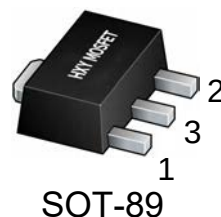




## ■ 产品简介

HT78XX 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(2 $\mu$ A Typ.)，它们能在输入、输出电压差极小的情况下提供400mA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。



| 管脚编号 | 管脚名 | 功能描述 |
|------|-----|------|
| 1    | VSS | 接地   |
| 2    | VOU | 输出   |
| 3    | VIN | 电源输入 |

## ■ 产品特点

- 高精度输出电压： $\pm 2\%$
- 输出电压：2.8V~5.0V(步长 0.1V)
- 极低的静态偏置电流(Typ. =2.0 $\mu$ A)
- 低的温度调整系数
- 最高输入电压可达 12V
- 输入输出电压差低
- 封装形式：SOT-89

## ■ 产品用途

- 电池供电系统
- 无绳电话设备
- 无线控制系统
- 便携/手掌式计算机
- 便携式消费类设备
- 便携式仪器
- 汽车电子设备

## ■ 极限参数

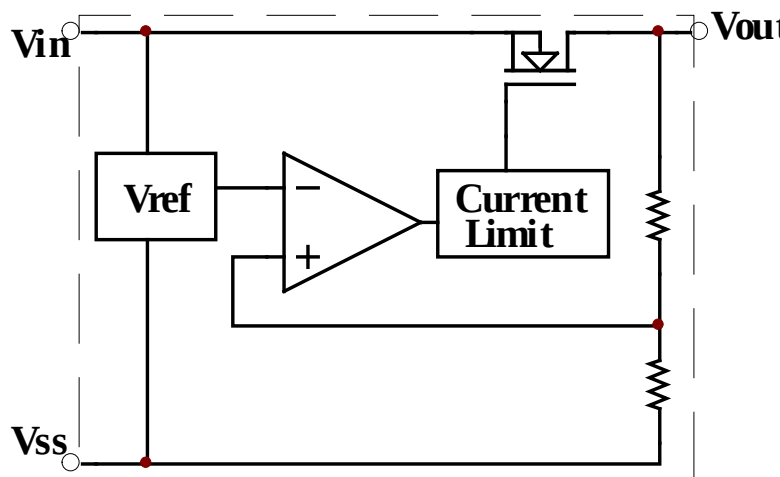
| 项目 | 符号   | 参数     | 极限值               | 单位     |
|----|------|--------|-------------------|--------|
| 电压 | Vin  | 输入电压   | 12                | V      |
|    | Vout | 输出电压   | Vss-0.3 ~Vout+0.3 | V      |
| 电流 | Iout | 输出电流   | 450               | mA     |
| 功耗 | PD   | 最大允许功耗 | 500               | mW     |
| 温度 | Tw   | 工作温度   | -25~+80           | ℃      |
|    | Tc   | 存储温度   | -40~+125          | ℃      |
|    | Th   | 焊接温度   | 260               | ℃, 10s |



## ■ 型号选择

| 型号     | 输出电压 | 封装形式   |
|--------|------|--------|
| HT7828 | 2.8V | SOT-89 |
| HT7830 | 3.0V |        |
| HT7833 | 3.3V |        |
| HT7836 | 3.6V |        |
| HT7850 | 5.0V |        |

## ■ 功能框图



## ■ 电学特性 (Cin=Cout=10uF,Ta=25°C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     | $V_{OUT}(E)$                                   | $I_{OUT}=1mA, V_{IN}=V_{OUT}(T)+2V$                                        | $V_{OUT}(T) * 0.98$ | $V_{OUT}(T)$ | $V_{OUT}(T) * 1.02$ | V               |
| 最大输出电流   | $I_{OUT} (max)$                                | $V_{IN}=V_{OUT}(T)+2V$                                                     | 300                 | 450          |                     | mA              |
| 低压差      | $V_{DIF}$                                      | $I_{OUT}=100mA, \Delta V_{OUT}=2\%$                                        |                     | 195          | 300                 | mV              |
| 静态电流     | $I_{SS}$                                       | $V_{IN}=V_{OUT}(T)+2V$                                                     |                     | 2            |                     | $\mu A$         |
| 负载稳定度    | $\Delta V_{OUT}$                               | $V_{IN}=V_{OUT}(T)+2V, 1mA \leq I_{OUT} \leq 300mA$                        |                     | 37           |                     | mV              |
| 输入稳定度    | $\Delta V_{OUT}/(\Delta V_{IN} \cdot V_{OUT})$ | $I_{OUT}=1mA, V_{OUT}(T)+0.5V \leq V_{IN} \leq 8V$                         |                     | 0.1          | 0.2                 | %/V             |
| 输出电压温度系数 | $\Delta V_{OUT}/(\Delta T_a \cdot V_{OUT})$    | $V_{IN}=V_{OUT}(T)+2V, I_{OUT}=10mA, -40^\circ C \leq T_a \leq 85^\circ C$ |                     | $\pm 100$    |                     | ppm/ $^\circ C$ |
| 输入电压     | $V_{IN}$                                       |                                                                            |                     | —            | 10                  | V               |
| 纹波抑制比    | PSRR                                           | $V_{IN}=[V_{OUT}(T)+1]V+1V_{p-p}AC, I_{OUT}=10mA, f=1kHz$                  |                     | 65           |                     | dB              |

注：当  $V_{IN}=V_{OUT}+2.0V$ ，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  $V_{DIF}$ 。



## ■ 测试电路

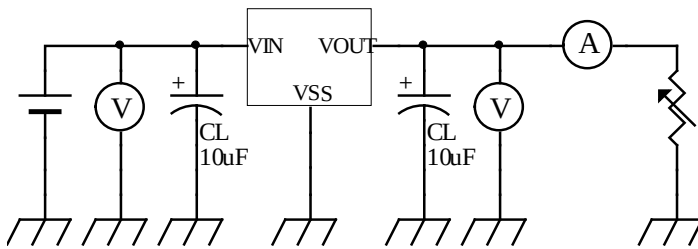


图 1

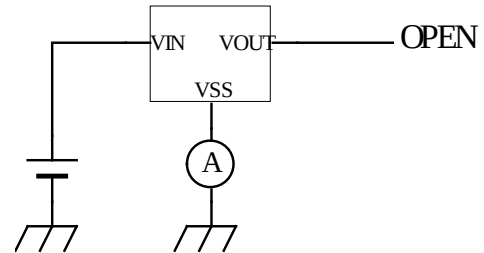
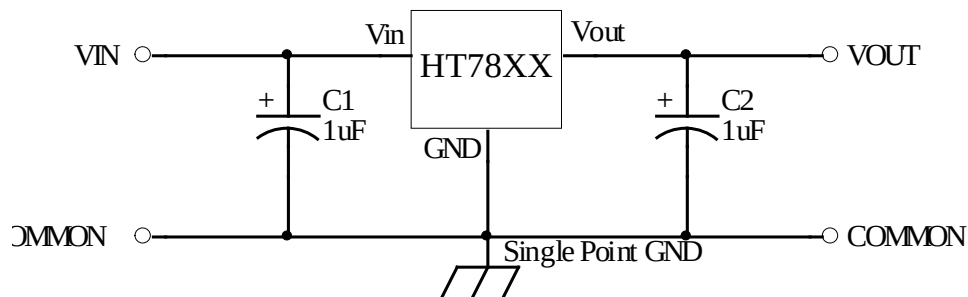
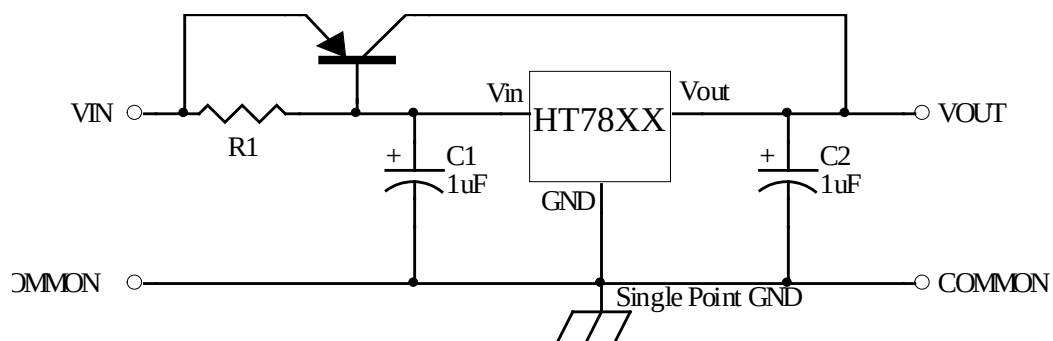


图 2

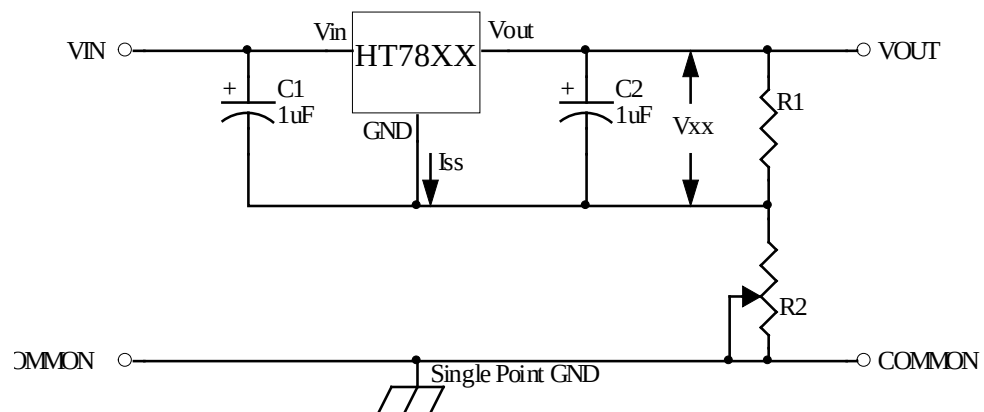
### 1、基本电路



### 2、大输出电流正电压型电压调整器



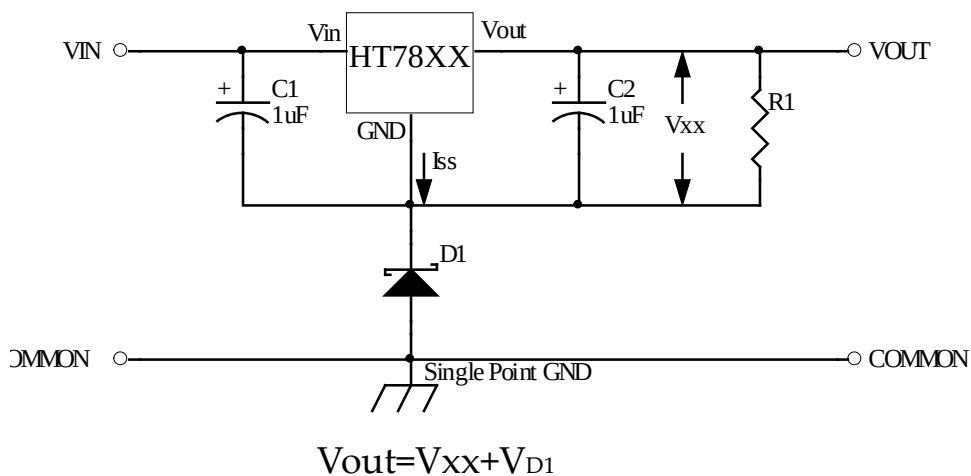
### 3、提高输出电压值电路 (1)



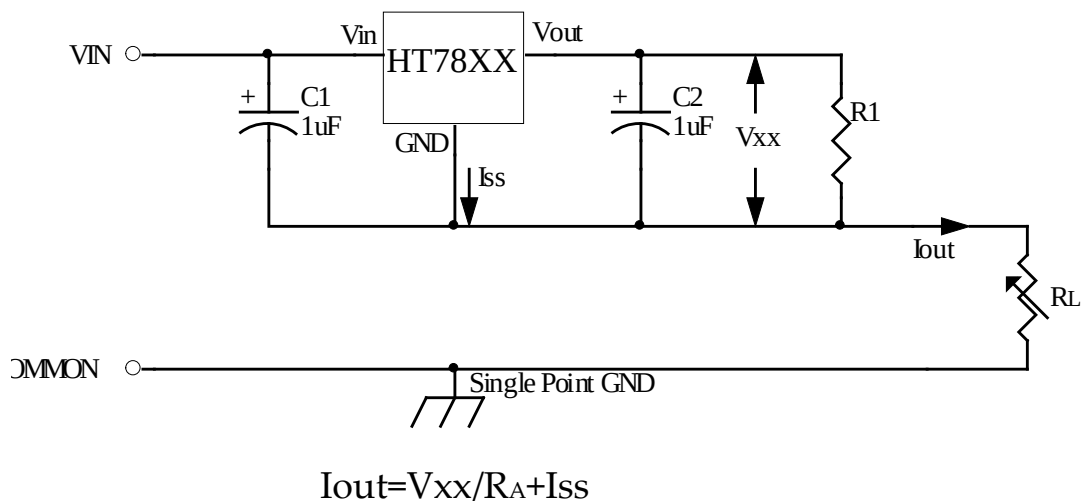
$$V_{out} = V_{xx}(1 + R_2/R_1) + I_{ss}R_2$$



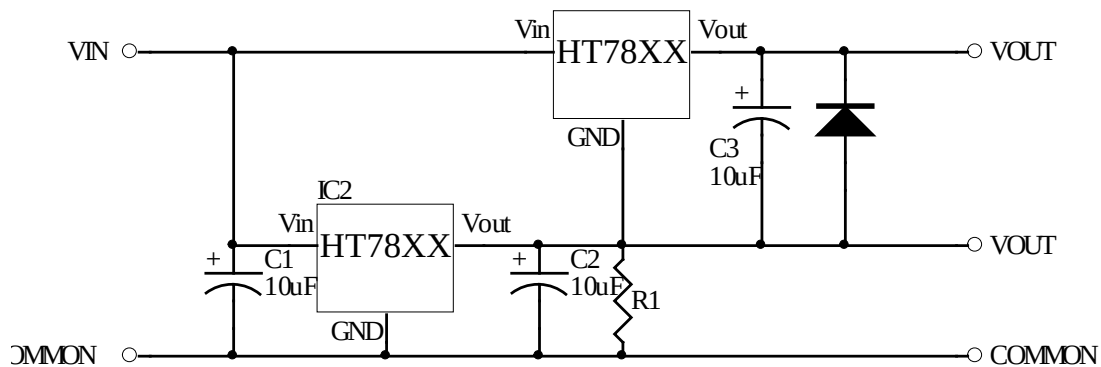
#### 4、提高输出电压电路（2）



#### 5、恒流调整器



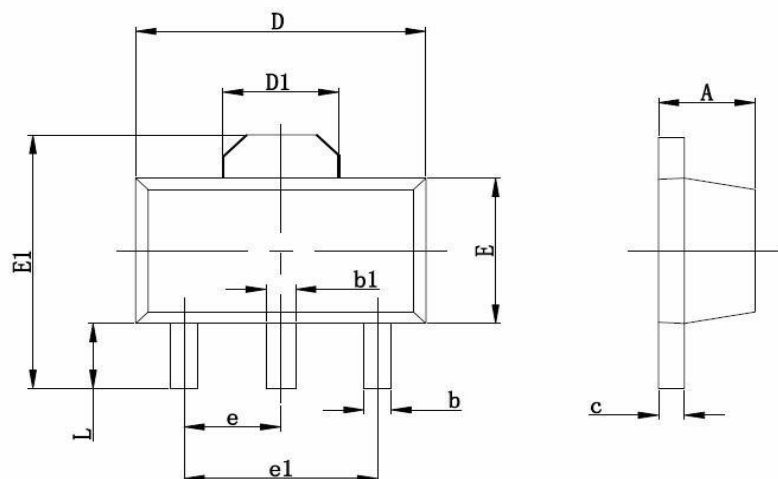
#### 6、双输出





## ■ 封装信息

### SOT-89 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.400                     | 1.600 | 0.055                | 0.063 |
| b      | 0.350                     | 0.520 | 0.013                | 0.197 |
| b1     | 0.400                     | 0.580 | 0.016                | 0.023 |
| c      | 0.350                     | 0.440 | 0.014                | 0.017 |
| D      | 4.400                     | 4.600 | 0.173                | 0.181 |
| D1     | 1.550 REF                 |       | 0.061 REF            |       |
| E      | 2.350                     | 2.550 | 0.091                | 0.102 |
| E1     | 3.940                     | 4.250 | 0.155                | 0.167 |
| e      | 1.500 TYP                 |       | 0.060TYP             |       |
| e1     | 3.000 TYP                 |       | 0.118TYP             |       |
| L      | 0.900                     | 1.100 | 0.035                | 0.047 |



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