



概述

HT73XX-1是一款采用 CMOS 技术的低压差线性稳压器。最大输出电流为 250mA 且允许的最高输入电压为 18V。具有几个固定的输出电压，范围从 2.5V 到 5.0V。COMS 技术可确保其具有低压降和低静态电流的特性。

功能特点

- 低功耗
- 低压降
- 较低的温度系数
- 最高输入电压：18V
- 典型静态电流：2uA
- 最大输出电流：250mA
- 输出电压精度：±2%
- 封装类型：SOT-23，SOT-89

应用领域

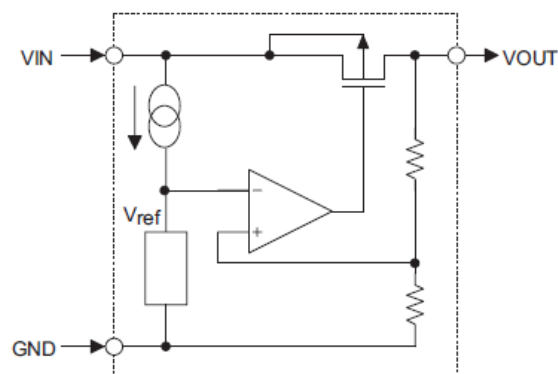
- 电池供电设备
- 通信设备
- 音频/视频设备

选型表

| 型号 | 输出电压 | 封装类型 | 正印 |
|----------|------|--------|--------------------|
| HT7325-1 | 2.5V | SOT-23 | 73xx-1(封装为 SOT-23) |
| HT7327-1 | 2.7V | | |
| HT7330-1 | 3.0V | | |
| HT7333-1 | 3.3V | SOT-89 | 73xx-1(封装为SOT-89) |
| HT7336-1 | 3.6V | | |
| HT7350-1 | 5.0V | | |

注：“xx”代表输出电压。

电路功能框图

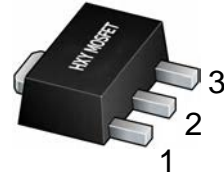




引脚图



SOT-23



SOT-89

引脚说明

| 引脚序号 | 引脚名称 | 说明 |
|------|------|-----|
| 1 | GND | 地 |
| 2 | VIN | 输入脚 |
| 3 | VOUT | 输出脚 |

极限参数

电源供应电压 ----- -0.3V ~+18V 工作环境温度 ----- -40°C~+85°C
储存温度范围 ----- -50°C~+125°C

注：这里只强调额定功率，超过极限参数所规定的范围将对芯片造成损害，无法预期芯片在上述标示范围外的工作状态，而且若长期在标示范围外的条件下工作，可能影响芯片的可靠性。

热能信息

| 符号 | 参数 | 封装类型 | 最大值 | 单位 |
|---------------|-------------------------|--------|-----|------|
| θ_{JA} | 热阻（与环境连接）（假设无环境气流、无散热片） | SOT-23 | 500 | °C/W |
| | | SOT-89 | 200 | °C/W |
| P_D | 功耗 | SOT-23 | 0.2 | W |
| | | SOT-89 | 0.5 | W |

注： P_D 值是在 $T_a=25^\circ\text{C}$ 时测得。



直流电特性 (除特别说明外, $T_A = +25^\circ\text{C}$)

HT7325-1 ($T_{\text{OPT}}=25^\circ\text{C}$)

| 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 | $V_{\text{IN}}=3.5\text{V}, I_{\text{OUT}}=40\text{mA}$ | 2.425 | 2.5 | 2.575 | V |
| I_{OUT} | 输出电流 | $V_{\text{IN}}=3.5\text{V}, V_{\text{OUT}} \geq 2.25\text{V}$ | 180 | -- | -- | mA |
| ΔV_{OUT} | 负载调节 | $V_{\text{IN}}=3.5\text{V},$ $1\text{mA} \leq I_{\text{OUT}} \leq 60\text{mA}$ | -- | 45 | 90 | mV |
| V_{DIF} | 跌落电压 | $I_{\text{OUT}}=40\text{mA}$ | -- | 110 | -- | mV |
| I_{SS} | 静态电流 | $V_{\text{IN}}=3.5\text{V},$ 空载 | -- | 2 | 3 | μA |
| $\Delta V_{\text{OUT}} / (\Delta V_{\text{IN}} * V_{\text{OUT}})$ | Line Regulation | $3.5\text{V} \leq V_{\text{IN}} \leq 12\text{V},$ $I_{\text{OUT}}=40\text{mA}$ | -- | 0.2 | 0.3 | %/V |
| V_{IN} | 输入电压 | -- | -- | -- | 18 | V |
| $\Delta V_{\text{OUT}} / \Delta T_a$ | 温度系数 | $V_{\text{IN}}=3.5\text{V}, I_{\text{OUT}}=40\text{mA},$ $0^\circ\text{C} \leq T_a \leq 85^\circ\text{C}$ | -- | ± 0.7 | -- | mV/ $^\circ\text{C}$ |

HT7327-1 ($T_{\text{OPT}}=25^\circ\text{C}$)

| 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 | $V_{\text{IN}}=3.7\text{V}, I_{\text{OUT}}=40\text{mA}$ | 2.619 | 2.7 | 2.781 | V |
| I_{OUT} | 输出电流 | $V_{\text{IN}}=3.7\text{V}, V_{\text{OUT}} \geq 2.43\text{V}$ | 200 | -- | -- | mA |
| ΔV_{OUT} | 负载调节 | $V_{\text{IN}}=3.7\text{V},$ $1\text{mA} \leq I_{\text{OUT}} \leq 60\text{mA}$ | -- | 45 | 90 | mV |
| V_{DIF} | 跌落电压 | $I_{\text{OUT}}=40\text{mA}$ | -- | 100 | -- | mV |
| I_{SS} | 静态电流 | $V_{\text{IN}}=3.7\text{V},$ 空载 | -- | 2 | 3 | μA |
| $\Delta V_{\text{OUT}} / (\Delta V_{\text{IN}} * V_{\text{OUT}})$ | Line Regulation | $3.7\text{V} \leq V_{\text{IN}} \leq 12\text{V},$ $I_{\text{OUT}}=40\text{mA}$ | -- | 0.2 | 0.3 | %/V |
| V_{IN} | 输入电压 | -- | -- | -- | 18 | V |
| $\Delta V_{\text{OUT}} / \Delta T_a$ | 温度系数 | $V_{\text{IN}}=3.7\text{V}, I_{\text{OUT}}=40\text{mA},$ $0^\circ\text{C} \leq T_a \leq 85^\circ\text{C}$ | -- | ± 0.7 | -- | mV/ $^\circ\text{C}$ |

HT7330-1 ($T_{\text{OPT}}=25^\circ\text{C}$)

| 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 | $V_{\text{IN}}=4\text{V}, I_{\text{OUT}}=40\text{mA}$ | 2.91 | 3 | 3.09 | V |
| I_{OUT} | 输出电流 | $V_{\text{IN}}=4\text{V}, V_{\text{OUT}} \geq 2.7\text{V}$ | 250 | -- | -- | mA |
| ΔV_{OUT} | 负载调节 | $V_{\text{IN}}=4\text{V}, 1\text{mA} \leq I_{\text{OUT}} \leq 60\text{mA}$ | -- | 45 | 90 | mV |
| V_{DIF} | 跌落电压 | $I_{\text{OUT}}=40\text{mA}$ | -- | 95 | -- | mV |
| I_{SS} | 静态电流 | $V_{\text{IN}}=4\text{V},$ 空载 | -- | 2 | 3 | μA |
| $\Delta V_{\text{OUT}} / (\Delta V_{\text{IN}} * V_{\text{OUT}})$ | Line Regulation | $4\text{V} \leq V_{\text{IN}} \leq 12\text{V}, I_{\text{OUT}}=40\text{mA}$ | -- | 0.2 | 0.3 | %/V |
| V_{IN} | 输入电压 | -- | -- | -- | 18 | V |
| $\Delta V_{\text{OUT}} / \Delta T_a$ | 温度系数 | $V_{\text{IN}}=4\text{V}, I_{\text{OUT}}=40\text{mA},$ $0^\circ\text{C} \leq T_a \leq 85^\circ\text{C}$ | -- | ± 0.7 | -- | mV/ $^\circ\text{C}$ |



HT7333-1 ($T_{OPT}=25^{\circ}C$)

| 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 | $V_{IN}=4.3V, I_{OUT}=40mA$ | 3.201 | 3.3 | 3.399 | V |
| I_{OUT} | 输出电流 | $V_{IN}=4.3V, V_{OUT} \geq 2.97V$ | 250 | -- | -- | mA |
| ΔV_{OUT} | 负载调节 | $V_{IN}=4.3V,$ $1mA \leq I_{OUT} \leq 60mA$ | -- | 45 | 90 | mV |
| V_{DIF} | 跌落电压 | $I_{OUT}=40mA$ | -- | 90 | -- | mV |
| I_{SS} | 静态电流 | $V_{IN}=4.3V, \text{空载}$ | -- | 2 | 3 | μA |
| $\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$ | Line Regulation | $4.3V \leq V_{IN} \leq 12V,$ $I_{OUT}=40mA$ | -- | 0.2 | 0.3 | %/V |
| V_{IN} | 输入电压 | -- | -- | -- | 18 | V |
| $\Delta V_{OUT} / \Delta Ta$ | 温度系数 | $V_{IN}=4.3V, I_{OUT}=40mA,$ $0^{\circ}C \leq Ta \leq 85^{\circ}C$ | -- | ± 0.7 | -- | mV/ $^{\circ}C$ |

HT7336-1 ($T_{OPT}=25^{\circ}C$)

| 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 | $V_{IN}=4.5V, I_{OUT}=40mA$ | 3.495 | 3.6 | 3.705 | V |
| I_{OUT} | 输出电流 | $V_{IN}=4.5V, V_{OUT} \geq 3.15V$ | 250 | -- | -- | mA |
| ΔV_{OUT} | 负载调节 | $V_{IN}=4.5V,$ $1mA \leq I_{OUT} \leq 60mA$ | -- | 45 | 90 | mV |
| V_{DIF} | 跌落电压 | $I_{OUT}=40mA$ | -- | 80 | -- | mV |
| I_{SS} | 静态电流 | $V_{IN}=4.5V, \text{空载}$ | -- | 2 | 3 | μA |
| $\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$ | Line Regulation | $4.5V \leq V_{IN} \leq 12V,$ $I_{OUT}=40mA$ | -- | 0.2 | 0.3 | %/V |
| V_{IN} | 输入电压 | -- | -- | -- | 18 | V |
| $\Delta V_{OUT} / \Delta Ta$ | 温度系数 | $V_{IN}=4.5V, I_{OUT}=40mA,$ $0^{\circ}C \leq Ta \leq 85^{\circ}C$ | -- | ± 0.7 | -- | mV/ $^{\circ}C$ |

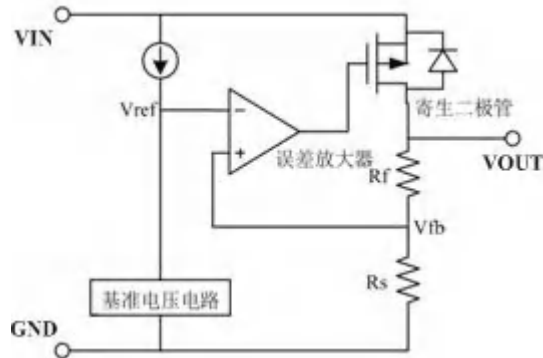
HT7350-1 ($T_{OPT}=25^{\circ}C$)

| 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 | $V_{IN}=6V, I_{OUT}=40mA$ | 4.85 | 5 | 5.15 | V |
| I_{OUT} | 输出电流 | $V_{IN}=2.8V, V_{OUT} \geq 4.5V$ | 250 | -- | -- | mA |
| ΔV_{OUT} | 负载调节 | $V_{IN}=6V, 1mA \leq I_{OUT} \leq 60mA$ | -- | 45 | 90 | mV |
| V_{DIF} | 跌落电压 | $I_{OUT}=40mA$ | -- | 60 | -- | mV |
| I_{SS} | 静态电流 | $V_{IN}=6V, \text{空载}$ | -- | 2 | 3 | μA |
| $\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$ | Line Regulation | $6V \leq V_{IN} \leq 12V, I_{OUT}=40mA$ | -- | 0.2 | 0.3 | %/V |
| V_{IN} | 输入电压 | -- | -- | -- | 18 | V |
| $\Delta V_{OUT} / \Delta Ta$ | 温度系数 | $V_{IN}=6V, I_{OUT}=40mA,$ $0^{\circ}C \leq Ta \leq 85^{\circ}C$ | -- | ± 0.7 | -- | mV/ $^{\circ}C$ |



功能描述

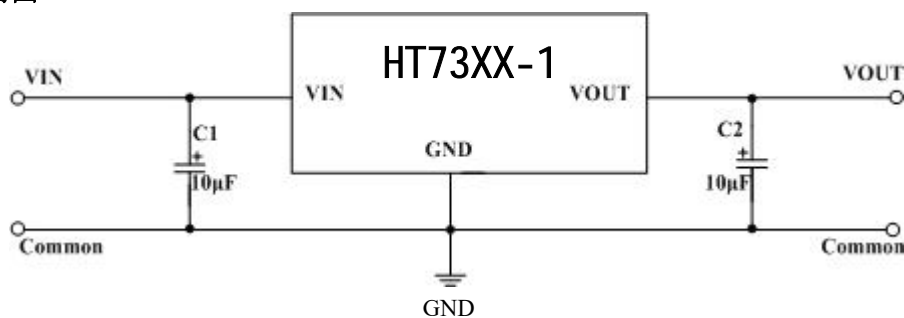
误差放大器根据反馈电阻 R_s 及 R_f 所构成的分压电阻的输入电压 V_{fb} 同基准电压 (V_{ref}) 相比较。通过此误差放大器向输出晶体管提供必要的门极电压，而使输出电压不受输入电压或温度变化的影响而保持一定。



- 1、应用时尽量将电容接到 VIN 和 VOUT 脚位附近。
- 2、电路内部使用了相位补偿电路和利用输出电容的 ESR 来补偿。所以输出到地一定要接大于 2.2 μ F 的电容，推荐使用钽电容。
- 3、注意输入输出电压、负载电流的使用条件，避免 IC 内部的功耗超出封装允许的最大功耗值。

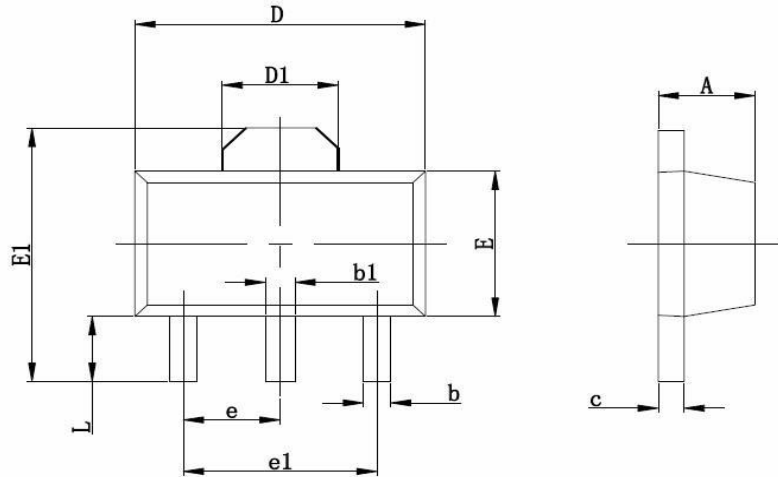
典型应用线路图

1、基本应用图





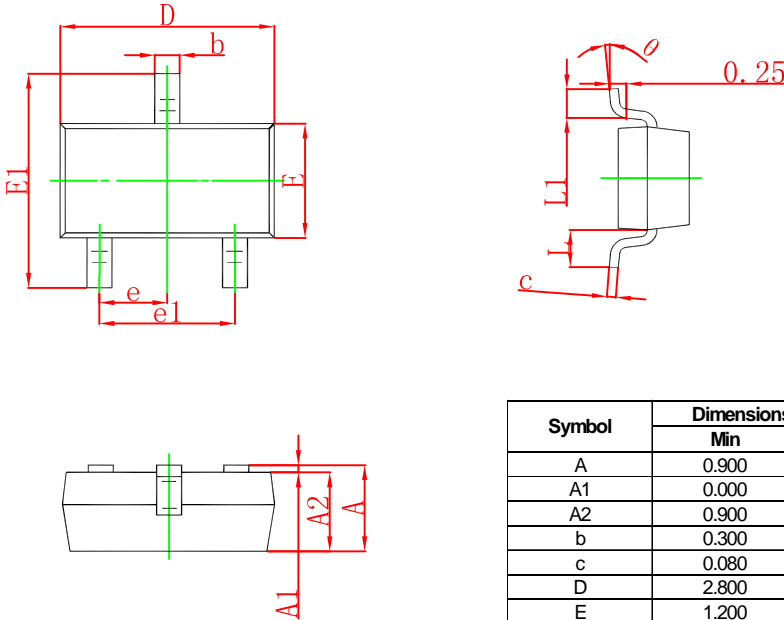
SOT-89 Package Outline Dimensions



| 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 |

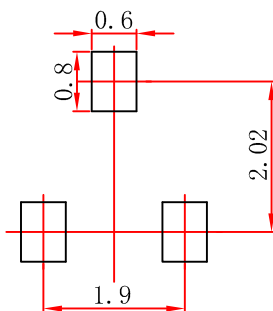


SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.



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