



## 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

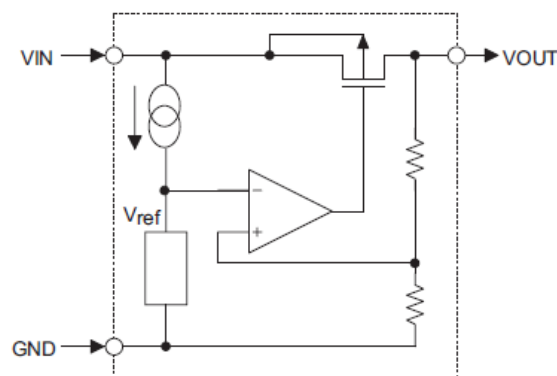
- 电池供电设备
- 通信设备
- 音频/视频设备

## 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

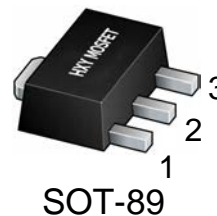




## 引脚图



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
$\theta_{JA}$	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
$V_{\text{OUT}}$	输出电压	$V_{\text{IN}}=3.5\text{V}, I_{\text{OUT}}=40\text{mA}$	2.425	2.5	2.575	V
$I_{\text{OUT}}$	输出电流	$V_{\text{IN}}=3.5\text{V}, V_{\text{OUT}} \geq 2.25\text{V}$	180	--	--	mA
$\Delta V_{\text{OUT}}$	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
$V_{\text{DIF}}$	跌落电压	$I_{\text{OUT}}=40\text{mA}$	--	110	--	mV
$I_{\text{SS}}$	静态电流	$V_{\text{IN}}=3.5\text{V},$ 空载	--	2	3	$\mu\text{A}$
$\Delta V_{\text{OUT}} / (\Delta V_{\text{IN}} * V_{\text{OUT}})$	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
$V_{\text{IN}}$	输入电压	--	--	--	18	V
$\Delta V_{\text{OUT}} / \Delta T_a$	温度系数	$V_{\text{IN}}=3.5\text{V}, I_{\text{OUT}}=40\text{mA},$ $0^\circ\text{C} \leq T_a \leq 85^\circ\text{C}$	--	$\pm 0.7$	--	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
$V_{\text{OUT}}$	输出电压	$V_{\text{IN}}=3.7\text{V}, I_{\text{OUT}}=40\text{mA}$	2.619	2.7	2.781	V
$I_{\text{OUT}}$	输出电流	$V_{\text{IN}}=3.7\text{V}, V_{\text{OUT}} \geq 2.43\text{V}$	200	--	--	mA
$\Delta V_{\text{OUT}}$	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
$V_{\text{DIF}}$	跌落电压	$I_{\text{OUT}}=40\text{mA}$	--	100	--	mV
$I_{\text{SS}}$	静态电流	$V_{\text{IN}}=3.7\text{V},$ 空载	--	2	3	$\mu\text{A}$
$\Delta V_{\text{OUT}} / (\Delta V_{\text{IN}} * V_{\text{OUT}})$	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
$V_{\text{IN}}$	输入电压	--	--	--	18	V
$\Delta V_{\text{OUT}} / \Delta T_a$	温度系数	$V_{\text{IN}}=3.7\text{V}, I_{\text{OUT}}=40\text{mA},$ $0^\circ\text{C} \leq T_a \leq 85^\circ\text{C}$	--	$\pm 0.7$	--	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
$V_{\text{OUT}}$	输出电压	$V_{\text{IN}}=4\text{V}, I_{\text{OUT}}=40\text{mA}$	2.91	3	3.09	V
$I_{\text{OUT}}$	输出电流	$V_{\text{IN}}=4\text{V}, V_{\text{OUT}} \geq 2.7\text{V}$	250	--	--	mA
$\Delta V_{\text{OUT}}$	负载调节	$V_{\text{IN}}=4\text{V}, 1\text{mA} \leq I_{\text{OUT}} \leq 60\text{mA}$	--	45	90	mV
$V_{\text{DIF}}$	跌落电压	$I_{\text{OUT}}=40\text{mA}$	--	95	--	mV
$I_{\text{SS}}$	静态电流	$V_{\text{IN}}=4\text{V},$ 空载	--	2	3	$\mu\text{A}$
$\Delta V_{\text{OUT}} / (\Delta V_{\text{IN}} * V_{\text{OUT}})$	Line Regulation	$4\text{V} \leq V_{\text{IN}} \leq 12\text{V}, I_{\text{OUT}}=40\text{mA}$	--	0.2	0.3	%/V
$V_{\text{IN}}$	输入电压	--	--	--	18	V
$\Delta V_{\text{OUT}} / \Delta T_a$	温度系数	$V_{\text{IN}}=4\text{V}, I_{\text{OUT}}=40\text{mA},$ $0^\circ\text{C} \leq T_a \leq 85^\circ\text{C}$	--	$\pm 0.7$	--	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
$\Delta V_{OUT}$	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	$\mu A$
$\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$	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	$V_{IN}=4.3V, I_{OUT}=40mA,$ $0^{\circ}C \leq Ta \leq 85^{\circ}C$	—	$\pm 0.7$	—	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
$\Delta V_{OUT}$	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	$\mu A$
$\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$	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	$V_{IN}=4.5V, I_{OUT}=40mA,$ $0^{\circ}C \leq Ta \leq 85^{\circ}C$	—	$\pm 0.7$	—	mV/ $^{\circ}C$

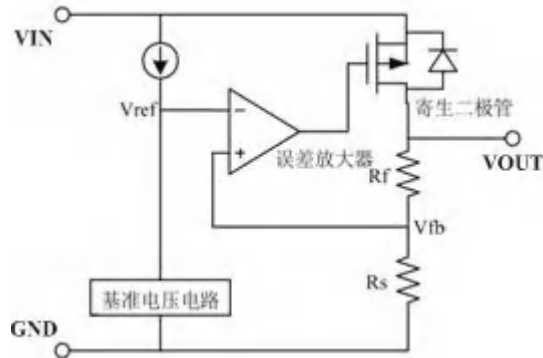
**HT7350-1** ( $T_{OPT}=25^{\circ}C$ )

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
$\Delta V_{OUT}$	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	$\mu A$
$\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$	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	$V_{IN}=6V, I_{OUT}=40mA,$ $0^{\circ}C \leq Ta \leq 85^{\circ}C$	—	$\pm 0.7$	—	mV/ $^{\circ}C$



## 功能描述

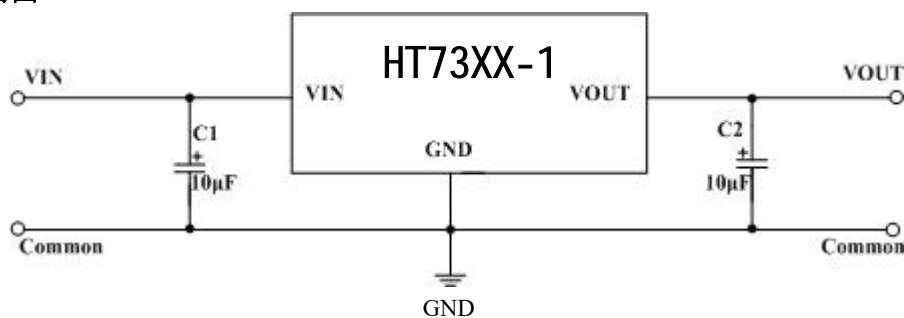
误差放大器根据反馈电阻  $R_s$  及  $R_f$  所构成的分压电阻的输入电压  $V_{fb}$  同基准电压 ( $V_{ref}$ ) 相比较。通过此误差放大器向输出晶体管提供必要的门极电压，而使输出电压不受输入电压或温度变化的影响而保持一定。



- 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 $\mu$ 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。

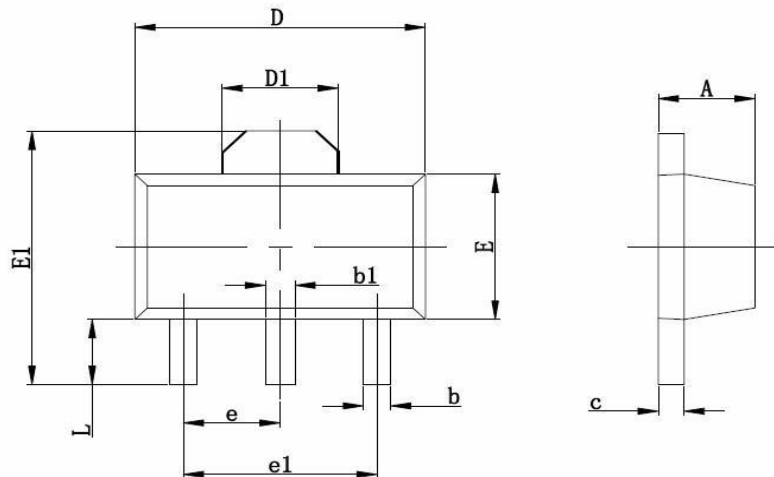
## 典型应用线路图

### 1、基本应用图





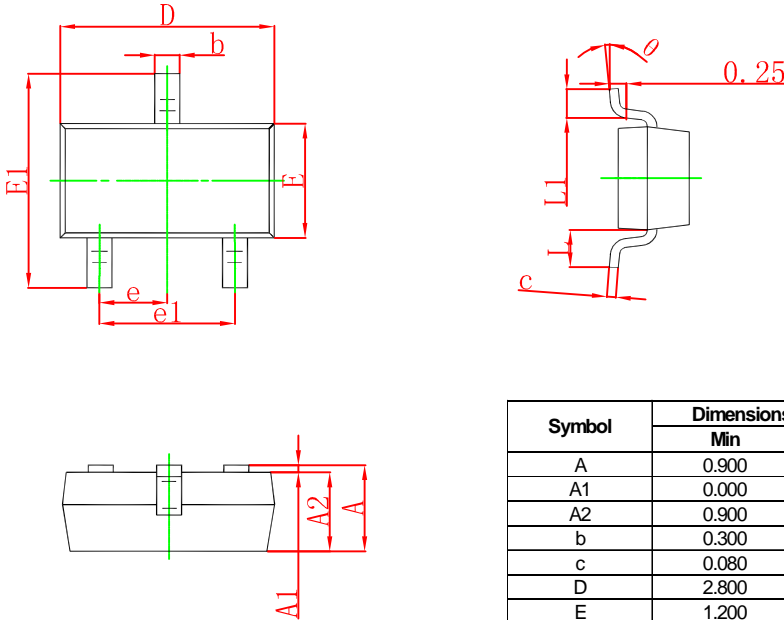
### SOT-89 Package Outline Dimensions



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

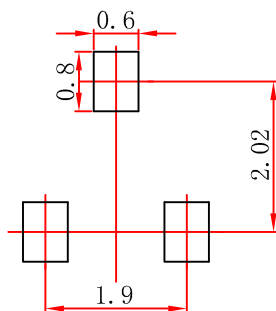


### SOT-23 Package Outline Dimensions



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:  $\pm 0.05$ mm.
  3. The pad layout is for reference purposes only.



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