Generality

HT7533-1-CN is a low dropout linear regulator using CMOS technology. The maximum output current is 100mA and the maximum allowable input voltage is 36V. Fixed output voltage ranging 3.3V. COMS technology ensures its characteristics of low voltage drop and low static current.

Functional Features

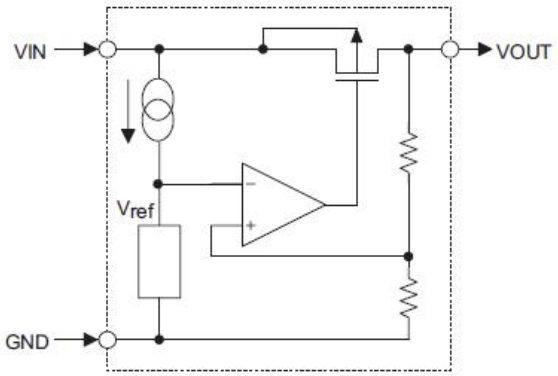
- Low power consumption
- Low voltage drop
- Lower temperature coefficient
- Maximum input voltage：36V
- Typical static current：2uA
- Maximum output current：100mA
- Output voltage accuracy：±2%

Application Area

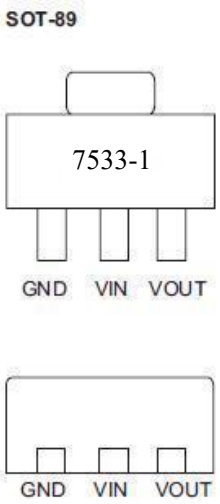
- Packaging type：SOT89
- Battery powered equipment
- Communication equipment
- Audio/video equipment

Part no	Output voltage	Packaging Type	Marking
HT7533-1-CN	3.3V	SOT89	7533-1

Circuit functional block diagram



Pin diagram



Pinouts

Pin number	Pin Name	Describe
1	GND	Grounding
2	VIN	Input
3	VOUT	Output

limit parameter

Power Supply Voltage ---------- -0.3V ~+36V
Ambient Temperature ---------- -40℃~+85℃
Storage temperature range ---------- -45℃~+140℃

PS： Only the rated power is emphasized here. Exceeding the range specified by the limit parameters will cause damage to the chip, and it is impossible to predict the working state of the chip outside the above indicated range. Moreover, if the chip operates under conditions outside the indicated range for a long time, it may affect the reliability of the chip.

Thermal energy information

symbol	Parameter	Packaging type	Maximum value	unit
θ_{JA}	Thermal resistance (connected to the environment) (assuming no ambient airflow and no heat sink)	SOT89	200	℃/W
P_D	power consumption	SOT89	0.5	W

PS： The P_D value was measured at Ta=25℃.

Electrical characteristics

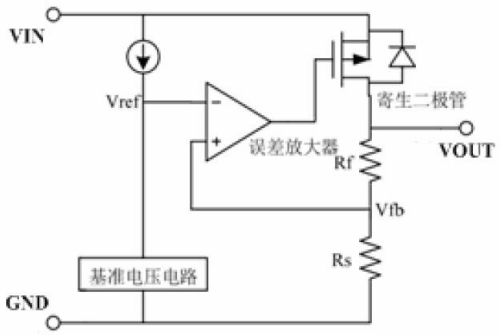
HT7533-1-CN，+3.3V output　　Ta=25℃

Symbol	Parameter	Test conditions	Minimum	Typical	MAX	Unit
V_{IN}	Input Voltage	—	—	—	36	V
V_{OUT}	Output voltage	$V_{IN}=V_{OUT}+2V$ $I_{OUT}=10mA$	3.234	3.300	3.366	V
I_{OUT}	output current	$V_{IN}=V_{OUT}+2V$	70	100	—	mA
$\triangle V_{OUT}$	Load regulation rate	$V_{IN}=V_{OUT}+2V$ $1mA \leqslant I_{OUT} \leqslant 50mA$	—	25	60	mV
V_{DIF}	Dropout voltage	$I_{OUT}=1mA$ $\triangle Vo=2\%$	—	2	4	mV
I_{SS}	static current	No load	—	2.0	3.0	uA
$\frac{\triangle VOUT}{\triangle VIN \times VOUT}$	Input voltage regulation rate	$Vo+1V \leqslant V_{IN} \leqslant 36V$ $I_{OUT}=1mA$	—	—	0.2	%/V
$\frac{\triangle VOUT}{\triangle Ta \times VOUT}$	temperature coefficient	$I_{OUT}=10mA$ $-40℃<Ta<85℃$	—	100	—	ppm/℃

PS：Under the condition of VIN=VOUT+2V and a fixed load, the Dropout voltage is obtained by subtracting the output voltage from the input voltage when the output voltage drops by 2%.

Function Description

The error amplifier compares the input voltage Vfb of the voltage divider resistor composed of feedback resistors Rs and Rf with the reference voltage Vref. By using this error amplifier to provide the necessary gate voltage to the output transistor, the output voltage is kept constant without being affected by input voltage or temperature changes.



Precautions for use:

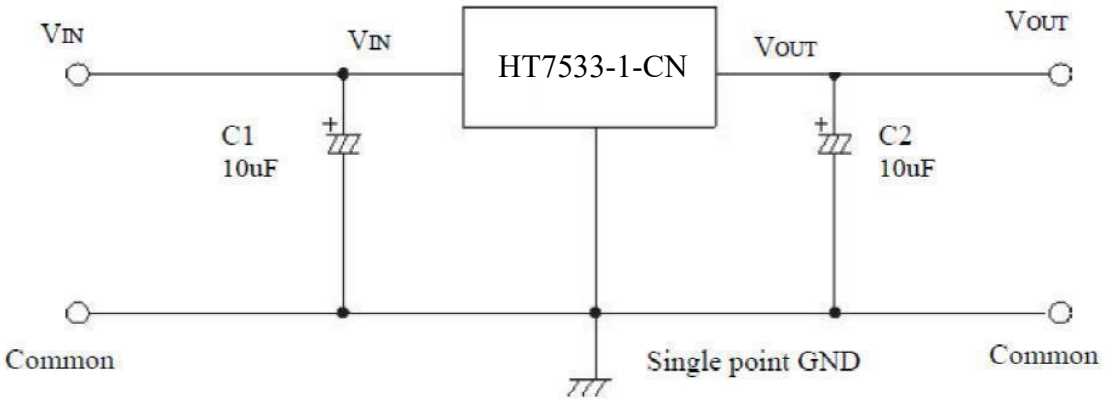
（1） The circuit uses a phase compensation circuit and utilizes the ESR of the output capacitor for compensation, so a capacitor greater than 2.2uF must be connected to the output to ground.

（2）It is recommended to use 10uF polarized capacitors for input and output during application, and to place the capacitors as close as possible to the VIN and VOUT pins of the LDO.

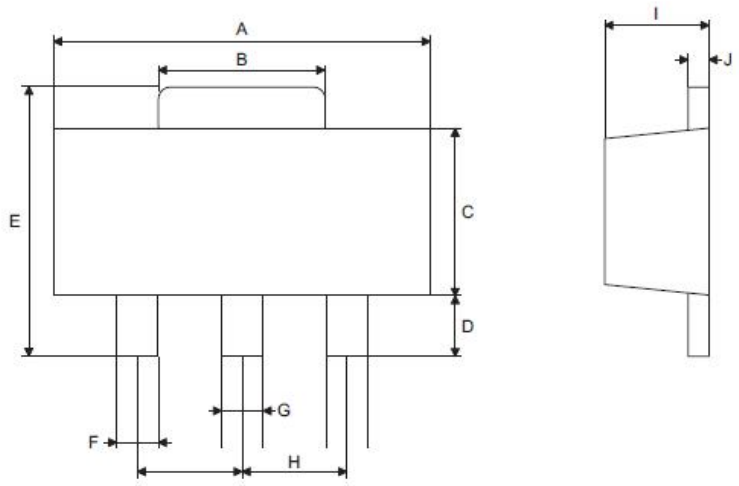
（3）Pay attention to the usage conditions of input and output voltage and load current, and avoid the internal power consumption (PD) of the IC exceeding the maximum power consumption value allowed by the package.

The calculation method of PD:PD=(VIN－VOUT)×IOUT

Typical application circuit



SOT89 Package Size



Symbol	Size（Unit：mm）		
	Minimum	Typical	Minimum
A	4.40	–	4.60
B	1.35	–	1.83
C	2.29	–	2.60
D	0.89	–	1.20
E	3.94	–	4.25
F	0.36	–	0.48
G	0.44	–	0.56
H	–	1.50	–
I	1.40	–	1.60
J	0.35	–	0.44

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