概述

HT73XX-40是一款采用 CMOS 技术的低压差线性稳压器。最大输出电流为 100mA 且允许的最高输入电压为 40V。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：40V
- 典型静态电流：2uA
- 最大输出电流：100mA
- 输出电压精度：±2%
- 封装类型：SOT-23，SOT-89

应用领域

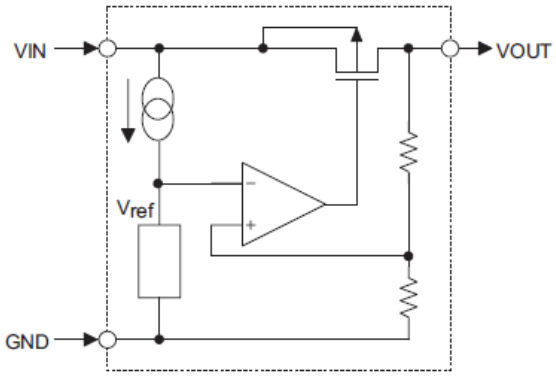
- 电池供电设备
- 通信设备
- 音频/视频设备

选型表

型号	输出电压	封装类型	正印
HT7125-40	2.5V	SOT-23 SOT-89	71xx
HT7130-40	3.0V		
HT7133-40	3.3V		
HT7136-40	3.6V		
HT7144-40	4.4V		
HT7150-40	5.0V		

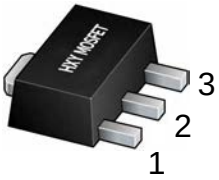
注：“xx”代表输出电压。

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 ~+36V　　工作环境温度 ---------- -40℃~+85℃
储存温度范围 ---------- -45℃~+140℃

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
		SOT-89	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℃）

HT7125-40

符号	参数	测试条件	最小	典型	最大	单位
V_{IN}	输入电压	—	—	—	40	V
V_{OUT}	输出电压	V_{IN}=V_{OUT}+2V I_{OUT}=10mA	2.450	2.500	2.550	V
I_{OUT}	输出电流	V_{IN}=V_{OUT}+2V	70	100	—	mA
△V_{OUT}	负载调节率	V_{IN}=V_{OUT}+2V 1mA ≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout 电压	I_{OUT} =1mA, △Vo=2%	—	2	4	mV
Iss	静态电流	无负载	—	2	3.0	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	输入电压调节率	Vo+1V≤V_{IN}≤36V I_{OUT} =1mA	—	—	0.2	%/V
$\frac{\triangle VOUT}{\triangle Ta \times VOUT}$	温度系数	I_{OUT} =10mA -40℃<Ta<85℃	—	100	—	ppm/℃

注：在 V_{IN}=V_{OUT}+2V 与一个固定负载条件下使输出电压下降 2%，此时的输入电压减去输出电压就是 Dropout 电压。

HT7130-40

符号	参数	测试条件	最小	典型	最大	单位
V_{IN}	输入电压	—	—	—	40	V
V_{OUT}	输出电压	V_{IN}=V_{OUT}+2V I_{OUT}=10mA	2.940	3.000	3.060	V
I_{OUT}	输出电流	V_{IN}=V_{OUT}+2V	70	100	—	mA
△V_{OUT}	负载调节率	V_{IN}=V_{OUT}+2V 1mA ≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout 电压	I_{OUT} =1mA, △Vo=2%	—	2	4	mV
Iss	静态电流	无负载	—	2.0	3.0	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	输入电压调节率	Vo+1V≤V_{IN}≤36V I_{OUT} =1mA	—	—	0.2	%/V
$\frac{\triangle VOUT}{\triangle Ta \times VOUT}$	温度系数	I_{OUT} =10mA -40℃<Ta<85℃	—	100	—	ppm/℃

注：在 V_{IN}=V_{OUT}+2V 与一个固定负载条件下使输出电压下降 2%，此时的输入电压减去输出电压就是 Dropout 电压。

HT7133-40

符号	参数	测试条件	最小	典型	最大	单位
V_{IN}	输入电压	—	—	—	40	V
V_{OUT}	输出电压	V_{IN}=V_{OUT}+2V I_{OUT}=10mA	3.234	3.300	3.366	V
I_{OUT}	输出电流	V_{IN}=V_{OUT}+2V	70	100	—	mA
△V_{OUT}	负载调节率	V_{IN}=V_{OUT}+2V 1mA ≤I_{OUT}≤50mA	—	25	60	mV
V_{DIF}	Dropout 电压	I_{OUT} =1mA △Vo=2%	—	2	4	mV
Iss	静态电流	无负载	—	2.0	3.0	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	输入电压调节率	Vo+1V≤V_{IN}≤36V I_{OUT} =1mA	—	—	0.2	%/V
$\frac{\triangle VOUT}{\triangle Ta \times VOUT}$	温度系数	I_{OUT} =10mA -40℃<Ta<85℃	—	100	—	ppm/℃

注：在 V_{IN}=V_{OUT}+2V 与一个固定负载条件下使输出电压下降 2%，此时的输入电压减去输出电压就是 Dropout 电压。

HT7136-40

符号	参数	测试条件	最小	典型	最大	单位
V_{IN}	输入电压	—	—	—	40	V
V_{OUT}	输出电压	$V_{IN}=V_{OUT}+2V$ $I_{OUT}=10mA$	3.528	3.600	3.672	V
I_{OUT}	输出电流	$V_{IN}=V_{OUT}+2V$	70	100	—	mA
$\triangle V_{OUT}$	负载调节率	$V_{IN}=V_{OUT}+2V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	—	25	60	mV
V_{DIF}	Dropout 电压	I_{OUT} =1mA, △Vo=2%	—	2	4	mV
Iss	静态电流	无负载	—	2.0	3.0	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	输入电压调节率	$Vo+1V \leqslant V_{IN} \leqslant 36V$ I_{OUT} =1mA	—	—	0.2	%/V
$\frac{\triangle VOUT}{\triangle Ta \times VOUT}$	温度系数	I_{OUT} =10mA -40℃<Ta<85℃	—	100	—	ppm/℃

注：在 $V_{IN}=V_{OUT}+2V$ 与一个固定负载条件下使输出电压下降 2%，此时的输入电压减去输出电压就是 Dropout 电压。

HT7344-40

符号	参数	测试条件	最小	典型	最大	单位
V_{IN}	输入电压	—	—	—	40	V
V_{OUT}	输出电压	$V_{IN}=V_{OUT}+2V$ $I_{OUT}=10mA$	4.312	4.400	4.488	V
I_{OUT}	输出电流	$V_{IN}=V_{OUT}+2V$	70	100	—	mA
$\triangle V_{OUT}$	负载调节率	$V_{IN}=V_{OUT}+2V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	—	25	60	mV
V_{DIF}	Dropout 电压	I_{OUT} =1mA, △Vo=2%	—	2	4	mV
Iss	静态电流	无负载	—	2.0	3.0	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	输入电压调节率	$Vo+1V \leqslant V_{IN} \leqslant 36V$ I_{OUT} =1mA	—	—	0.2	%/V
$\frac{\triangle VOUT}{\triangle Ta \times VOUT}$	温度系数	I_{OUT} =10mA -40℃<Ta<85℃	—	100	—	ppm/℃

注：在 $V_{IN}=V_{OUT}+2V$ 与一个固定负载条件下使输出电压下降 2%，此时的输入电压减去输出电压就是 Dropout 电压。

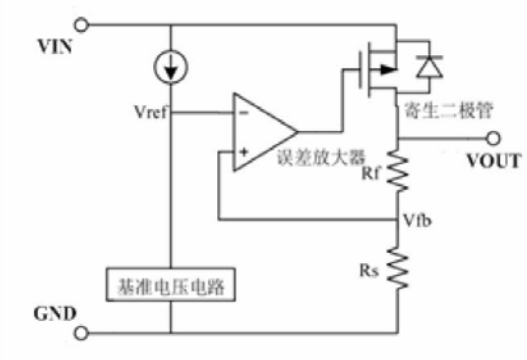
HT7350-40

符号	参数	测试条件	最小	典型	最大	单位
V_{IN}	输入电压	—	—	—	40	V
V_{OUT}	输出电压	$V_{IN}=V_{OUT}+2V$ $I_{OUT}=10mA$	4.900	5.000	5.100	V
I_{OUT}	输出电流	$V_{IN}=V_{OUT}+2V$	100	150	—	mA
$\triangle V_{OUT}$	负载调节率	$V_{IN}=V_{OUT}+2V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	—	25	60	mV
V_{DIF}	Dropout 电压	I_{OUT} =1mA △Vo=2%	—	2	4	mV
Iss	静态电流	无负载	—	2.0	3.0	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	输入电压调节率	$Vo+1V \leqslant V_{IN} \leqslant 36V$ I_{OUT} =1mA	—	—	0.2	%/V
$\frac{\triangle VOUT}{\triangle Ta \times VOUT}$	温度系数	I_{OUT} =10mA -40℃<Ta<85℃	—	100	—	ppm/℃

注：在 $V_{IN}=V_{OUT}+2V$ 与一个固定负载条件下使输出电压下降 2%，此时的输入电压减去输出电压就是 Dropout 电压。

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。



使用注意事项：

1）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 2.2uF 的电容器。

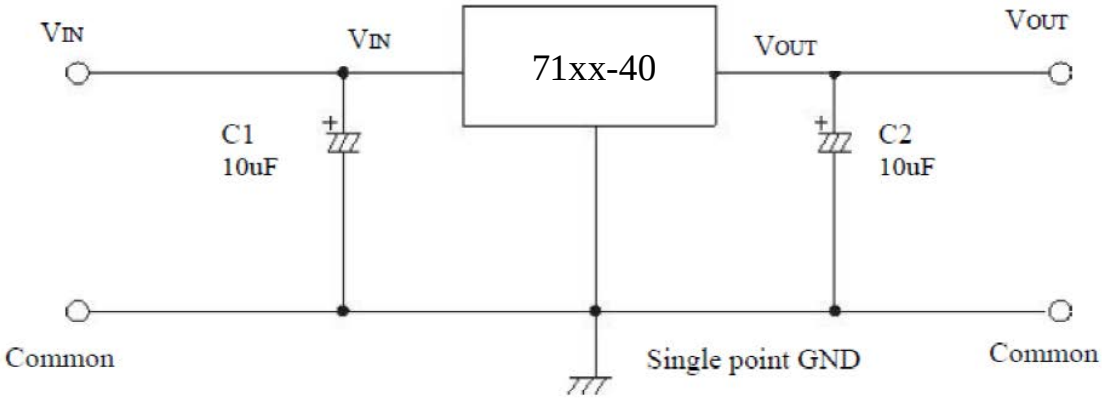
2）建议应用时输入和输出使用 10uF 有极性电容，并尽量将电容靠近 LDO 的 VIN 和 VOUT 脚位。

3）注意输入和输出电压与负载电流的使用条件，避免 IC 内部的功耗(PD)超出封装允许的最大功耗值。

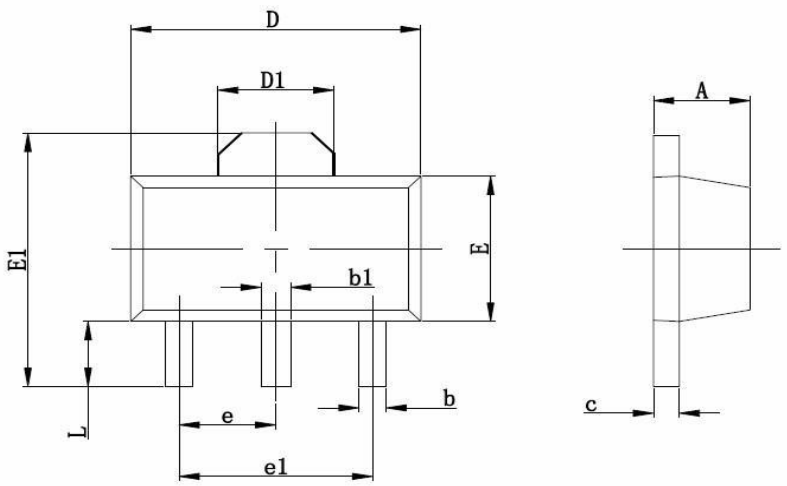
PD 的计算方式：PD=(VIN－VOUT)×IOUT

如：HT7150-40，SOT-89 封装，当VIN=12V，IOUT=100mA 时，则 PD=（12-5）×100mA=0.7W，超过规格的 0.5W，会损坏 IC。不同封装的 PD 值，请参考“热能信息”一栏。

典型应用电路

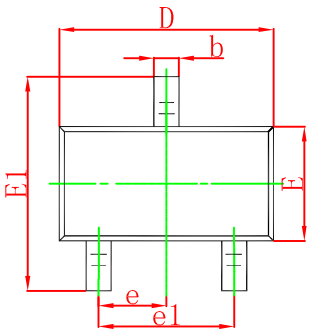


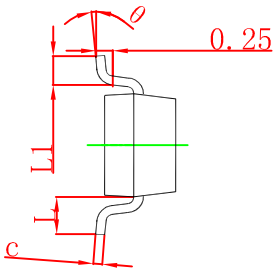
SOT-89 **Package Outline Dimensions**

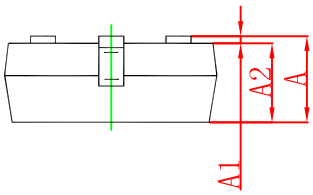


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.350	2.550	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP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

SOT-23 Package Outline Dimensions

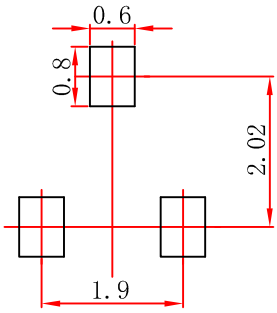






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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.

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