

## SOT-89-3L Three Terminal Adjustable Regulator 三端可调稳压 IC

### ■ Features & Block Diagram

#### 特点和框图

Programmable output Voltage to 36V

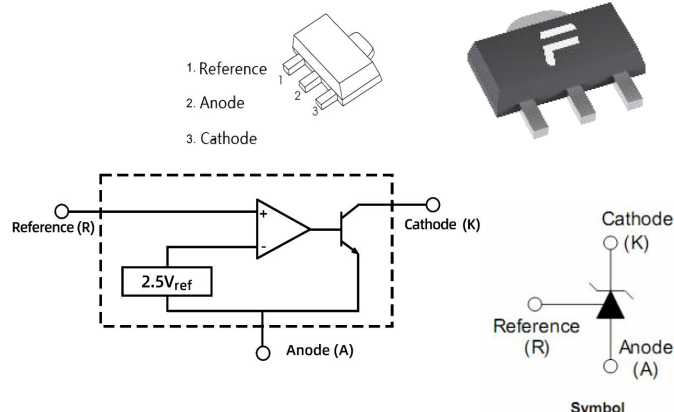
输出电压可调整到 36V

Low dynamic output impedance  $0.27\ \Omega$

低动态输出阻抗  $0.27\ \Omega$

Sink current capability of 1 to 100mA

电流能力 1 到 100mA

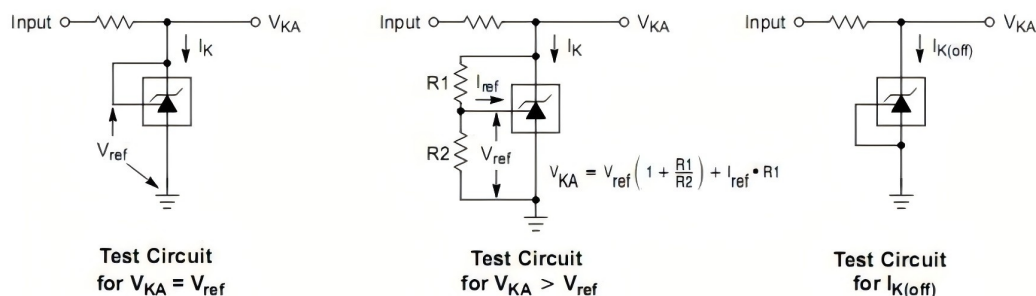


### ■ Absolute Maximum Ratings 最大额定值

( $T_A=25^\circ\text{C}$  unless otherwise noted 如无特殊说明, 温度为  $25^\circ\text{C}$ )

| Characteristic 特性参数                      | Symbol 符号       | Rat 额定值                    | Unit 单位                   |
|------------------------------------------|-----------------|----------------------------|---------------------------|
| Cathode to Anode Voltage 阴极到阳极电压         | $V_{KA}$        | 40                         | V                         |
| Cathode Current Range 工作电流               | $I_K$           | -100~+150                  | mA                        |
| Reference Input Current Range 输入电流       | $I_{REF}$       | -0.05~+10                  | mA                        |
| Power dissipation 耗散功率                   | $P_D$           | 300                        | mW                        |
| Thermal Resistance Junction-Ambient 热阻   | $R_{\theta JA}$ | 418                        | $^\circ\text{C}/\text{W}$ |
| Solder Temperature 焊接温度/时间               | $T_d$           | 260/10                     | $^\circ\text{C}/\text{S}$ |
| Operating Ambient Temperature 工作温度       | $T_{op}$        | -20~+105                   | $^\circ\text{C}$          |
| Junction and Storage Temperature 结温和储藏温度 | $T_J, T_{stg}$  | -40to+125 $^\circ\text{C}$ |                           |

### ■ Device Marking & Test Circuit 产品打标和测试电路 TL431L =431L

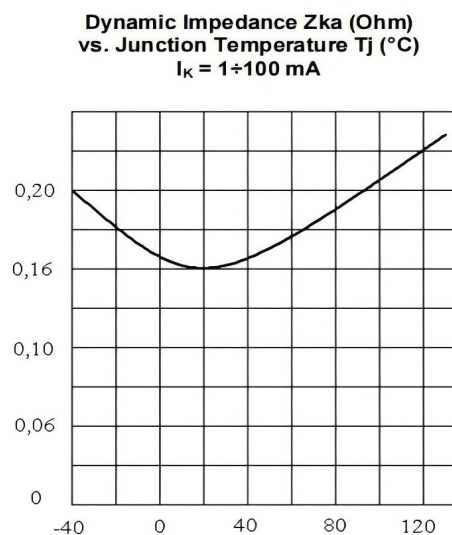
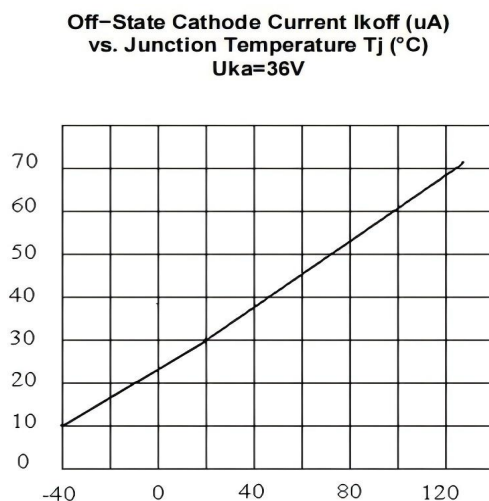
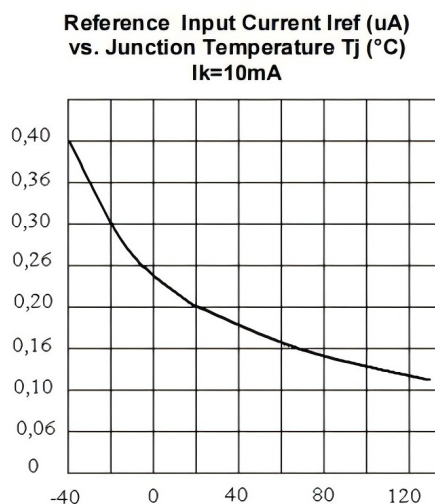
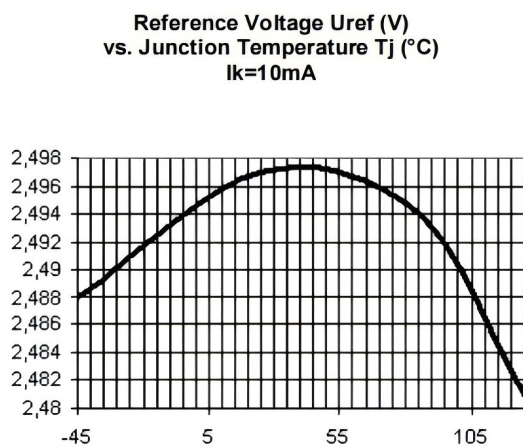
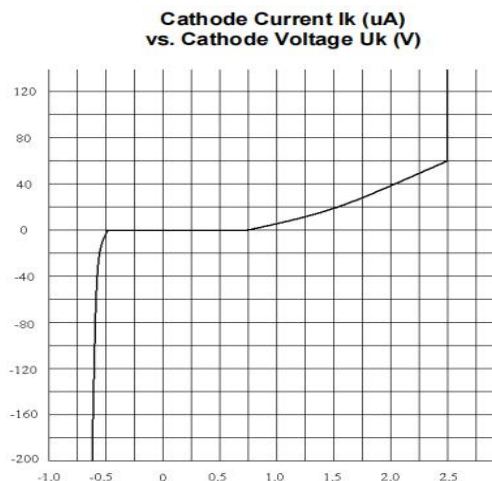
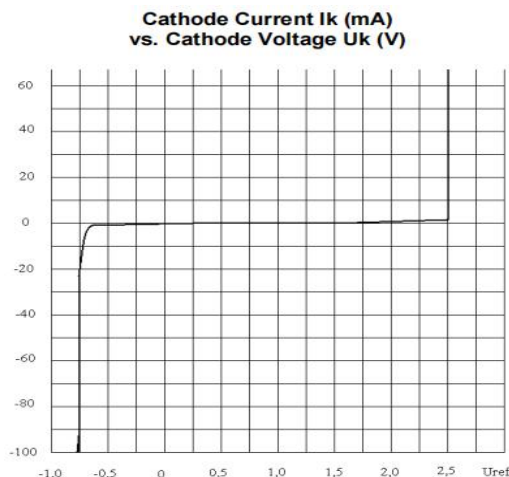


**■Electrical Characteristics 电特性**

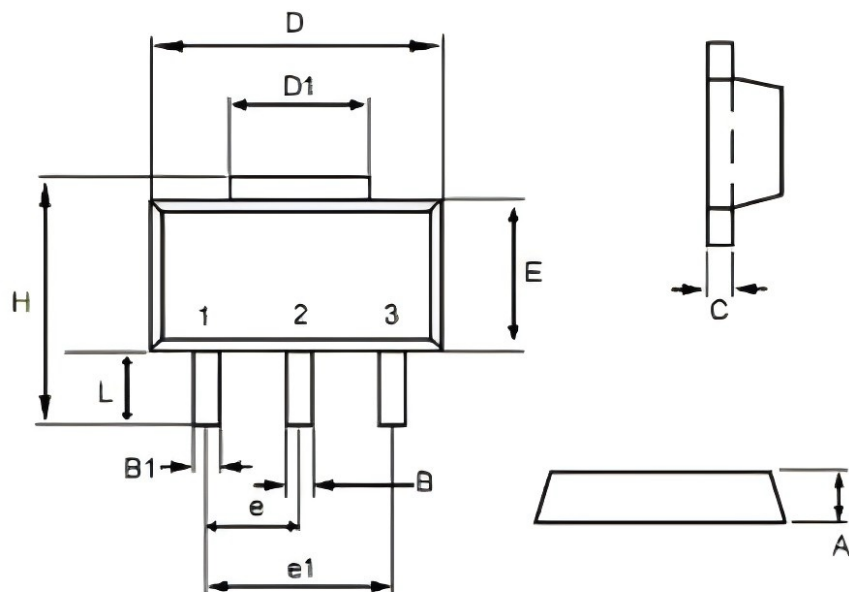
 ( $V_{KA}=V_{REF}$   $I_{KA}=10mA$   $T_a=25^{\circ}C$  unless otherwise noted 如无特殊说明)

| Characteristic<br>特性参数                                                                  | Symbol<br>符号                   | 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<br>Input Voltage<br>基准电压                                                      | 0.3%                           | $V_{KA}=V_{REF}$<br>$I_{KA}=10mA$                                                 | 2.488        | 2.495       | 2.502      | V          |
|                                                                                         | 0.5%                           |                                                                                   | 2.483        | 2.495       | 2.507      |            |
|                                                                                         | 1%                             |                                                                                   | 2.470        | 2.495       | 2.520      |            |
| Deviation of reference Input<br>Voltage Over temperature<br>标准温度内基准电压偏差                 | $\Delta V_{REF}/\Delta T$      | $V_{KA}=V_{REF}$<br>$I_{KA}=10mA$<br>$-20 \sim +105^{\circ}C$                     |              | 3           | 17         | mV         |
| Ratio of Change in Reference Input<br>Voltage Change in Cathode Voltage<br>阴极电压与基准电压变化比 | $\Delta V_{REF}/\Delta V_{KA}$ | $I_{KA}=10mA$<br>$\Delta V_{KA}=10V \sim V_{REF}$<br>$\Delta V_{KA}=36V \sim 10V$ | -0.4<br>-0.4 | 0<br>0      | 2.7<br>2.0 | mV/V       |
| Reference Input Current<br>基准电流                                                         | $I_{REF}$                      | $I_{KA}=10mA$<br>$R1=10k\Omega, R2=\infty$                                        |              | 1.8         | 4          | $\mu A$    |
| Deviation of Reference Input Current<br>Over Full Temperature Range<br>标准温度内基准电流偏差      | $\Delta I_{REF}/\Delta T$      | $I_{KA}=10mA$<br>$R1=10k\Omega, R2=\infty$<br>$T_a=-20 \sim +105^{\circ}C$        |              | 0.4         | 1.2        | $\mu A$    |
| Minimum Cathode Current<br>for Regulation<br>最小阴极电流                                     | $I_{KA(MIN)}$                  | $V_{KA}=V_{REF}$                                                                  |              | 0.25        | 0.5        | mA         |
| Off-state Cathode Current<br>关闭状态阴极电流                                                   | $I_{KA(OFF)}$                  | $V_{KA}=40V$<br>$V_{REF}=0V$                                                      |              | 0.17        | 1.0        | $\mu A$    |
| Dynamic Impedance<br>输出阻抗                                                               | $Z_{KA}$                       | $V_{KA}=V_{REF}$<br>$I_{KA}=1 \sim 100mA$<br>$f \leq 1kHz$                        |              | 0.27        | 0.5        | $\Omega$   |

■ Typical Characteristic Curve 典型特性曲线



■ SOT-89-3L Dimension 外形封装尺寸



| Symbol | Dimensions In Millimeters |      | Dimensions In Inches |       |
|--------|---------------------------|------|----------------------|-------|
|        | Min                       | Max  | Min                  | Max   |
| A      | 1.40                      | 1.60 | 0.055                | 0.063 |
| B      | 0.40                      | 0.56 | 0.016                | 0.022 |
| B1     | 0.35                      | 0.48 | 0.014                | 0.019 |
| C      | 0.35                      | 0.44 | 0.014                | 0.017 |
| D      | 4.40                      | 4.60 | 0.173                | 0.181 |
| D1     | 1.35                      | 1.83 | 0.053                | 0.072 |
| e      | 1.45                      | 1.55 | 0.057                | 0.061 |
| e1     | 2.95                      | 3.05 | 0.116                | 0.120 |
| E      | 2.29                      | 2.60 | 0.090                | 0.102 |
| H      | 3.75                      | 4.25 | 0.148                | 0.167 |
| L      | 0.80                      | 1.20 | 0.031                | 0.047 |