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

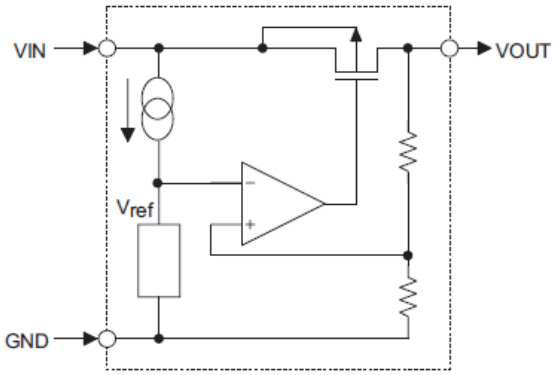
- 电池供电设备
- 通信设备
- 音频/视频设备

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) 73xx-1(封装为SOT-89)
HT7327-1	2.7V		
HT7330-1	3.0V		
HT7333-1	3.3V		
HT7336-1	3.6V		
HT7344-1	4.4V		
HT7350-1	5.0V		

注：“xx”代表输出电压。

电路功能框图



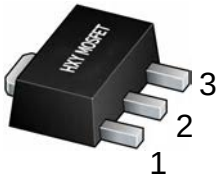
极限参数

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。

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

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 Ta=25℃时测得。

直流电特性（除特别说明外，T_A =＋25°C）

HT7325-1 （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}=3.5V，I_{OUT}=40mA	2.45	2.5	2.55	V
I_{OUT}	输出电流	V_{IN}=3.5V，V_{OUT}≥2.25V	180	--	—	mA
$\triangle V_{OUT}$	负载调节	V_{IN}=3.5V， 1mA≤I_{OUT} ≤60mA	—	45	90	mV
V_{DIF}	跌落电压	I_{OUT}=40mA	—	110	—	mV
I_{SS}	静态电流	V_{IN}=3.5V，空载	—	2	3	μA
$\Delta V_{OUT}/(\Delta V_{IN} * V_{OUT})$	Line Regulation	3.5V≤V_{IN}≤12V， I_{OUT}=40mA	—	0.2	0.3	%/V
V_{IN}	输入电压	—	—	—	12	V
$\Delta V_{OUT}/\Delta Ta$	温度系数	V_{IN}=3.5V，I_{OUT}=40mA， 0℃≤Ta≤85℃	—	±0.7	—	mV/℃

HT7327-1 (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}=3.7V，I_{OUT}=40mA	2.646	2.7	2.781	V
I_{OUT}	输出电流	V_{IN}=3.7V，V_{OUT}≥2.43V	200	--	—	mA
$\triangle V_{OUT}$	负载调节	V_{IN}=3.7V， 1mA≤I_{OUT} ≤60mA	—	45	90	mV
V_{DIF}	跌落电压	I_{OUT}=40mA	—	100	—	mV
I_{SS}	静态电流	V_{IN}=3.7V，空载	—	2	3	μA
$\Delta V_{OUT}/(\Delta V_{IN} * V_{OUT})$	Line Regulation	3.7V≤V_{IN}≤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}=3.7V，I_{OUT}=40mA， 0℃≤Ta≤85℃	—	±0.7	—	mV/℃

HT7330-1 (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}=4V，I_{OUT}=40mA	2.94	3	3.06	V
I_{OUT}	输出电流	V_{IN}=4V，V_{OUT}≥2.7V	250	--	—	mA
$\triangle V_{OUT}$	负载调节	V_{IN}=4V，1mA≤I_{OUT} ≤60mA	—	45	90	mV
V_{DIF}	跌落电压	I_{OUT}=40mA	—	95	—	mV
I_{SS}	静态电流	V_{IN}=4V，空载	—	2	3	μA
$\Delta V_{OUT}/(\Delta V_{IN} * V_{OUT})$	Line Regulation	4V≤V_{IN}≤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}=4V，I_{OUT}=40mA， 0℃≤Ta≤85℃	—	±0.7	—	mV/℃

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	3.366	3.3	3.366	V
I_{OUT}	输出电流	V_{IN}=4.3V，V_{OUT}≥2.97V	250	--	—	mA
$\triangle V_{OUT}$	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
$\Delta V_{OUT}/(\Delta V_{IN} * V_{OUT})$	Line Regulation	4.3V≤V_{IN}≤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℃≤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}=4.6V， I_{OUT}=40mA	3.528	3.6	3.672	V
I_{OUT}	输出电流	V_{IN}=4.6V， V_{OUT}≥3.15V	250	--	—	mA
$\triangle V_{OUT}$	负载调节	V_{IN}=4.6V， 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}=4.6V，空载	—	2	3	μA
$\Delta V_{OUT}/(\Delta V_{IN} * V_{OUT})$	Line Regulation	4.6V≤V_{IN}≤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}=4.6V， I_{OUT}=40mA， 0℃≤Ta≤85℃	—	±0.7	—	mV/℃

HT7344-1 （ T_{OPT}=25℃）

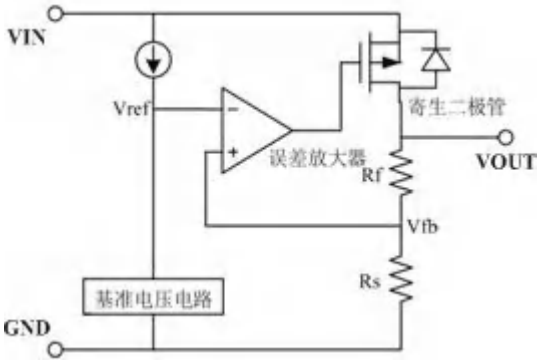
符号	参数	测试条件	最小值	典型值	最大值	单位
V_{OUT}	输出电压	V_{IN}=5.4V， I_{OUT}=40mA	4.312	4.4	4.488	V
I_{OUT}	输出电流	V_{IN}=5.4V， V_{OUT}≥3.85V	250	--	—	mA
$\triangle V_{OUT}$	负载调节	V_{IN}=5.4V， 1mA≤I_{OUT} ≤60mA	—	45	90	mV
V_{DIF}	跌落电压	I_{OUT}=40mA	—	80	—	mV
I_{SS}	静态电流	V_{IN}=5.4V，空载	—	2	3	μA
$\Delta V_{OUT}/(\Delta V_{IN} * V_{OUT})$	Line Regulation	5.4V≤V_{IN}≤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}=5.4V， 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	4.9	5	5.1	V
I_{OUT}	输出电流	V_{IN}=2.8V， V_{OUT}≥4.5V	250	--	—	mA
$\triangle V_{OUT}$	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
$\Delta V_{OUT}/(\Delta V_{IN} * V_{OUT})$	Line Regulation	6V≤V_{IN}≤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℃≤Ta≤85℃	—	±0.7	—	mV/℃

功能描述

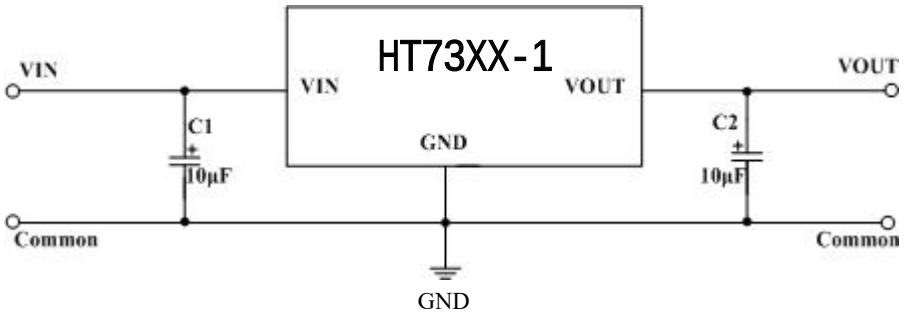
误差放大器根据反馈电阻 Rs 及 Rf 所构成的分压电阻的输入电压 Vfb 同基准电压（Vref）相比较。通过此误差放大器向输出晶体管提供必要的门极电压，而使输出电压不受输入电压或温度变化的影响而保持一定。



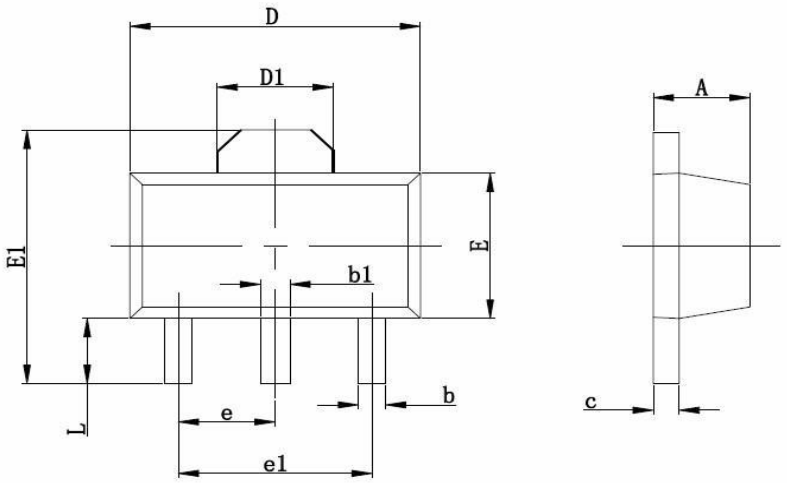
1、 应用时尽量将电容接到 VIN 和 VOUT 脚位附近。
2、 电路内部使用了相位补偿电路和利用输出电容的 ESR 来补偿。所以输出到地一定要接大于 2.2μF 的电容器，推荐使用钽电容。
3、 注意输入输出电压、负载电流的使用条件，避免 IC 内部的功耗超出封装允许的最大功耗值。

典型应用线路图

1、基本应用图

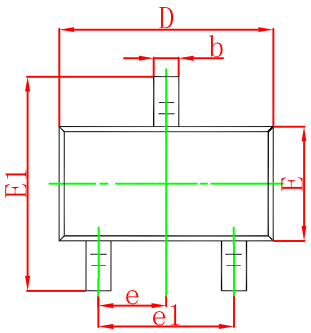


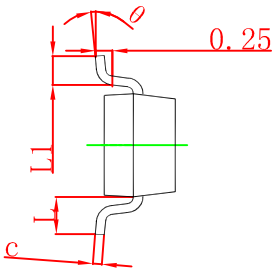
SOT-89 Package Outline Dimensions

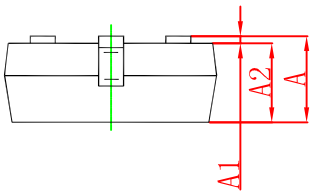


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.350	2.550	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.100	0.035	0.047

SOT-23 Package Outline Dimensions

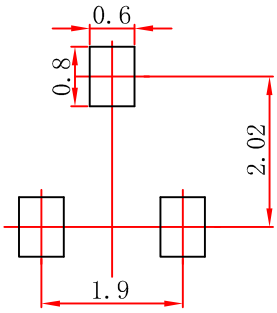






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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:± 0.05mm.
3.The pad layout is for reference purposes only.

Attention

■ Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.

■ HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.

■ Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

■ HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could
give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.