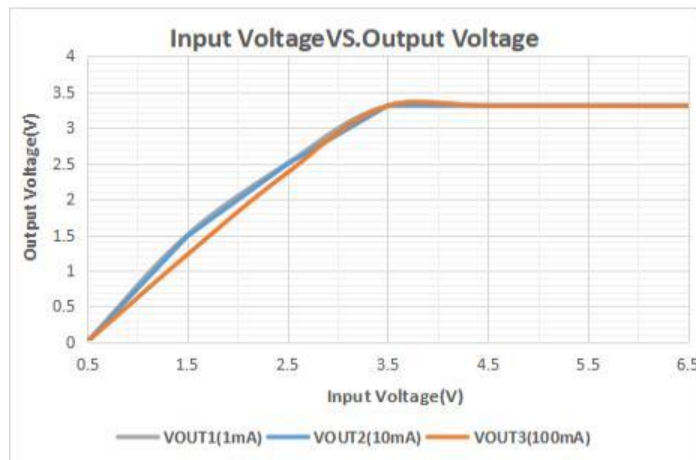
4. Vdif : VIN1-VOUT (E) ’

VIN1 : 逐渐减小输入电压, 当输出电压降为 VOUT (E) 98%时的输入电压。
VOUT (E) ’ = VOUT (E) X98%

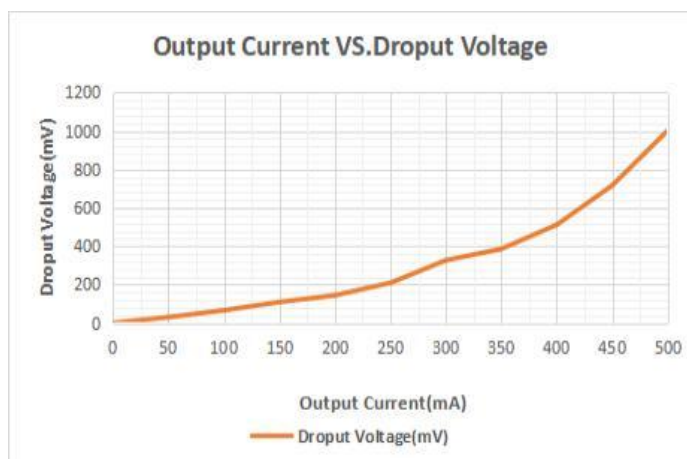
特性曲线



输出电流与输出电压关系

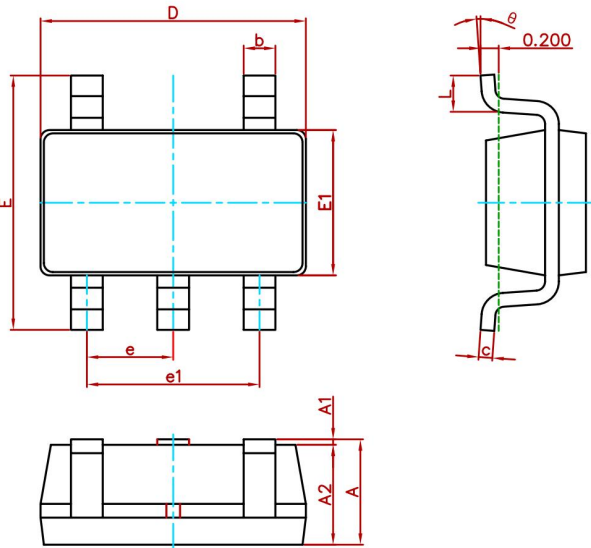


输入电压与输出电压关系



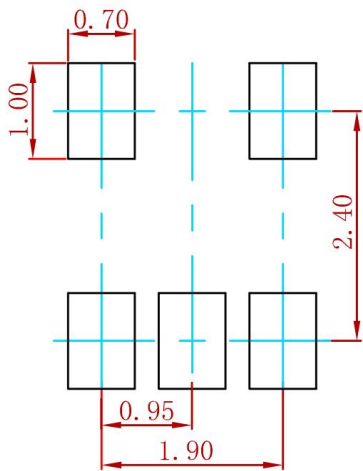
输出电流与压差的关系

封装说明



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

焊盘布局



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

卷轴规格

P/N	PKG	QTY
RT9013	SOT-23-5	3000

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