

## Generality

HT7550-1-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 5.0V. COMS technology ensures its characteristics of low voltage drop and low static current.

## Functional Features

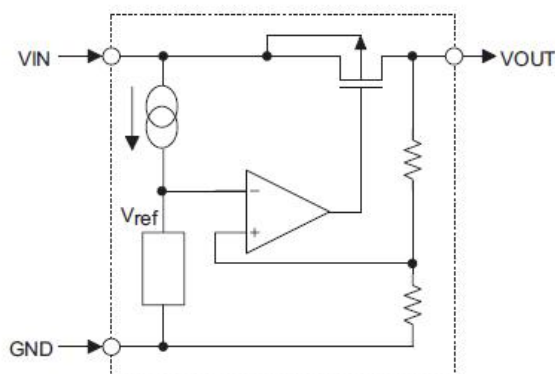
- Low power consumption
- Low voltage drop
- Lower temperature coefficient
- Maximum input voltage: 36V
- Typical static current: 2uA
- Maximum output current: 100mA
- Output voltage accuracy:  $\pm 2\%$

## Application Area

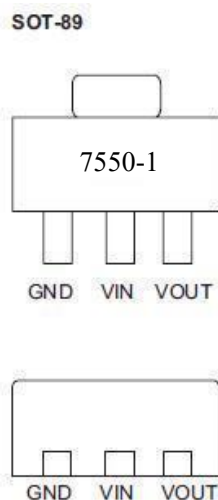
- Packaging type: SOT89
- Battery powered equipment
- Communication equipment
- Audio/video equipment

Part no	Output voltage	Packaging Type	Marking
HT7550-1-CN	5.0V	SOT89	7550-1

## 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
$\theta_{JA}$	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  $T_a=25^\circ\text{C}$ .

## Electrical characteristics

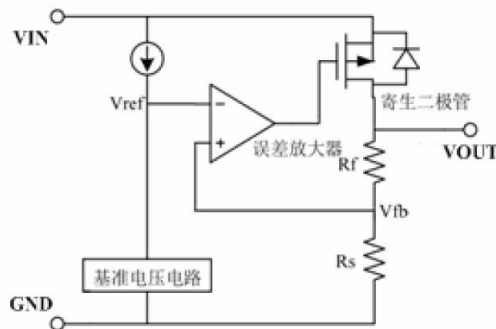
HT7550-1-CN, +5.0V output       $T_a=25^{\circ}\text{C}$

Symbol	Parameter	Test conditions	Minimum	Typical	MAX	Unit
$V_{IN}$	Input Voltage	—	—	—	36	V
$V_{OUT}$	Output voltage	$V_{IN}=V_{OUT}+2V$ $I_{OUT}=10\text{mA}$	4.900	5.000	5.100	V
$I_{OUT}$	output current	$V_{IN}=V_{OUT}+2V$	100	150	—	mA
$\Delta V_{OUT}$	Load regulation rate	$V_{IN}=V_{OUT}+2V$ $1\text{mA} \leq I_{OUT} \leq 50\text{mA}$	—	25	60	mV
$V_{DIF}$	Dropout voltage	$I_{OUT}=1\text{mA}$ $\Delta V_o=2\%$	—	2	4	mV
$I_{SS}$	static current	No load	—	2.0	3.0	uA
	Input voltage regulation rate	$V_o+1V \leq V_{IN} \leq 36V$ $I_{OUT}=1\text{mA}$	—	—	0.2	%/V
	temperature coefficient	$I_{OUT}=10\text{mA}$ $-40^{\circ}\text{C} < T_a < 85^{\circ}\text{C}$	—	100	—	ppm/ $^{\circ}\text{C}$

PS: Under the condition of  $V_{IN}=V_{OUT}+2V$  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  $V_{fb}$  of the voltage divider resistor composed of feedback resistors  $R_s$  and  $R_f$  with the reference voltage  $V_{ref}$ . 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.

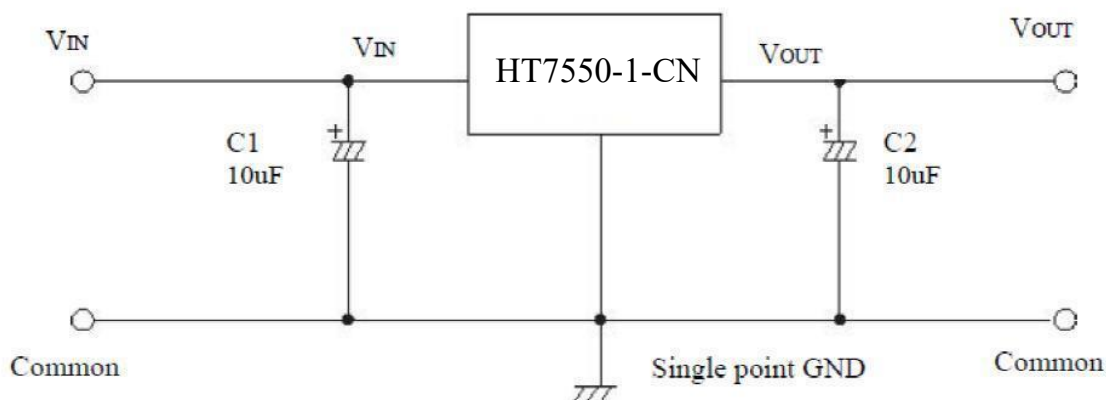
(2) It is recommended to use 10uF polarized capacitors for input and output during application, and to place the capacitors as close as possible to the VIN and VOUT pins of the LDO.

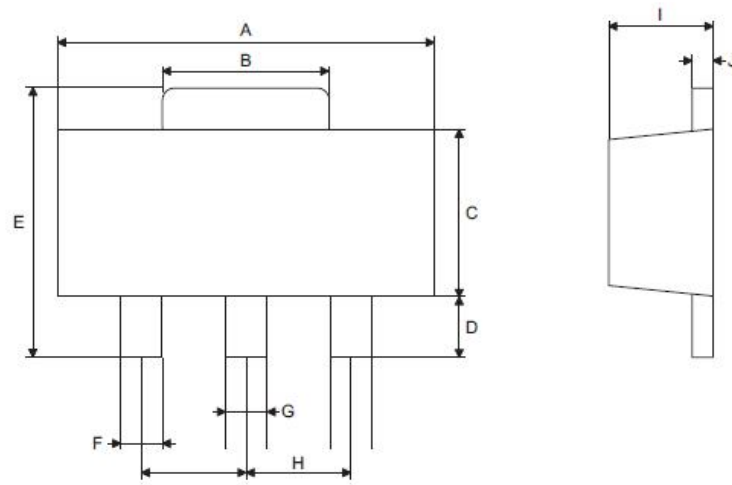
(3) Pay attention to the usage conditions of input and output voltage and load current, and avoid the internal power consumption (PD) of the IC exceeding the maximum power consumption value allowed by the package.

The calculation method of PD:  $PD = (V_{IN} - V_{OUT}) \times I_{OUT}$

For example: HT7550-1-CN, SOT89 package, when  $V_{IN}=12V$  and  $I_{OUT}=100mA$ ,  $PD=(12-5) \times 100mA=0.7W$ . Exceeding the specification by 0.5W will damage the IC.

## Typical application circuit



**SOT89 Package Size**


Symbol	Size (Unit: mm)		
	Minimum	Typical	Maximum
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

**NOTICE**

The information presented in this document is for reference only. Involving product optimization and productivity improvement, ChipNobo reserves the right to adjust product indicators and upgrade some technical parameters. ChipNobo is entitled to be exempted from liability for any delay or non-delivery of the information disclosure process that occurs.

本文件中提供的信息仅供参考。涉及产品优化和生产效率改善，ChipNobo 有权调整产品指标和部分技术参数的升级，所出现信息披露过程存在延后或者不能送达的情形，ChipNobo 有获免责权。

The product listed herein is designed to be used with residential and commercial equipment, and do not support sensitive items and specialized equipment in areas where sanctions do exist. ChipNobo Co., Ltd or anyone on its behalf, assumes no responsibility or liability for any damages resulting from improper use.

此处列出的产品旨在民用和商业设备上使用，不支持确有制裁地区的敏感项目和特殊设备，ChipNobo 有限公司或其代表，对因不当使用而造成的任何损害不承担任何责任。

For additional information, please visit our website <http://www.chipnobo.com>, or consult your nearest Chipnobo sales office for further assistance.

欲了解更多信息，请访问我们的网站 <http://www.chipnobo.com>，或咨询离您最近的 Chipnobo 销售办事处以获得进一步帮助。