

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

MSP151AUJZ-X.X-R7

Product specification

概述

MSP151AUJZ-X.X-R7 系列是以 CMOS 工艺制造的高精度，低噪音，快速响应低压差线性稳压器。该系列的稳压器内 置固定的参考电压，误差修正电路，限流电路，相位补偿电路以及低内阻的 MOSFET,达到高纹波抑制，低输出噪音，快速响应低压差的性能。

MSP151AUJZ-X.X-R7 系列兼容体积比但电容更小的陶瓷电容，而且不需使用 0.1 pF 的 By-pass 电容，更能节省空间，降低了成本。因具有高精度的输出稳定性，以及快速瞬态响应性能，从而能应付负载电流的波动，所以特别适合应用在手持设备及射频产品上。

通过控制芯片上的 CE 脚，可将输出关断，关断输出后的静态电流只有 1uA (Typ 值)，从而大大降低了功耗。

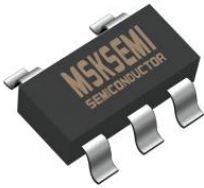
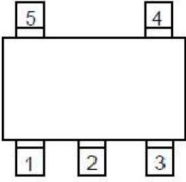
产品特点

- 高精度输出电压：±2.0%；
- 可选择输出电压：1.2V~3.6V；
- 极低的静态电流 (Typ. =70uA)；
- 极低的关断电流 (Typ. =1uA)；
- 输入稳定性好：Typ. =0.2%/V
- 带载能力强：当 Vin=4.3V 且 Vout=3.3V 时, Iout=300mA；
- 内置过流保护和负载短路保护；
- 兼容陶瓷电容；
- 封装形式：SOT-23-5

产品用途

- 智能手机/移动电话
- 数码相机/摄像机
- 电池供电设备
- 蓝牙及其他射频产品
- 便携式消费类设备

封装形式和管脚定义功能

SOT-23-5	管脚配置
	

管脚序号	管脚定义	功能说明
封装		
SOT-23-5		
1	VIN	输入端
2	VSS	接地端
3	CE	使能端
4	NC	空
5	VOUT	输出端

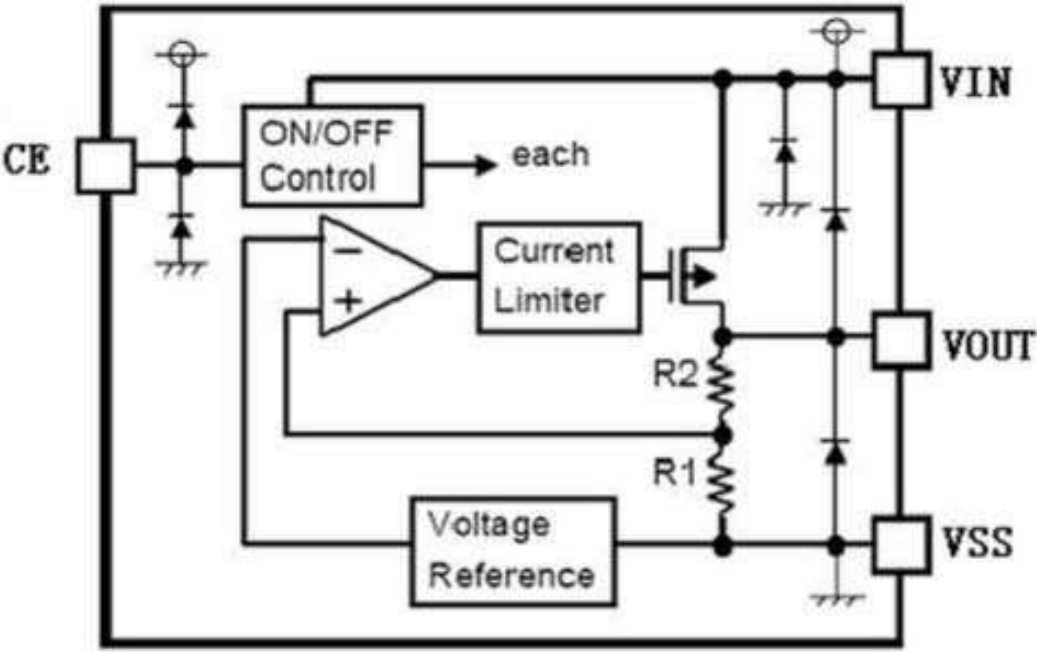
管体标记

MSP151AUJZ-1.2-R7	MSP151AUJZ-1.5-R7	MSP151AUJZ-1.8-R7	MSP151AUJZ-2.5-R7
			
MSP151AUJZ-2.8-R7	MSP151AUJZ-2.9-R7	MSP151AUJZ-3.0-R7	MSP151AUJZ-3.3-R7
			

订购信息

型号	输出电压	输出电压
MSP151AUJZ-1.2-R7	1.2V	SOT-23-5
MSP151AUJZ-1.5-R7	1.5V	
MSP151AUJZ-1.8-R7	1.8V	
MSP151AUJZ-2.5-R7	2.5V	
MSP151AUJZ-2.8-R7	2.8V	
MSP151AUJZ-2.9-R7	2.9V	
MSP151AUJZ-3.0-R7	3.0V	
MSP151AUJZ-3.3-R7	3.3V	

功能框图

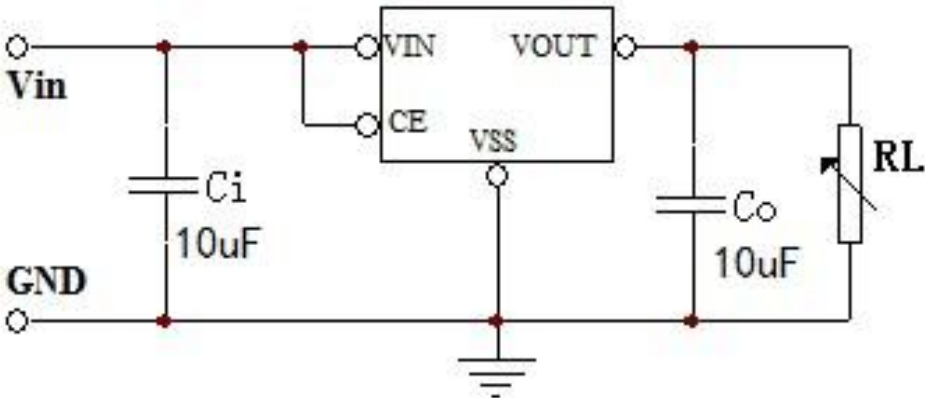


极限参数

项目	符号	说明		极限值	单位
电压	Vin	输入电压		6	V
	Vout	输出电压		$V_{SS}-0.3 \sim V_{in}+0.3$	V
电流	Iout	输出电流		450	mA
功耗	PD	SOT-23-5	最大允许功耗	300	mW
温度	TOPR	工作温度		$-40 \sim +85$	$^{\circ}\text{C}$
	Tstg	存储温度		$-40 \sim +125$	$^{\circ}\text{C}$
	Tsolder	焊接温度		$260^{\circ}\text{C}, 10\text{s}$	

注：极限参数是指无论在任何条件下都不能超过的极限值。万一超过此极限值，将有可能造成产品劣化等物理性损伤；同时在接近极限参数下，不能全部保证芯片可以正常工作。

典型应用



电学特性 RT9193 $V_{OUT}(T) = 3.3V$ ($C_i = C_o = 10\mu F$, $T_a = 25^\circ C$ 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	$V_{OUT}(E)$	$I_{OUT} = 1mA$, $V_{IN} = 5V$, $V_{CE} = 1.6V$	3.24	3.300	3.360	V
最大输出电流	$I_{OUT(max)}$	$V_{IN} = 4.3V$		300		mA
负载稳定度	ΔV_{QUT}	$V_{IN} = V_{CE} = 4.3V$, $1mA \leq I_{OUT} \leq 100mA$		12		mV
输入稳定度	$\Delta V_{OUT} / (\Delta V_{IN} \cdot V_{QUT})$	$I_{OUT} = 10mA$, $4.3V < V_{IN} < 7V$		0.2		%/V
跌落压差	V_{drop1}	$V_{IN} = 4.3V$, $I_{QUT} = 10mA$		35		mV
	V_{drop2}	$V_{IN} = 4.3V$, $I_{QUT} = 100mA$		280		mV
静态电流	I_{ssi}	$V_{IN} = V_{CE} = 5V$	—	70	—	uA
	I_{ss2}	$V_{IN} = 5V$, $V_{CE} = V_{SS}$			1.0	uA
CE 输入电压	V_{CEH}		1.6		V_{IN}	V
	V_{CEL}		0		0.5	V
CE 输入电流	I_{CE}	$V_{CE} = 0V$ to V_{IN}			0.5	uA
纹波抑制比	PSRR	$V_{IN} = V_{CE} = 4.3V + 1V_{P-PAC}$ $I_{OUT} = 10mA$, $f = 1kHz$		70		dB
输出电压 温度系数	$\Delta V_{OUT} / (AT_a \cdot V_{OUT})$	$V_{IN} = V_{CE} = 4.3V$, $I_{OUT} = 3.3mA$ $0^\circ C < T_a < 60^\circ C$		± 290		ppm/ $^\circ C$
输入电压	V_{IN}		1.2		6	V

注:

- 1、 $V_{OUT}(T)$: 规定的输出电压。
- 2、 $V_{OUT}(E)$: 有效输出电压 (即当 I_{OUT} 保持一定数值, $V_{IN} = (V_{OUT}(I) + 1.0V)$ 时的输出电压。。
- 3、 $I_{OUT(max)}$: 缓慢增加 V 输出电流, 当输出电压 $V_{OUT}(E) * 95\%$ 时的电流值。

4、 $drop = V_{IN1} - V_{OUT}(E)$ s

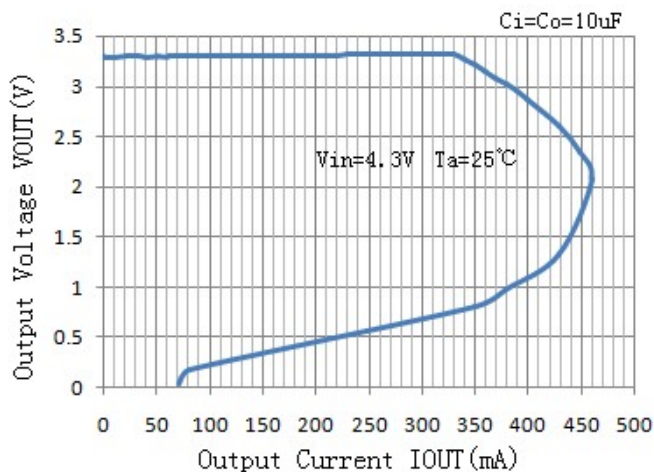
V_{IN1} = 逐渐减小输入电压, 当输出电压降为 $V_{OUT}(E)$ 的 98% 时的输入电压。

$V_{OUT}(E)S = V_{OUT}(E)1 * 98\%$;

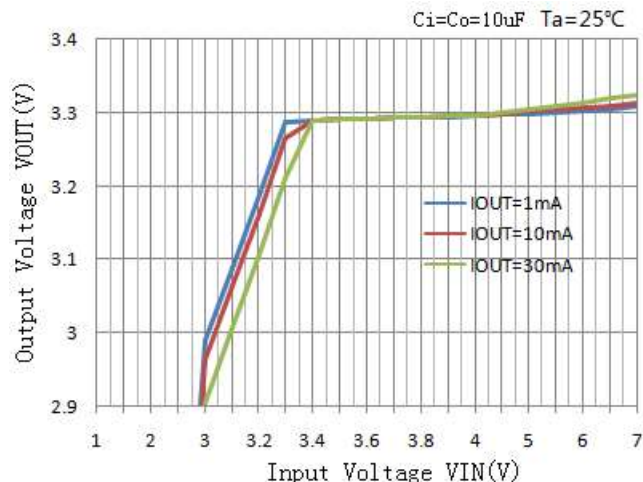
$V_{OUT}(E)1$ = 当 $V_{IN} = V_{OUT}(T) + 1V$, $I_{OUT} = K$ 一数值时的输出电压值。

特性曲线 (3.3V输出)

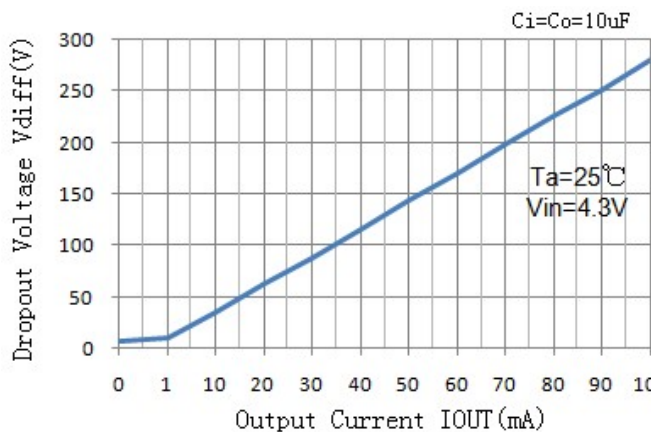
1、输出电压和输出电流



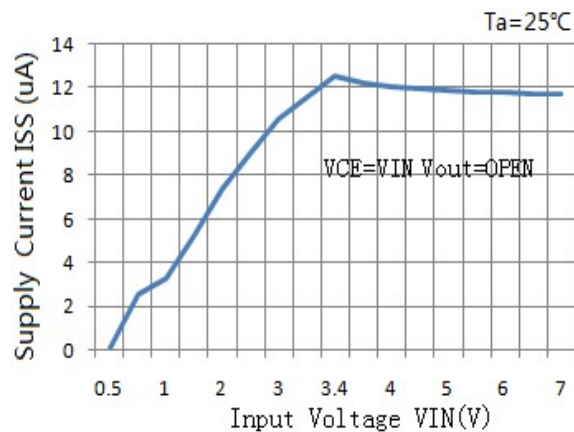
2、输出电压和输入电压



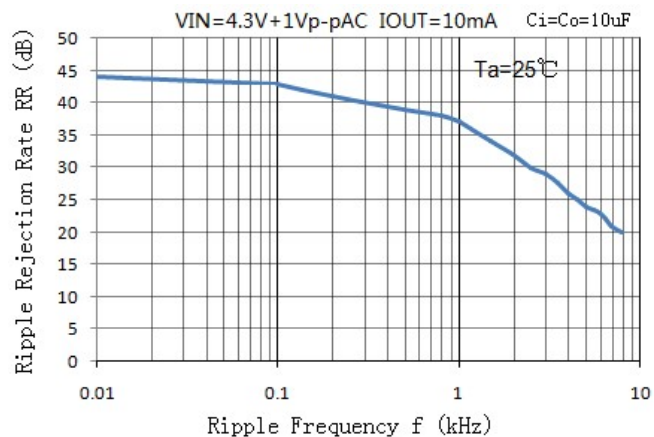
3、Dropout 电压和输出电流



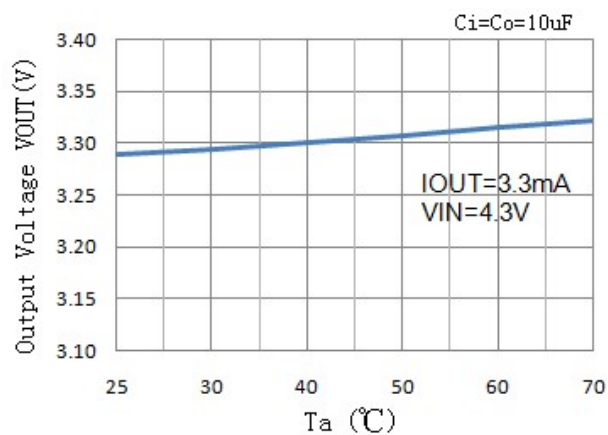
4、输入电压和静态电流



5、纹波抑制



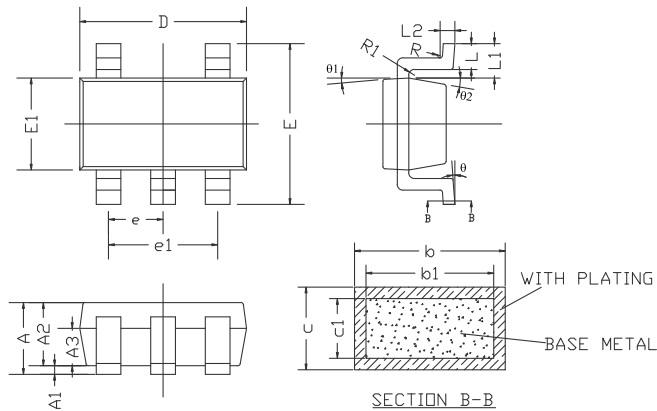
6、输出电压和温度



Package Outline

Package SOT-23-5

Package dimension (mm):



Devices per reel

Symbol	MIN	NORM	MAX
A	-	-	1.25
A1	0.00	-	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	-	0.50
b1	0.36	0.38	0.45
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59 REF		
L2	0.25 BSC		
R	0.05	-	-
R1	0.05	-	0.20
θ	0°	-	8°
$\theta 1$	3°	5°	7°
$\theta 2$	6°	-	14°

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