

## SOT-23-3L Three Terminal Regulator 三端稳压 IC

### ■Features 特点

FSS1117 内置热保护和电流限制保护功能，当结温超过 125℃或者负载电流大于 1.2A 时，过热保护和电流限制模块能够保证芯片和应用系统安全工作。通过电流限制保护 + 过热保护，提供了有效的短路和过载保护能力。

**Low Dropout Voltage** 低落差电压

1.Vi 2.Vo 3.Vss/Adj

### ■Application 应用

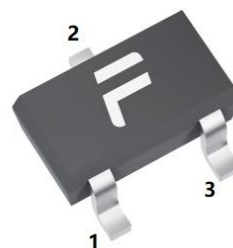
PC Motherboard 主板

LCD Monitor 液晶屏

Graphic Card 显卡

Modem 调制解调器

Printer 打印机



### ■Absolute Maximum Ratings 最大额定值

(TA=25℃ unless otherwise noted 如无特殊说明，温度为 25℃)

| Characteristic 特性参数                         | Symbol 符号       | Rat 额定值    | Unit 单位 |
|---------------------------------------------|-----------------|------------|---------|
| Input Voltage 输入电压                          | $V_i$           | 15         | V       |
| Operating Current 工作电流                      | $I_o$           | 1000       | mA      |
| Thermal Resistance Junction-Ambient 热阻      | $R_{\theta JA}$ | 250        | ℃/W     |
| Solder Temperature 焊接温度                     | $T_d$           | 260        | ℃       |
| Solder Time 焊接时间                            | $T_d$           | 10         | S       |
| Operating Ambient Temperature 工作温度          | $T_A$           | +85        | ℃       |
| Junction and Storage Temperature<br>结温和储藏温度 | $T_J, T_{stg}$  | -40to+125℃ |         |

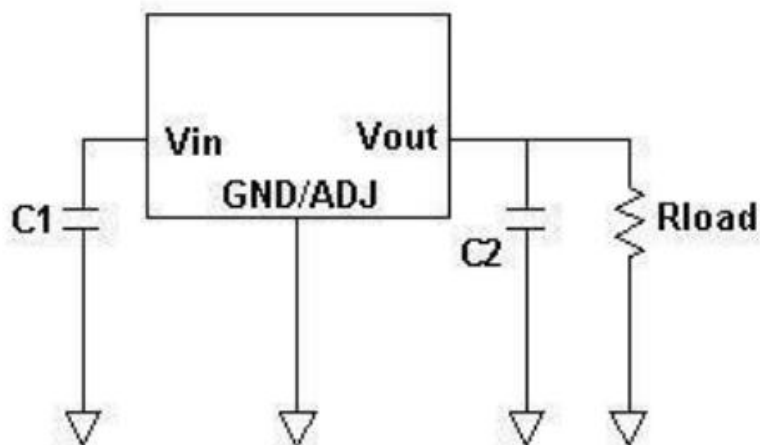
**■Electrical Characteristics 电特性**

 ( $V_{IN} \leq 10V$   $T_J = 25^\circ C$  unless otherwise noted 如无特殊说明)

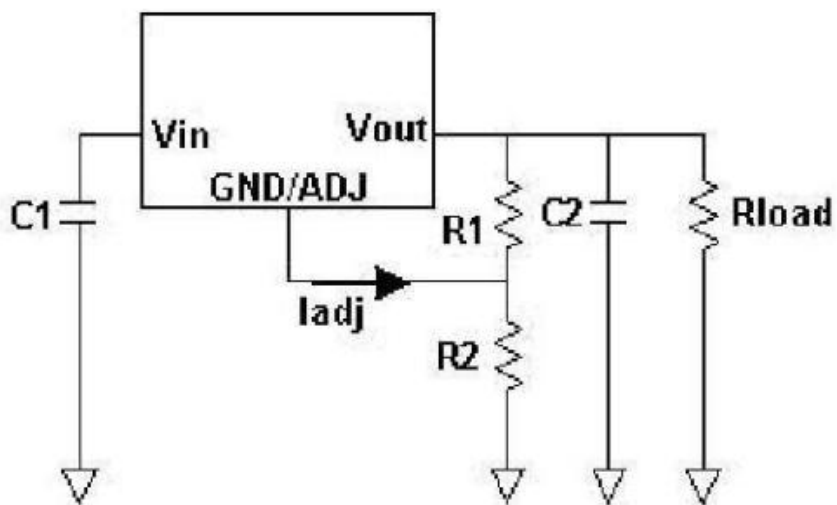
| Characteristic<br>特性参数                | Symbol<br>符号     | Part No.<br>料号 | Test Condition<br>测试条件                                    | Min<br>最小值 | Type<br>典型值 | Max<br>最大值 | Unit<br>单位  |
|---------------------------------------|------------------|----------------|-----------------------------------------------------------|------------|-------------|------------|-------------|
| Reference Voltage<br>基准电压             | $V_{RO}$         | 1117-Adj       | $I_O = 10mA$ $V_I - V_O = 3.23$                           | 1.231      | 1.250       | 1.269      | V           |
|                                       |                  |                | $10mA \leq I_O \leq 0.8A$ $2.75 \leq V_I - V_O \leq 3.25$ | 1.225      | 1.250       | 1.275      |             |
| Output Voltage<br>输出电压                | $V_O$            | 1117-1.8       | $I_O = 10mA$ $V_I = 3.8$                                  | 1.773      | 1.8         | 1.827      | V           |
|                                       |                  |                | $10mA \leq I_O \leq 0.8A$ $3.3 \leq V_I \leq 12$          | 1.764      | 1.8         | 1.836      |             |
|                                       |                  | 1117-2.5       | $I_O = 10mA$ $V_I = 4.5$                                  | 2.463      | 2.5         | 2.538      |             |
|                                       |                  |                | $10mA \leq I_O \leq 0.8A$ $4 \leq V_I \leq 12$            | 2.450      | 2.5         | 2.550      |             |
|                                       |                  | 1117-3.3       | $I_O = 10mA$ $V_I = 5.3$                                  | 3.251      | 3.3         | 3.350      |             |
|                                       |                  |                | $10mA \leq I_O \leq 0.8A$ $4.8 \leq V_I \leq 12$          | 3.234      | 3.3         | 3.366      |             |
|                                       |                  | 1117-5.0       | $I_O = 10mA$ $V_I = 7$                                    | 4.925      | 5.0         | 5.075      |             |
|                                       |                  |                | $10mA \leq I_O \leq 0.8A$ $6.5 \leq V_I \leq 12$          | 4.9        | 5.0         | 5.1        |             |
| Line Regulation<br>线性调整率              | LNR              | 1117-Adj       | $I_O = 10mA$ $1.5 \leq V_I - V_O \leq 12$                 |            | 0.03        | 0.2        | %<br><br>mV |
|                                       |                  | 1117-1.8       | $I_O = 10mA$ $1.5 \leq V_I - V_O \leq 10.2$               |            | 1           | 7          |             |
|                                       |                  | 1117-2.5       | $I_O = 10mA$ $1.5 \leq V_I - V_O \leq 9.5$                |            | 1           | 7          |             |
|                                       |                  | 1117-3.3       | $I_O = 10mA$ $1.5 \leq V_I - V_O \leq 8.7$                |            | 1           | 7          |             |
|                                       |                  | 1117-5.0       | $I_O = 10mA$ $1.5 \leq V_I - V_O \leq 7$                  |            | 1           | 10         |             |
| Load Regulation<br>负载调整率              | LDR              | 1117-Adj       | $10mA \leq I_O \leq 0.8A$ $V_I - V_O = 1.5$               |            | 0.2         | 0.4        | %<br><br>mV |
|                                       |                  | 1117-1.8       |                                                           |            |             | 7.2        |             |
|                                       |                  | 1117-2.5       |                                                           |            |             | 10         |             |
|                                       |                  | 1117-3.3       |                                                           |            |             | 13.2       |             |
|                                       |                  | 1117-5.0       |                                                           |            |             | 20         |             |
| Dropout Voltage                       | $V_D$            | 落差电压           | $\Delta V_R = 1\%$ $I_O = 0.8A$                           |            | 1.2         | 1.3        | V           |
| Adjust Pin Current                    | $I_{adj}$        | 电流调整           | $I_O = 10mA$                                              |            |             | 120        | $\mu A$     |
| Adjust Current Change                 | $\Delta I_{adj}$ | 电流调整率          | $1.5 \leq V_I - V_O \leq 12$ $I_O = 10mA$                 |            |             | 5          | $\mu A$     |
| Min Load Current                      | $I_L$            | 负载电流           | $V_I = 5V$ $V_{adj} = 0V$                                 |            |             | 7          | mA          |
| Quiescent Current                     | $I_q$            | 静态电流           | $V_I = V_O + 1.25$                                        |            | 2           | 5          | mA          |
| Temperature Stability 温度稳定性           |                  |                |                                                           |            | 0.5         |            | %           |
| Long Term Stability 长期稳定性             |                  |                | $T_A = 125^\circ C$ 1000hrs                               |            | 0.3         |            | %           |
| RMS Output Noise(% of $V_{out}$ )输出噪声 |                  |                | $T_A = 125^\circ C$                                       |            | 0.003       |            | %           |
| Thermal Shutdown Hysteresis 热特性       |                  |                |                                                           |            | 25          |            | $^\circ C$  |

## ■Application 应用

固定输出电压:

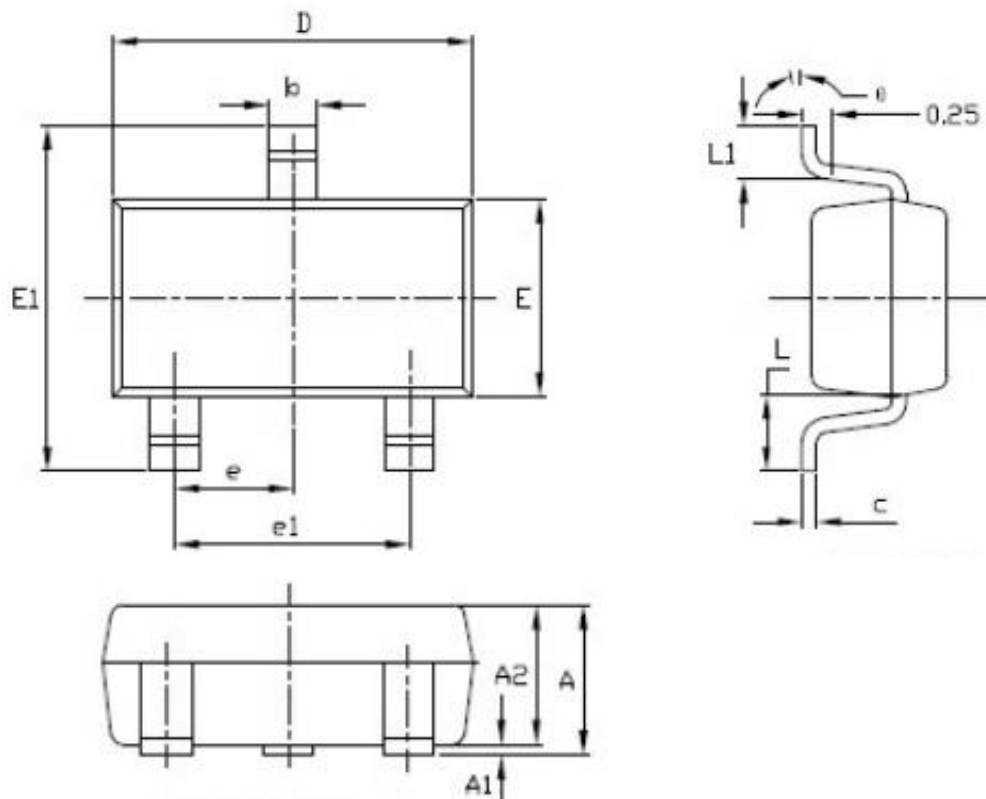


可调输出电压:



可调电压型提供 1.25V 的基准电压，任何在 1.25 至 13.8V 之间的输出电压可以通过选择两个外接电阻来获得，R1、R2 两个外接电阻连接方法如上。R1 的阻值一般在 200  $\Omega$  到 350  $\Omega$  之间。

■ SOT-23-3L Dimension 外形封装尺寸



| 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      | 1.500                     | 1.700 | 0.059                | 0.067 |
| E1     | 2.650                     | 2.950 | 0.104                | 0.116 |
| e      | 0.900                     | 1.00  | 0.035                | 0.039 |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.450                     | 0.650 | 0.018                | 0.026 |
| L1     | 0.300                     | 0.600 | 0.012                | 0.024 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |