



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

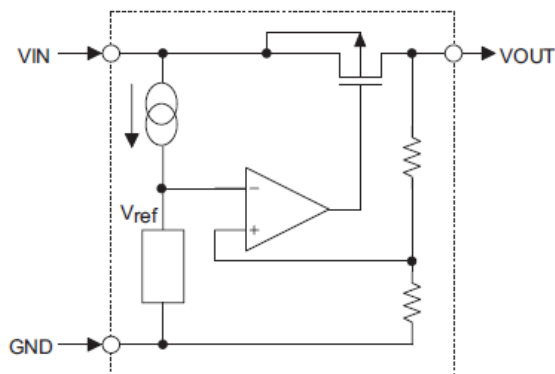
- 电池供电设备
- 通信设备
- 音频/视频设备

选型表

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

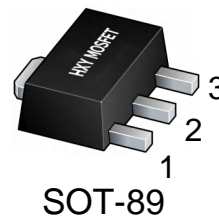
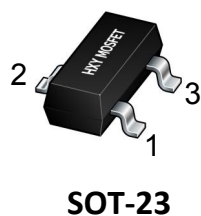
注：“xx”代表输出电压。

电路功能框图





引脚图



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℃~+85℃
储存温度范围 ----- -50℃~+125℃

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	℃/W
		SOT-89	200	℃/W
P_D	功耗	SOT-23	0.2	W
		SOT89	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	—	—	—	12	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	—	—	—	12	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	—	—	—	12	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℃)

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} ≥2.97V	250	—	—	mA
ΔV _{OUT}	负载调节	V _{IN} =4.3V, 1mA≤I _{OUT} ≤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, 空载	—	2	3	μA
ΔV _{OUT} / (ΔV _{IN} * V _{OUT})	Line Regulation	4.3V≤V _{IN} ≤12V, I _{OUT} =40mA	—	0.2	0.3	%/V
V _{IN}	输入电压	—	—	—	12	V
ΔV _{OUT} / ΔTa	温度系数	V _{IN} =4.3V, I _{OUT} =40mA, 0℃≤Ta≤85℃	—	±0.7	—	mV/℃

HT7336-1 (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} =4.5V, I _{OUT} =40mA	3.495	3.6	3.705	V
I _{OUT}	输出电流	V _{IN} =4.5V, V _{OUT} ≥3.15V	250	—	—	mA
ΔV _{OUT}	负载调节	V _{IN} =4.5V, 1mA≤I _{OUT} ≤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, 空载	—	2	3	μA
ΔV _{OUT} / (ΔV _{IN} * V _{OUT})	Line Regulation	4.5V≤V _{IN} ≤12V, I _{OUT} =40mA	—	0.2	0.3	%/V
V _{IN}	输入电压	—	—	—	12	V
ΔV _{OUT} / ΔTa	温度系数	V _{IN} =4.5V, I _{OUT} =40mA, 0℃≤Ta≤85℃	—	±0.7	—	mV/℃

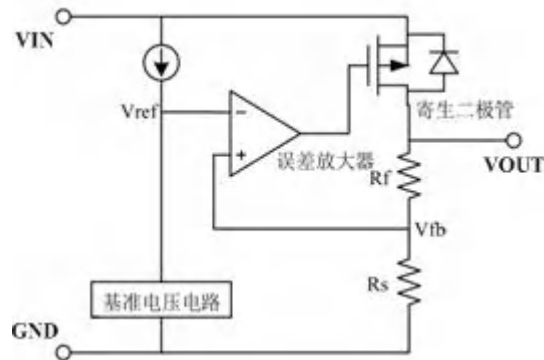
HT7350-1 (T_{OPT}=25℃)

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} =6V, I _{OUT} =40mA	4.85	5	5.15	V
I _{OUT}	输出电流	V _{IN} =2.8V, V _{OUT} ≥4.5V	250	—	—	mA
ΔV _{OUT}	负载调节	V _{IN} =6V, 1mA≤I _{OUT} ≤60mA	—	45	90	mV
V _{DIF}	跌落电压	I _{OUT} =40mA	—	60	—	mV
I _{SS}	静态电流	V _{IN} =6V, 空载	—	2	3	μA
ΔV _{OUT} / (ΔV _{IN} * V _{OUT})	Line Regulation	6V≤V _{IN} ≤12V, I _{OUT} =40mA	—	0.2	0.3	%/V
V _{IN}	输入电压	—	—	—	12	V
ΔV _{OUT} / ΔTa	温度系数	V _{IN} =6V, I _{OUT} =40mA, 0℃≤Ta≤85℃	—	±0.7	—	mV/℃



功能描述

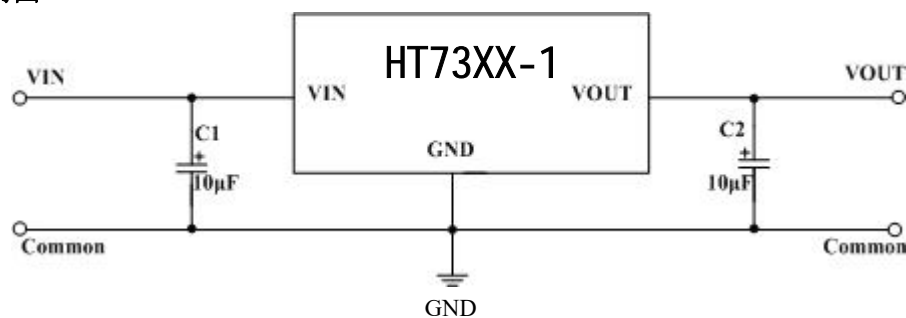
误差放大器根据反馈电阻 R_s 及 R_f 所构成的分压电阻的输入电压 V_{fb} 同基准电压 (V_{ref}) 相比较。通过此误差放大器向输出晶体管提供必要的门极电压，而使输出电压不受输入电压或温度变化的影响而保持一定。



- 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 的电容器，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。

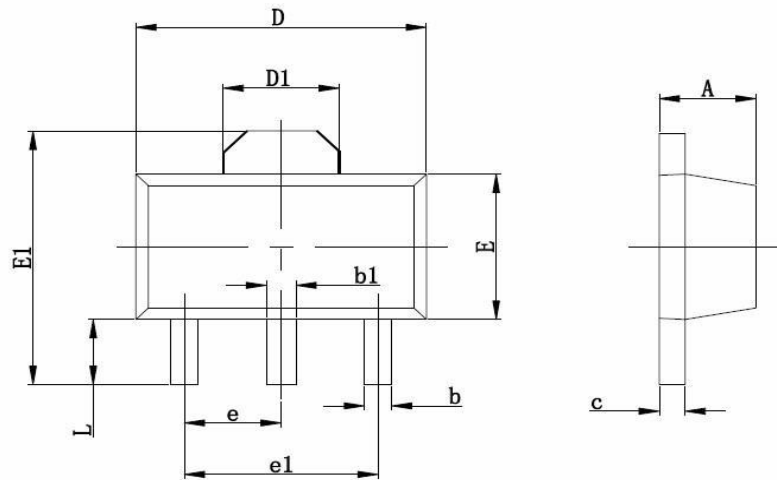
典型应用线路图

1、基本应用图





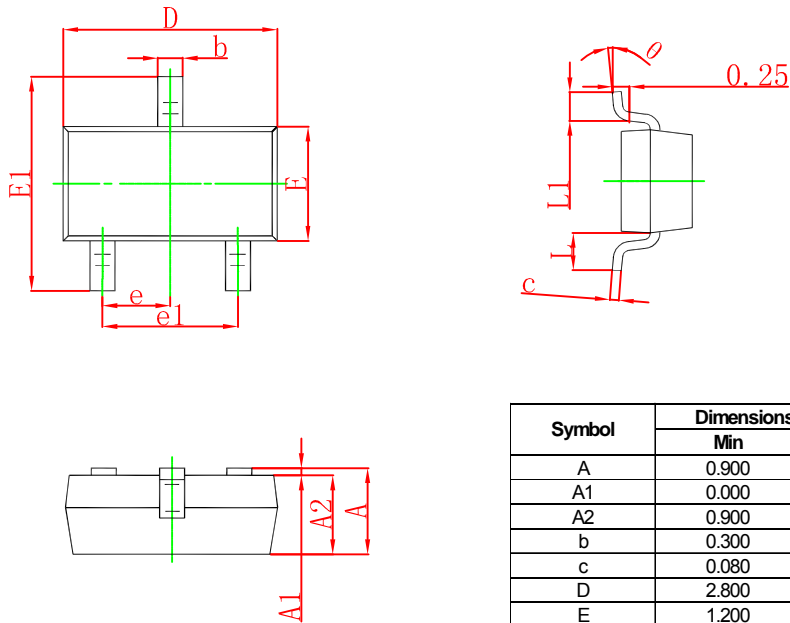
SOT-89 Package Outline Dimensions



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

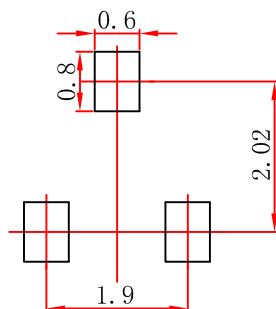


SOT-23 Package Outline Dimensions



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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