

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。

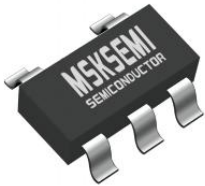
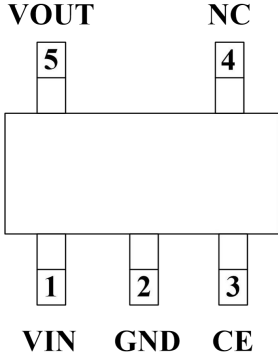
特点

- 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：60 μ A（典型）
- 在关机模式下小于 1 μ A
- 交界处的温度运作为 -40 $^{\circ}$ C 至 +85 $^{\circ}$ C

应用范围

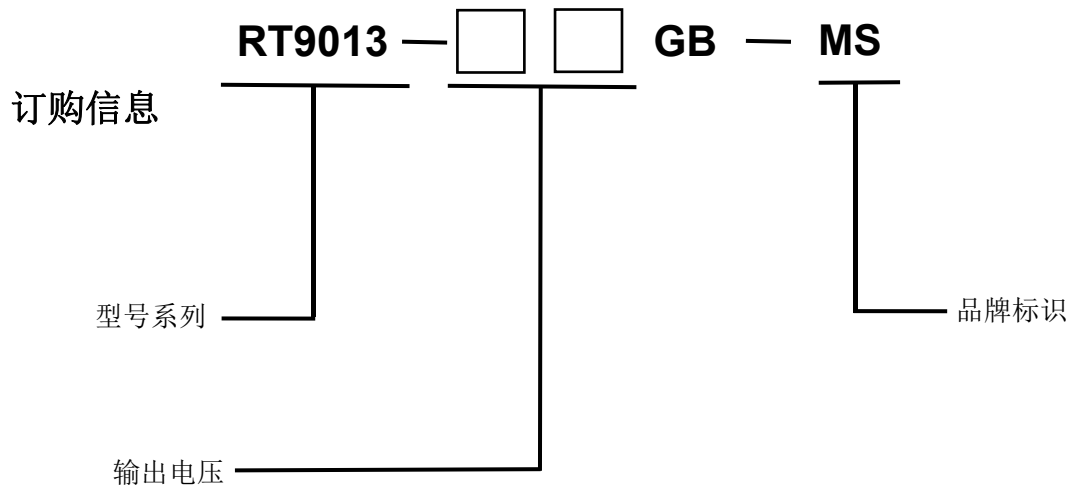
- CDMA / GSM 移动电话
- PDAS/MP3
- WLAN 和蓝牙设备
- 无绳电话
- 电池供电系统

参考信息

封装	管脚分布图
	
SOT-23-5	

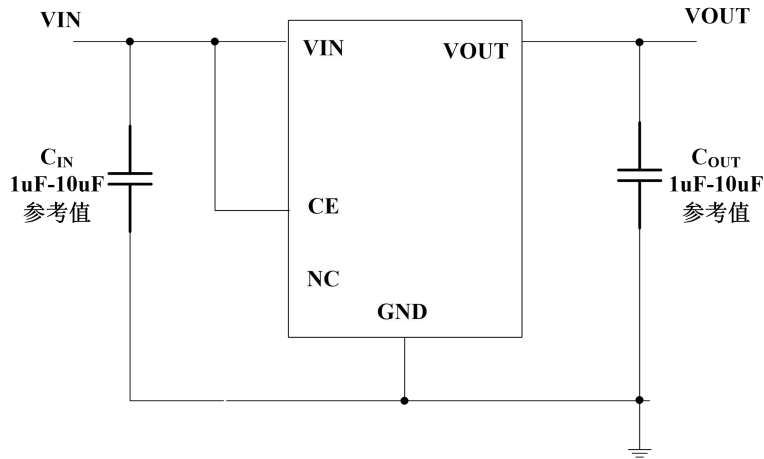
管脚描述

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

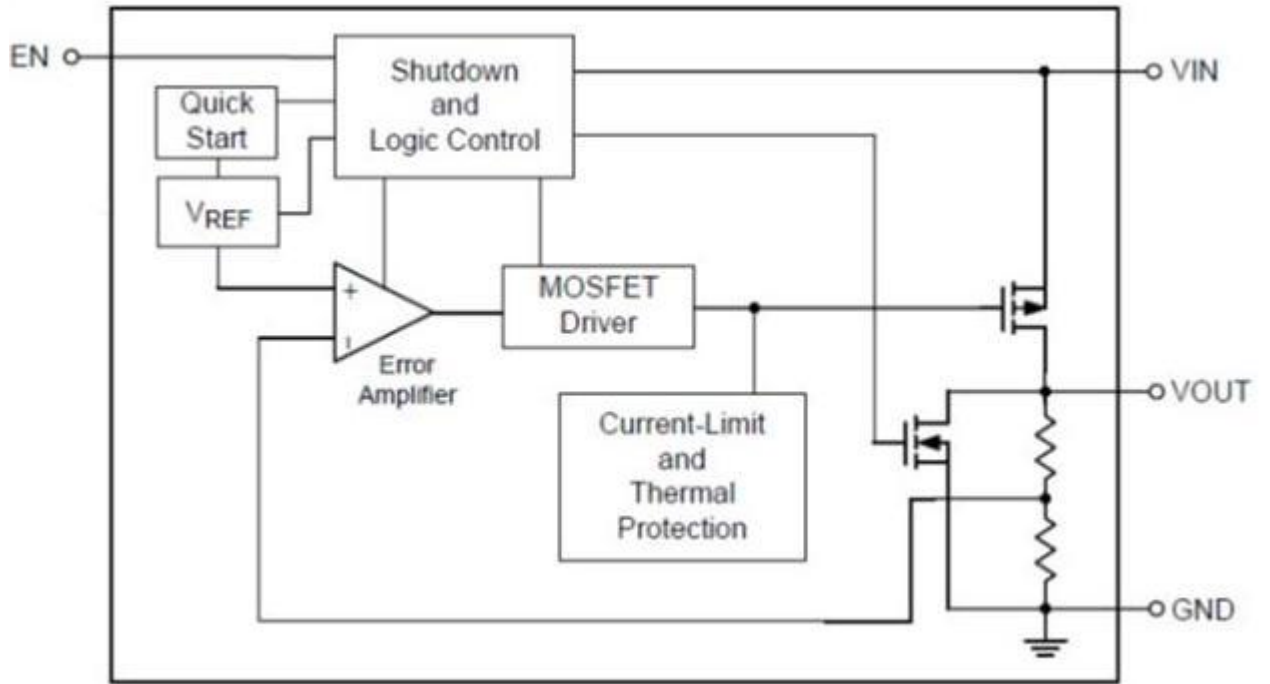
人体模型 ESD 级别	4000V
机器模型 ESD 级别	400V
Latcu-up 级别	400mA

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	V _{SS} -0.3 ~ Vout+0.3	V
工作温度	T _{opr}	-40~+85	°C
存贮温度	T _{stg}	-55~+125	°C
焊接温度和时间	T _{solder}	260°C, 10s	°C

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



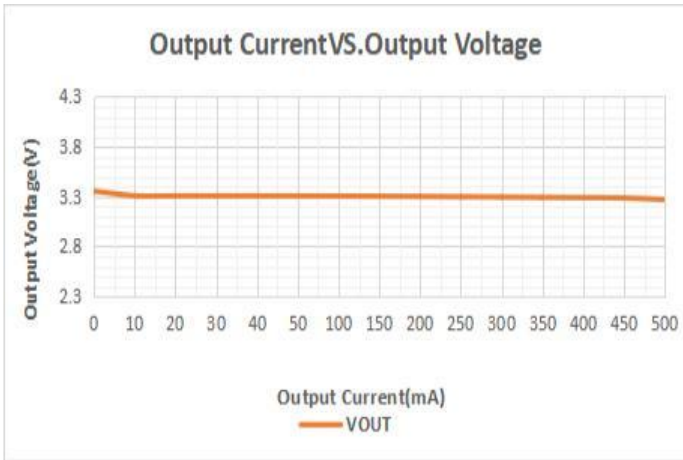
主要参数及工作特性

($V_{in}=V_{out}+1V$, $C_{in}=C_{out}=1\mu$, $T_a=25C$ 。除特别指定)

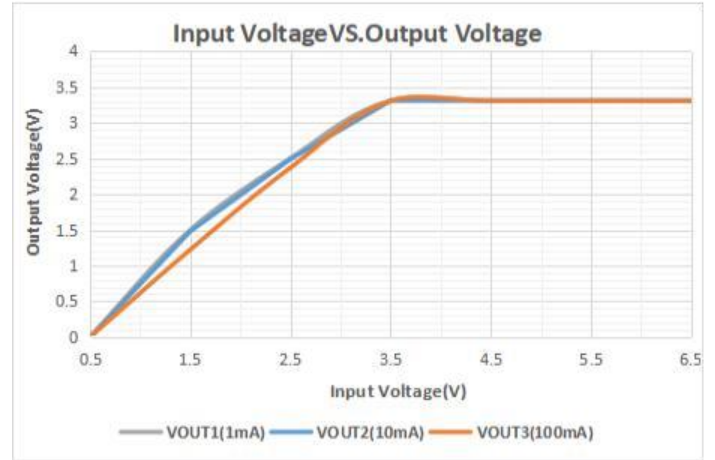
特性	符号	条件	最小值	典型值	最大值	单位
输出电压	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=40mA$, $V_{IN}=V_{out}+1V$	$\times 0.98$	$V_{OUT(T)}$ (Note 1)	$\times 1.02$	V
输入电压	V_{IN}				5.5	V
最大输出电流	I_{OUTmax}	$V_{IN}=V_{out}+1V$		500		mA
CE 使能电压	V_{CE} (Note3)	$V_{IN}=V_{out}+1V$		1.1		mV
负载特性	ΔV_{OUT}	$V_{IN}=V_{out}+1V$, $1mA \leq I_{OUT} \leq 100mA$		50		mV
压差 (Note 3)	V_{dif1}	$I_{OUT} = 100mA$		100		mV
	V_{dif2}	$I_{OUT} = 200mA$		300		mV
静态电流	I_{SS}	$V_{IN}=V_{out}+1V$		60		μA
关断电流	I_{CEL}	$V_{ce} = 0V$		1		μA
电源电压调整率	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=40mA$ $V_{out}+1V \leq V_{IN} \leq 8V$		0.03		%/V
输出噪声	e_n	$I_{OUT} = 40mA$, $300Hz \sim 50kHz$		50		μV_{rms}
纹波抑制比	PSRR	$V_{in} = [V_{out}+1]V$ $+ 1V_{p-pAC}$ $I_{OUT}=40mA, f=1kHz$		75		dB

- 注释:**
- $V_{OUT(T)}$: 规定的输出电压
 - $V_{OUT(E)}$: 有效输出电压 (即当 I_{OUT} 保持一定数值, $V_{IN} = (V_{OUT(T)}+1.0V)$ 时的输出电压。
 - V_{CE} : 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 1M Ω 电阻。
 - V_{dif} : $V_{IN1} - V_{OUT(E)}$
 V_{IN1} : 逐渐减小输入电压, 当输出电压降为 $V_{OUT(E)}$ 98% 时的输入电压。
 $V_{OUT(E)'} = V_{OUT(E)} \times 98\%$

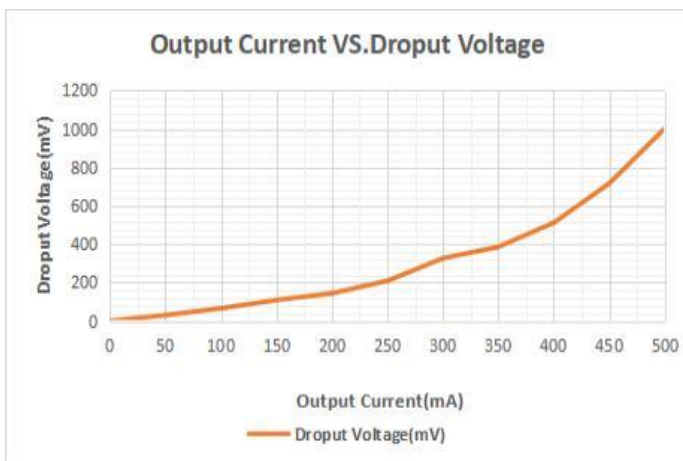
特性曲线



输出电流与输出电压关系

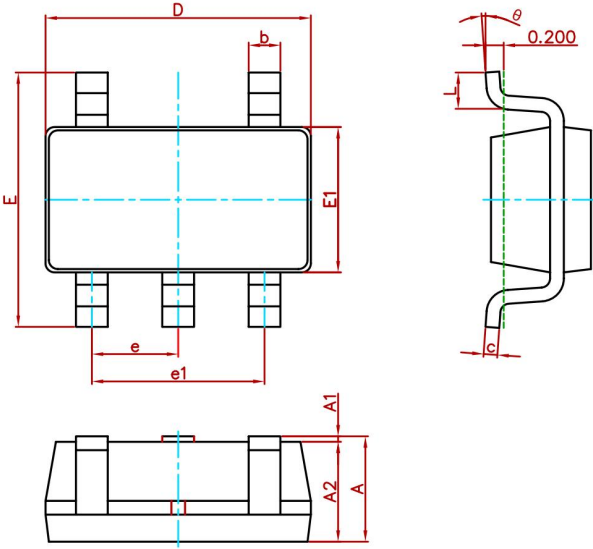


输入电压与输出电压关系



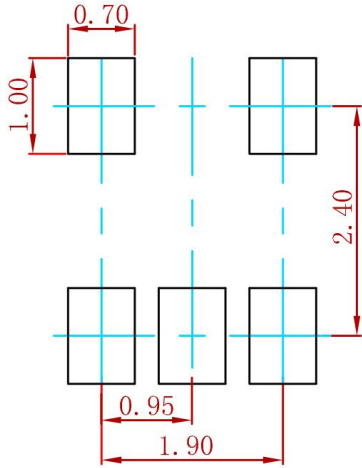
输出电流与压差的关系

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: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.

卷轴规格

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

Attention

- Any and all MSKSEMI Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your MSKSEMI Semiconductor representative nearest you before using any MSKSEMI Semiconductor products described or contained herein in such applications.
- MSKSEMI Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all MSKSEMI Semiconductor products described or contained herein.
- Specifications of any and all MSKSEMI Semiconductor products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- MSKSEMI Semiconductor strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all MSKSEMI Semiconductor products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of MSKSEMI Semiconductor.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. MSKSEMI Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringement of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the MSKSEMI Semiconductor product that you intend to use.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Linear Voltage Regulators](#) category:

Click to view products by [MSKSEMI](#) manufacturer:

Other Similar products are found below :

[LV5684PVD-XH](#) [MCDTSA6-2R](#) [L7815ACV-DG](#) [LV56801P-E](#) [UA7805CKC](#) [714954EB](#) [ZMR500QFTA](#) [BA033LBSG2-TR](#)

[NCV78M05ABDTRKG](#) [LV5680P-E](#) [L79M05T-E](#) [L78LR05D-MA-E](#) [NCV317MBTG](#) [NTE7227](#) [MP2018GZD-33-P](#) [MP2018GZD-5-P](#)

[LV5680NPVC-XH](#) [ZTS6538SE](#) [UA78L09CLP](#) [UA78L09CLPR](#) [CAT6221-PPTD-GT3](#) [MC78M09CDTRK](#) [NCV51190MNTAG](#)

[BL1118CS8TR1833](#) [BL8563CKETR18](#) [BL8077CKETR33](#) [BL9153-33CC3TR](#) [BL9161G-15BADRN](#) [BL9161G-28BADRN](#)

[BRCO7530MMC](#) [CJ7815B-TFN-ARG](#) [LM317C](#) [GM7333K](#) [GM7350K](#) [XC6206P332MR](#) [HT7533](#) [LM7912S/TR](#) [LT1764S/TR](#) [LM7805T](#)

[LM338T](#) [LM1117IMP-3.3/TR](#) [HT1117AM-3.3](#) [HT7550S](#) [AMS1117-3.3](#) [HT7150S](#) [78L12](#) [HT7550](#) [HT7533-1](#) [HXY6206I-2.5](#) [HT7133](#)