EVVOSEMI®

THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

# Product Specification

| | |
|---|---|
| Domestic Part Number | HT75XX |
| Overseas Part Number | HT75XX |
| Equivalent Part Number | HT75XX |

**LDO 高压稳压器**

## ■ 产品简介

HT75XX-1系列是采用 CMOS 工艺制造，低功耗的高压稳压器，最高输入电压可达 30V，输出电压范围为 1.5V～12.0V。它具有高精度的输出电压、极低的供电电流、极低的跌落电压等特点。

## ■ 产品特点

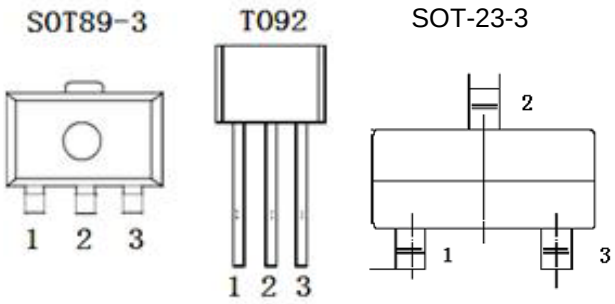
- 低功耗：≤3μA
- 低跌落电压：典型值 0.1V
- 低温漂：典型值 50 ppm/℃
- 高的输入电压：最高可达 30V
- 高精度的输出电压：容差为±3%
- 封装形式：TO-92、SOT89-3、SOT-23-3

## ■ 产品用途

- 电池等电源的供电设备
- 音频/视频设备
- 各种通信设备
- 安防监控设备

## ■ 封装形式和管脚功能定义

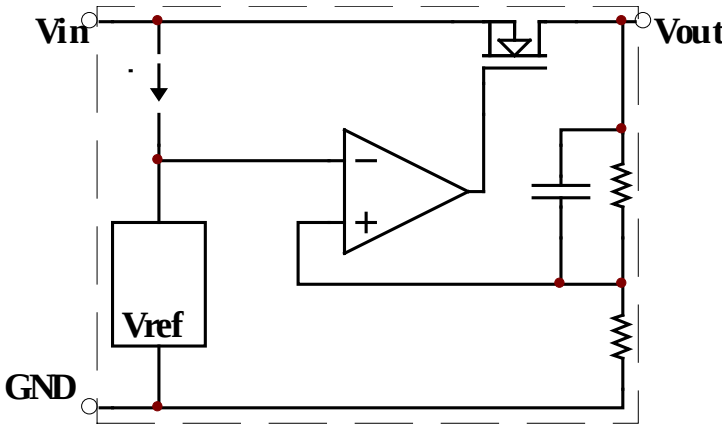
| 管脚序号 | | | 管脚定义 | 功能说明 |
|---|---|---|---|---|
| TO-92 | SOT89-3 | SOT23-3 | | |
| 1 | 1 | 1 | GND | 芯片接地端 |
| 2 | 2 | 2 | VIN | 启动输入端 |
| 3 | 3 | 3 | VOUT | 芯片输出端 |




## ■ 型号选择

| 名称 | 型号 | 最高输入电压(V) | 输出电压(V) | 容差 | 封装形式 |
|---|---|---|---|---|---|
| HT75XX-1 | 7530-1 | 30 | 3.0 | ±3% | TO 92<br>SOT89-3<br>SOT-23-3 |
| | 7533-1 | 30 | 3.3 | ±3% | |
| | 7536-1 | 30 | 3.6 | ±3% | |
| | 7544-1 | 30 | 4.4 | ±3% | |
| | 7550-1 | 30 | 5.0 | ±3% | |

## ■ 原理框图




## ■ 极限参数

| 项目 | 符号 | 参数 | 极限值 | 单位 |
|---|---|---|---|---|
| 电压 | VIN | 最大输入电压 | 30 | V |
| 功耗 | PD | 功耗 | 400 | mW |
| 温度 | Tw | 工作温度 | -25～70 | ℃ |
| | Tc | 存储温度 | -50～125 | ℃ |
| | Th | 焊接温度 | 260 | ℃,10s |

## ■ 电学特性

HT7530-1　　( $T_{OPT}$=25℃)

| 符号 | 参数 | 测试条件 | 最小值 | 典型值 | 最大值 | 单位 |
|---|---|---|---|---|---|---|
| $V_{OUT}$ | 输出电压 | $V_{IN}$=5V，$I_{OUT}$=10mA | 2.91 | 3 | 3.09 | V |
| $I_{OUT}$ | 输出电流 | $V_{IN}$=5V | 60 | 100 | | mA |
| △$V_{OUT}$ | 负载调节 | $V_{IN}$=5V，1mA≤$I_{OUT}$ ≤20mA | — | 100 | 150 | mV |
| $V_{DIF}$ | 跌落电压 | $I_{OUT}$=1mA | — | 100 | — | mV |
| $I_{SS}$ | 静态电流 | $V_{IN}$=5V，空载 | — | 2 | 3 | μA |
| $\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$ | Line Regulation | 4V≤$V_{IN}$≤30V，$I_{OUT}$=1mA | — | 0.2 | — | %/V |
| $V_{IN}$ | 输入电压 | — | — | — | 30 | V |
| $\Delta V_{OUT}/\Delta Ta$ | 温度系数 | $V_{IN}$=5V，$I_{OUT}$=10mA<br>0℃≤Ta≤70℃ | — | ±0.45 | — | mV/℃ |

HT7533-1 ($T_{OPT}$=25℃)

| 符号 | 参数 | 测试条件 | 最小值 | 典型值 | 最大值 | 单位 |
|---|---|---|---|---|---|---|
| $V_{OUT}$ | 输出电压 | $V_{IN}$=5.5V，$I_{OUT}$=10mA | 3.201 | 3.3 | 3.399 | V |
| $I_{OUT}$ | 输出电流 | $V_{IN}$=5.5V | 60 | 100 | — | mA |
| △$V_{OUT}$ | 负载调节 | $V_{IN}$=5.5V，1mA≤$I_{OUT}$≤30mA | — | 100 | 150 | mV |
| $V_{DIF}$ | 跌落电压 | $I_{OUT}$=1mA | — | 100 | — | mV |
| $I_{SS}$ | 静态电流 | $V_{IN}$=5.5V，空载 | — | 2 | 3 | μA |
| $\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$ | Line Regulation | 4.5V≤$V_{IN}$≤30V，$I_{OUT}$=1mA | — | 0.2 | — | %/V |
| $V_{IN}$ | 输入电压 | — | — | — | 30 | V |
| $\Delta V_{OUT}/\Delta Ta$ | 温度系数 | $V_{IN}$=5.5V，$I_{OUT}$=10mA，0℃≤Ta≤70℃ | — | ±0.5 | — | mV/℃ |

HT7536-1 ($T_{OPT}$=25℃)

| 符号 | 参数 | 测试条件 | 最小值 | 典型值 | 最大值 | 单位 |
|---|---|---|---|---|---|---|
| $V_{OUT}$ | 输出电压 | $V_{IN}$=5.6V，$I_{OUT}$=10mA | 3.492 | 3.6 | 3.708 | V |
| $I_{OUT}$ | 输出电流 | $V_{IN}$=5.6V | 60 | 100 | — | mA |
| △$V_{OUT}$ | 负载调节 | $V_{IN}$=5.6V，1mA≤$I_{OUT}$≤30mA | — | 100 | 150 | mV |
| $V_{DIF}$ | 跌落电压 | $I_{OUT}$=1mA | — | 100 | — | mV |
| $I_{SS}$ | 静态电流 | $V_{IN}$=5.6V，空载 | — | 2 | 3 | μA |
| $\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$ | Line Regulation | 4.6V≤$V_{IN}$≤30V，$I_{OUT}$=1mA | — | 0.2 | — | %/V |
| $V_{IN}$ | 输入电压 | — | — | — | 30 | V |
| $\Delta V_{OUT}/\Delta Ta$ | 温度系数 | $V_{IN}$=5.6V，$I_{OUT}$=10mA，0℃≤Ta≤70℃ | — | ±0.6 | — | mV/℃ |

HT7544-1 ($T_{OPT}$=25℃)

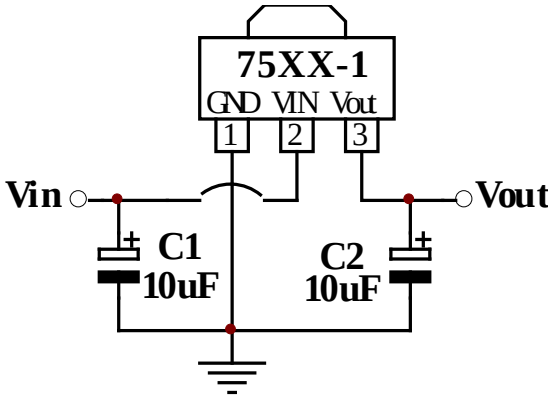
| 符号 | 参数 | 测试条件 | 最小值 | 典型值 | 最大值 | 单位 |
|---|---|---|---|---|---|---|
| $V_{OUT}$ | 输出电压 | $V_{IN}$=6.4V，$I_{OUT}$=10mA | 4.268 | 4.4 | 4.532 | V |
| $I_{OUT}$ | 输出电流 | $V_{IN}$=6.4V | 60 | 100 | — | mA |
| △$V_{OUT}$ | 负载调节 | $V_{IN}$=6.4V，1mA≤$I_{OUT}$≤30mA | — | 100 | 150 | mV |
| $V_{DIF}$ | 跌落电压 | $I_{OUT}$=1mA | — | 100 | — | mV |
| $I_{SS}$ | 静态电流 | $V_{IN}$=6.4V，空载 | — | 2 | 3 | μA |
| $\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$ | Line Regulation | 5.4V≤$V_{IN}$≤30V，$I_{OUT}$=1mA | — | 0.2 | — | %/V |
| $V_{IN}$ | 输入电压 | — | — | — | 30 | V |
| $\Delta V_{OUT}/\Delta Ta$ | 温度系数 | $V_{IN}$=6.4V，$I_{OUT}$=10mA，0℃≤Ta≤70℃ | — | ±0.7 | — | mV/℃ |

HT7550-1 （$T_{OPT}$=25℃）

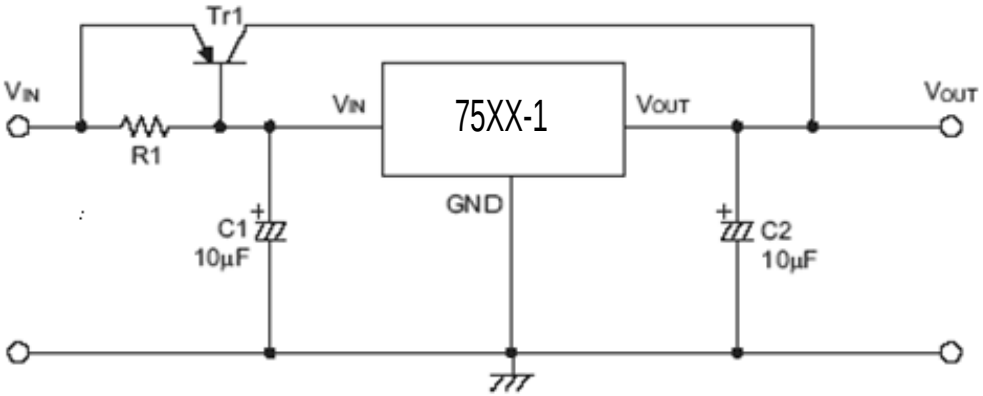
| 符号 | 参数 | 测试条件 | 最小值 | 典型值 | 最大值 | 单位 |
|---|---|---|---|---|---|---|
| $V_{OUT}$ | 输出电压 | $V_{IN}$=7V，$I_{OUT}$=10mA | 4.85 | 5 | 5.15 | V |
| $I_{OUT}$ | 输出电流 | $V_{IN}$=7V | 60 | 100 | — | mA |
| △$V_{OUT}$ | 负载调节 | $V_{IN}$=7V，1mA≤$I_{OUT}$≤30mA | — | 100 | | mV |
| $V_{DIF}$ | 跌落电压 | $I_{OUT}$=1mA | — | 100 | — | mV |
| $I_{SS}$ | 静态电流 | $V_{IN}$=7V，空载 | — | 2 | 3 | μA |
| $\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$ | Line Regulation | 6V≤$V_{IN}$≤30V，$I_{OUT}$=1mA | — | 0.2 | — | %/V |
| $V_{IN}$ | 输入电压 | — | — | — | 30 | V |
| $\Delta V_{OUT}/\Delta Ta$ | 温度系数 | $V_{IN}$=7V，$I_{OUT}$=10mA，<br>0℃≤Ta≤70℃ | — | ±0.75 | — | mV/℃ |

## ■ 应用电路

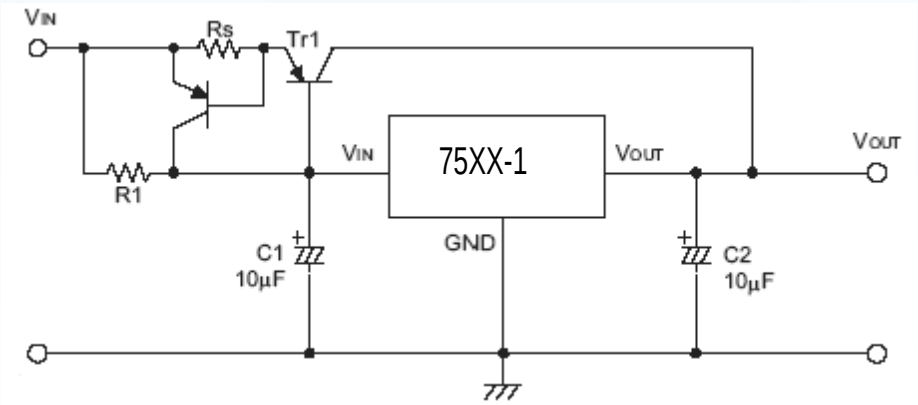
1、基本电路



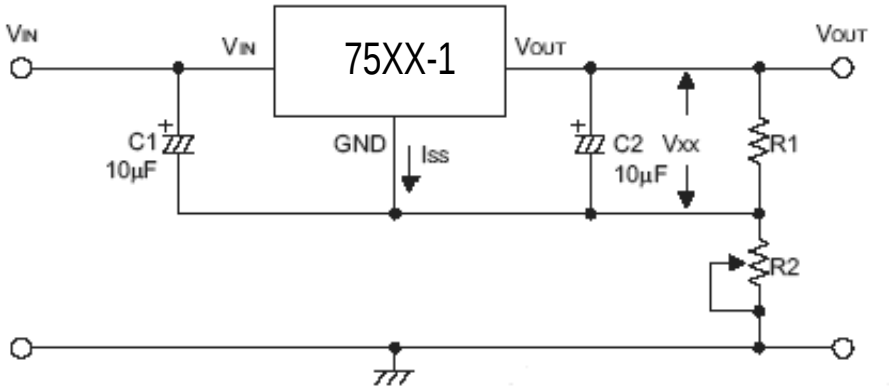

2、高输出电流稳压电路



3、 短路保护电路

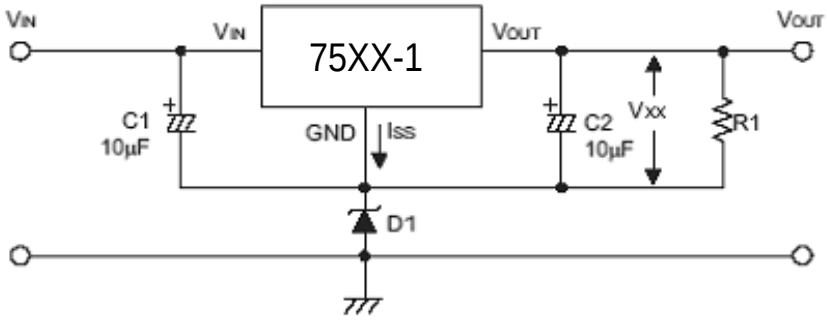



4、 提高输出电压电路(1)



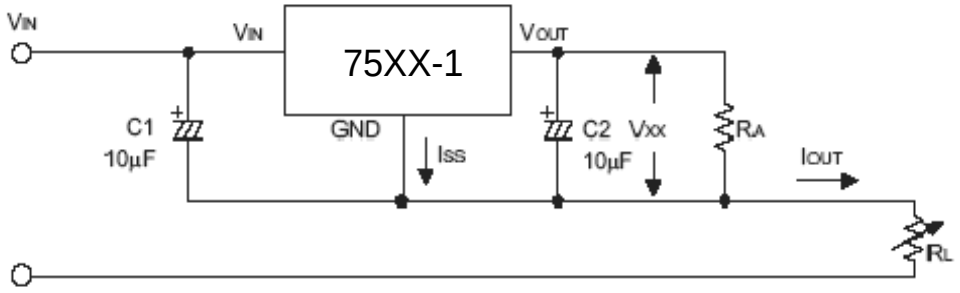

$V_{OUT}=Vxx\ (1+R2/R1)+Iss*R2$

5、 提高输出电压电路(2)



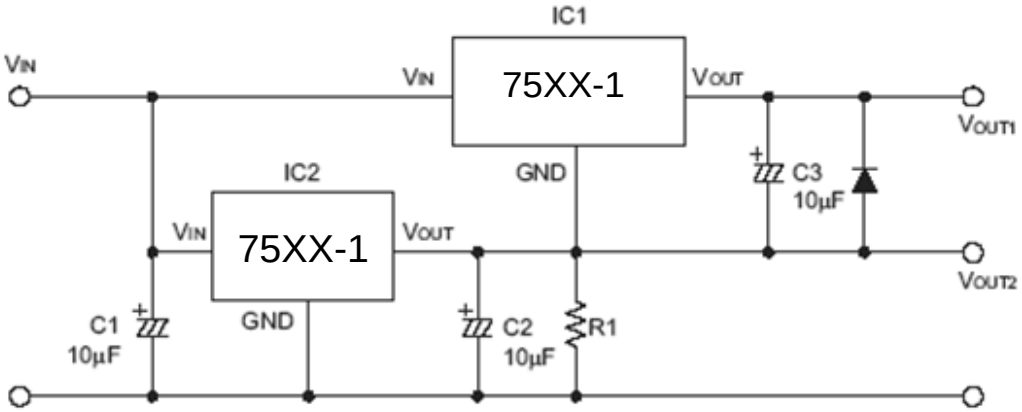

$V_{OUT}=Vxx+VD1$

6、 电流调节电路




IOUT = VXX/RX + ISS

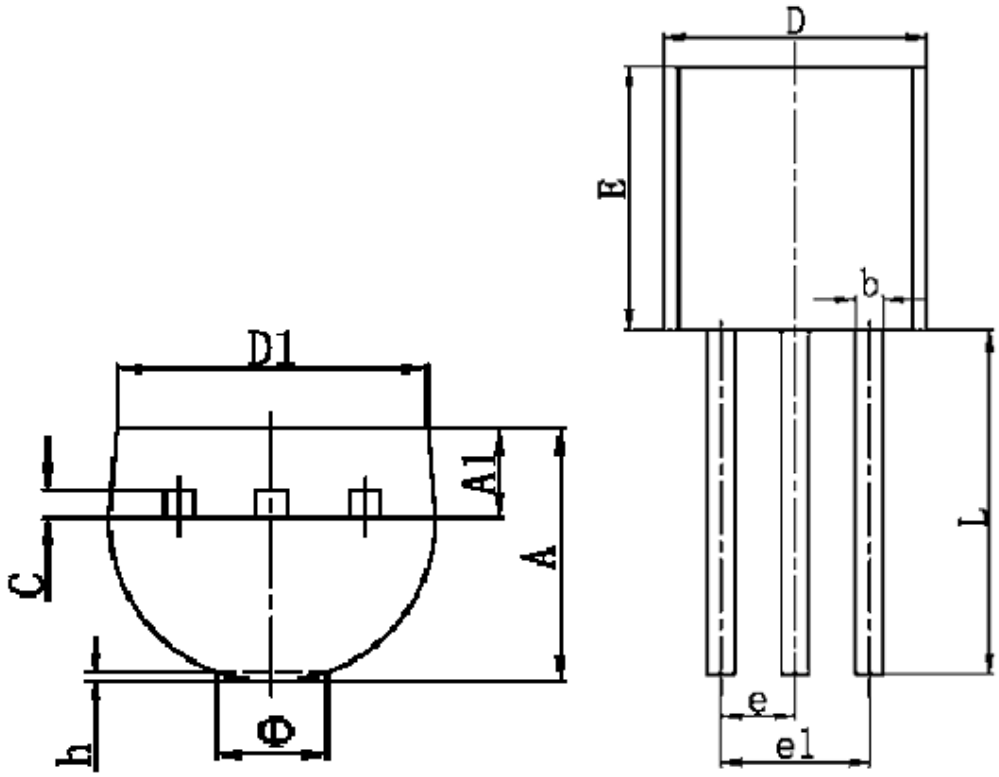
7、 双端输出电路




注示：“××”代表输出电压

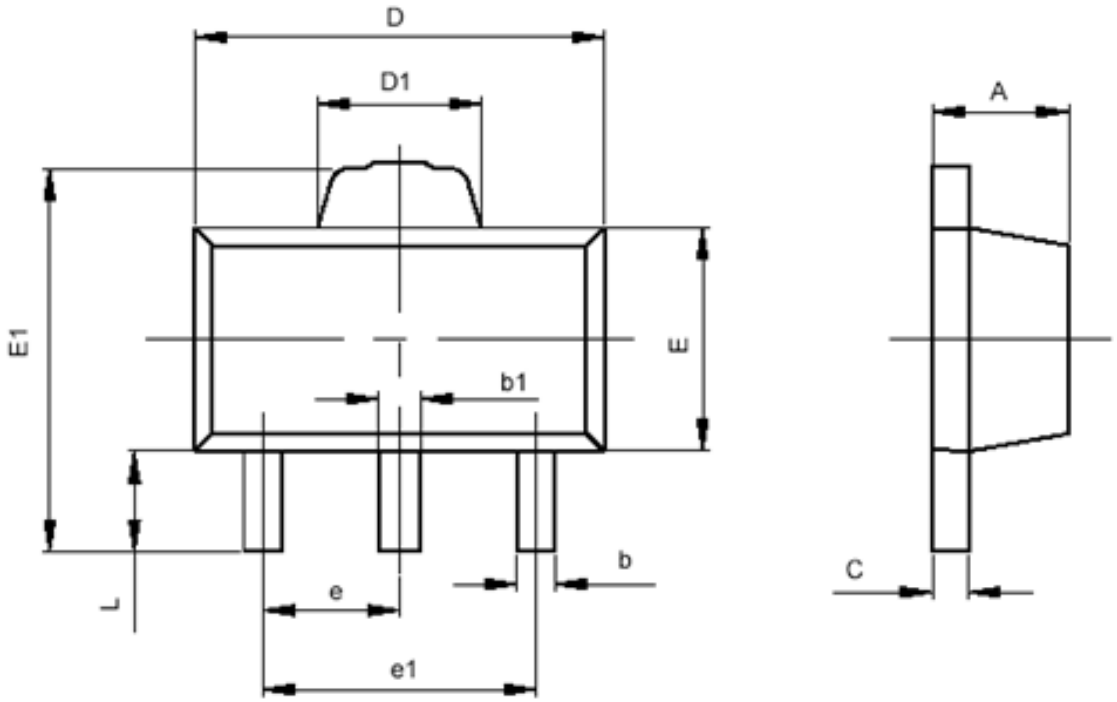
## ■ 封装信息

TO-92



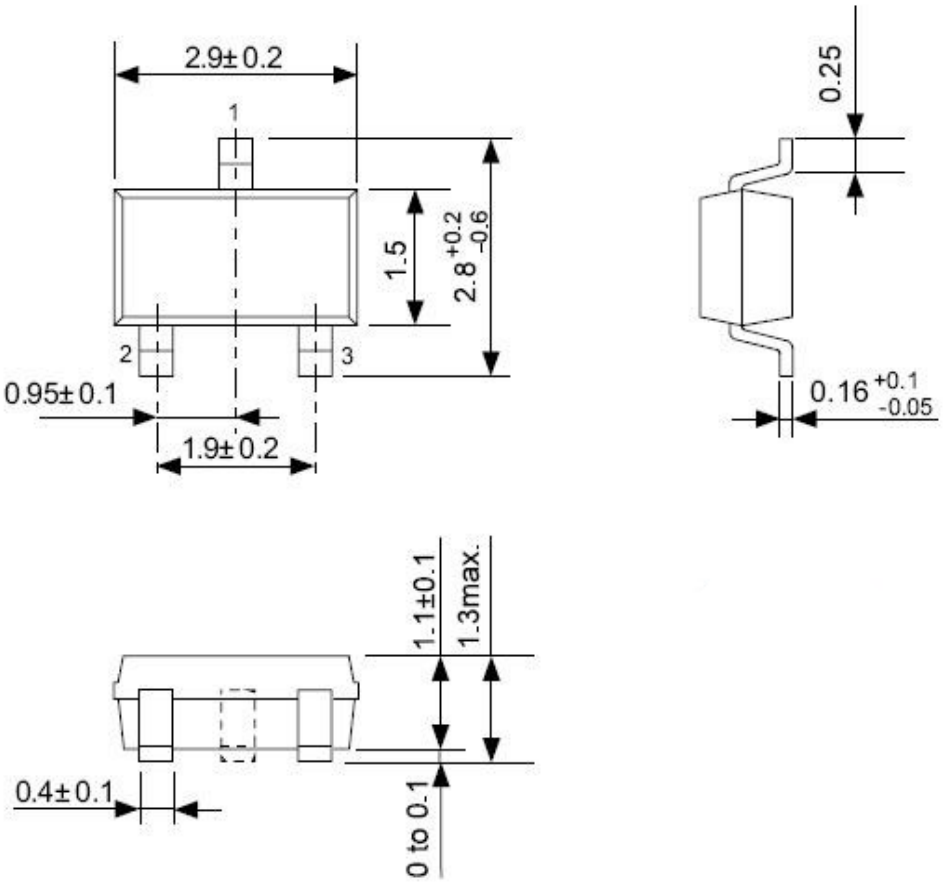

| 符号 | 最小值（mm） | 最大值（mm） |
|---|---|---|
| A | 3.300 | 3.700 |
| A1 | 1.100 | 1.400 |
| b | 0.380 | 0.550 |
| c | 0.360 | 0.510 |
| D | 4.400 | 4.700 |
| D1 | 3.430 | |
| E | 4.300 | 4.700 |
| e | 1.270 TYP | |
| e1 | 2.440 | 2.640 |
| L | 14.100 | 14.500 |
| Φ | | 1.600 |
| h | 0.000 | 0.380 |

SOT-89-3




| 符号 | 最小值（mm） | 最大值（mm） |
|---|---|---|
| A | 1.400 | 1.600 |
| b | 0.320 | 0.520 |
| b1 | 0.360 | 0.560 |
| c | 0.350 | 0.440 |
| D | 4.400 | 4.600 |
| D1 | 1.400 | 1.800 |
| E | 2.300 | 2.600 |
| E1 | 3.940 | 4.250 |
| e | 1.500TYP | |
| e1 | 2.900 | 3.100 |
| L | 0.900 | 1.100 |

SOT-23-3


2.9± 0.2
1
1.5
2.8 +0.2 -0.6
2
3
0.95± 0.1
1.9± 0.2
0.25
0.16 +0.1 -0.05
1.1±0.1
1.3max.
0.4± 0.1
0 to 0.1

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