



## 概述

NCP603 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。

NCP603 系列兼容体积比钽电容更小的陶瓷电容，而且不需使用 0.1uF 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0.1uA（Typ值），从而大大降低了功耗。

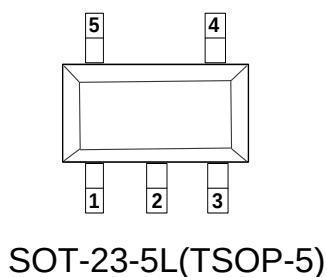
## 特点

- 输出范围：1.2V-3.6V
- 300mA输出电流
- 高电源抑制比: 70分贝1千赫
- 极低的静态偏置电流: 70uA(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



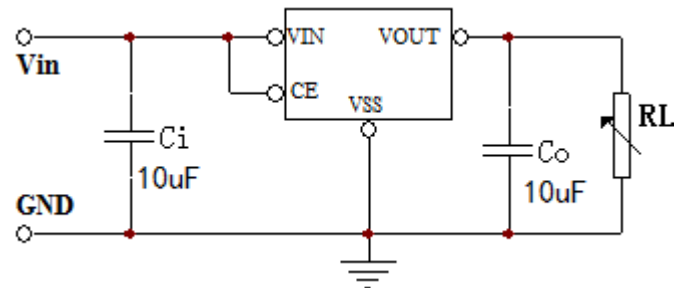
| PIN脚位                 | 符号        | 功能说明  |
|-----------------------|-----------|-------|
| SOT-23-5L<br>(TSOP-5) |           |       |
| 1                     | $V_{IN}$  | 电源输入端 |
| 2                     | $V_{SS}$  | 地     |
| 3                     | CE        | 使能端   |
| 4                     |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

## 型号介绍

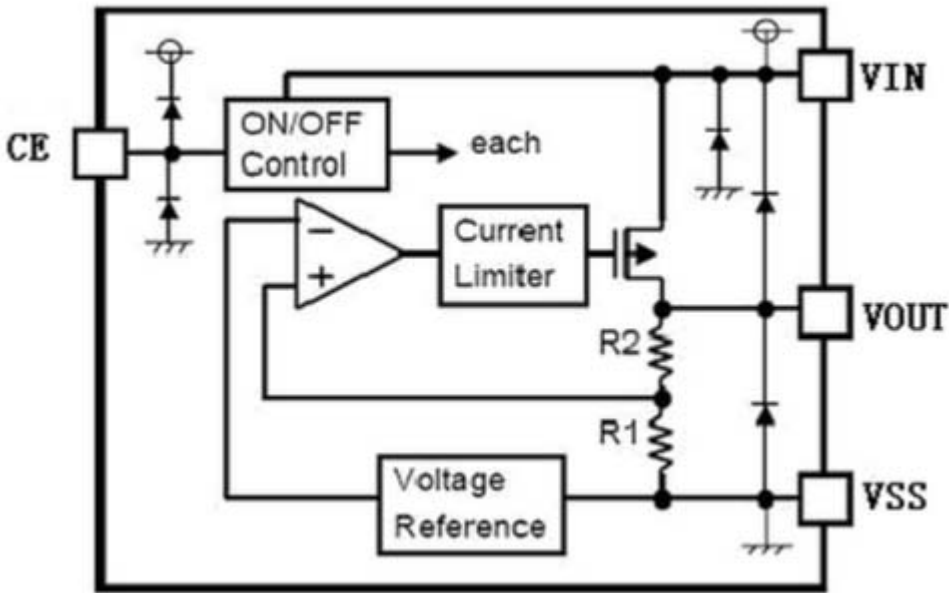
| 型号名            | 封装                | 输出电压 | 包装信息   |
|----------------|-------------------|------|--------|
| NCP603SN120T1G | SOT-23-5L(TSOP-5) | 1.2V | 3000/盘 |
| NCP603SN180T1G | SOT-23-5L(TSOP-5) | 1.8V | 3000/盘 |
| NCP603SN250T1G | SOT-23-5L(TSOP-5) | 2.5V | 3000/盘 |
| NCP603SN280T1G | SOT-23-5L(TSOP-5) | 2.8V | 3000/盘 |
| NCP603SN300T1G | SOT-23-5L(TSOP-5) | 3.0V | 3000/盘 |
| NCP603SN330T1G | SOT-23-5L(TSOP-5) | 3.3V | 3000/盘 |
| NCP603SN360T1G | SOT-23-5L(TSOP-5) | 3.6V | 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   | $V_{IN}$  | 6                              | V           |
| 输出电流   | $I_{OUT}$ | 450                            | 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

( $C_i=C_o=10\mu F$ ,  $T_a=25^\circ C$  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    | $V_{OUT}(E)$                                   | $I_{OUT}=1mA$ , $V_{IN}=5V$ ,<br>$V_{CE}=1.6V$               | $V_{OUT(T)}^*$<br>0.98 | $V_{OUT(T)}$ | $V_{OUT(T)}^*$<br>1.02 | V             |
| 最大输出电流  | $I_{OUT} (max)$                                | $V_{IN}=V_{OUT}+1V$                                          |                        | 300          |                        | mA            |
| 负载稳定度   | $\Delta V_{OUT}$                               | $V_{IN}=V_{OUT}+1V$ ,<br>$1mA \leq I_{OUT} \leq 100mA$       |                        | 50           |                        | mV            |
| 输入稳定度   | $\Delta V_{OUT}/(\Delta V_{IN} \cdot V_{OUT})$ | $I_{OUT}=40mA$ ,<br>$4.3V \leq V_{IN} \leq 15V$              |                        | 0.05         |                        | %/V           |
| 跌落压差    | $V_{drop1}$                                    | $V_{IN}=4.3V$ , $I_{OUT}=100mA$                              |                        | 90           |                        | mV            |
|         | $V_{drop2}$                                    | $V_{IN}=4.3V$ , $I_{OUT}=200mA$                              |                        | 230          |                        | mV            |
| 静态电流    | $I_{SS1}$                                      | $V_{IN}=V_{CE}=5V$                                           |                        | 70           |                        | $\mu A$       |
|         | $I_{SS2}$                                      | $V_{IN}=5V$ , $V_{CE}=V_{SS}$                                |                        |              | 1                      | $\mu A$       |
| CE 输入电压 | $V_{CEH}$                                      |                                                              | 0.3                    |              | $V_{IN}$               | V             |
|         | $V_{CEL}$                                      |                                                              | 0                      |              | 0.4                    | V             |
| CE 输入电流 | $I_{CE}$                                       | $V_{CE}=0V$ to $V_{IN}$                                      |                        |              | 1                      | $\mu A$       |
| 纹波抑制比   | PSRR                                           | $V_{IN}=(V_{OUT}+1)+1V_{p-pAC}$<br>$I_{OUT}=40mA$ , $f=1kHz$ |                        | 70           |                        | dB            |
| 输出噪声    | en                                             | $I_{OUT}=40mA$ ,<br>300Hz~50kHz                              |                        | 50           |                        | $\mu V_{rms}$ |
| 输入电压    | $V_{IN}$                                       |                                                              |                        |              | 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， $V_{IN}=(V_{OUT}(T)+1.0V)$ 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 $\Omega$ 电阻。

4、 $V_{dif} : V_{IN1} - V_{OUT}(E)$

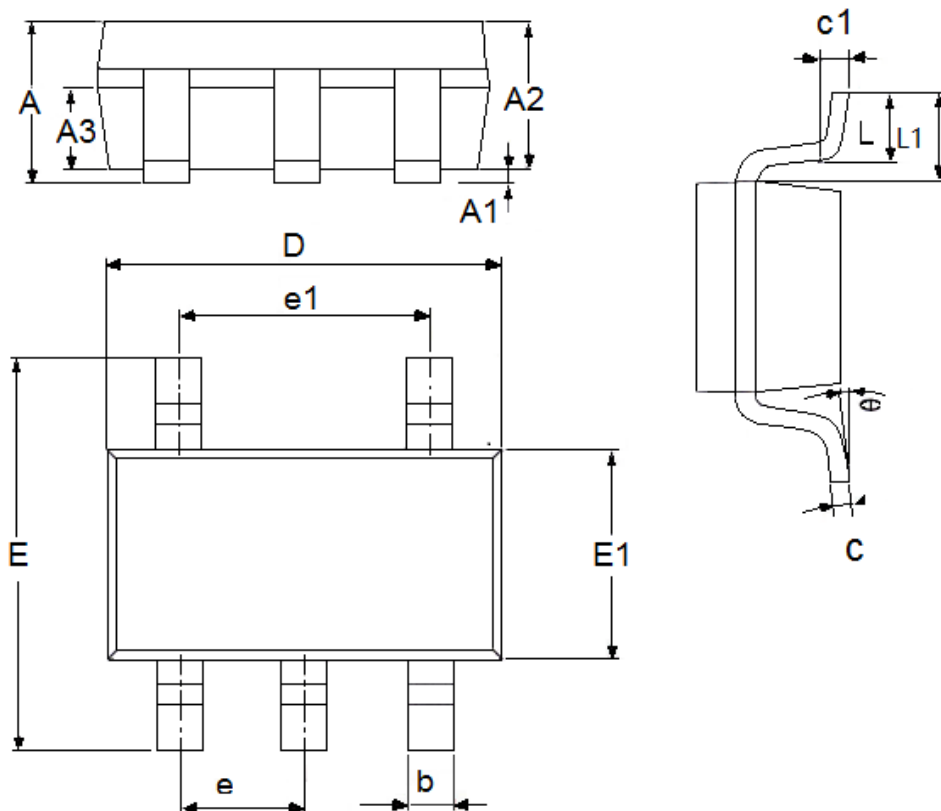
$V_{IN1}$ ：逐渐减小输入电压，当输出电压降为  $V_{OUT}(E)$ 98% 时的输入电压。

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



## 封装信息

### ● SOT-23-5L(TSOP-5)



| 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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