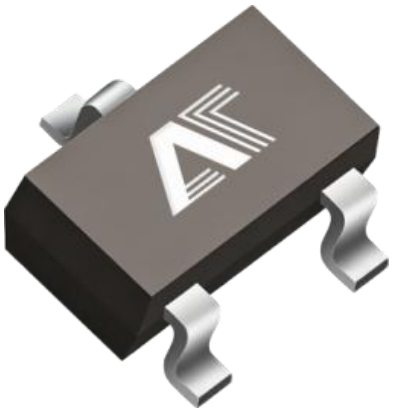
AOTE SEMICONDUCTOR



Low Dropout Linear Regulator

HT73XX

Product Data Sheet

AOTE DCC
RELEASE

Summary ：

HT73xx is a low dropout linear regulator using CMOS technology. The maximum output current is 250mA and the maximum allowable input voltage is 30V. It has several fixed output voltages ranging from 2.5V to 5.0V. COMS technology ensures its low voltage drop and low static current characteristics.

Product features

- Package type: SOT-23/SOT-23-3L/SOT-89
- low power consumption
- Low pressure drop
- Lower temperature coefficient
- Maximum input voltage: 30V
- Typical static current: 2uA
- Maximum output current: 250mA
- Output voltage accuracy: ± 2%

Applications

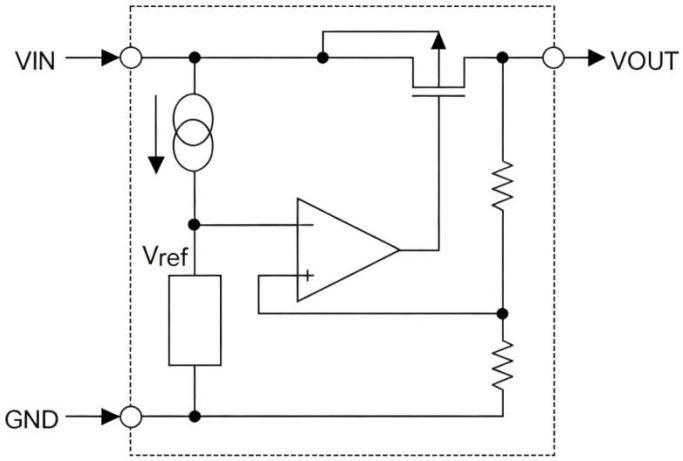
- Battery powered equipment
- Communication equipment
- Audio/Video equipment

Model Selection

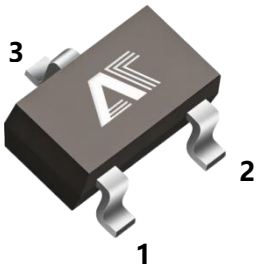
Product Name	Output voltage	Packing Specification	Package form
HT7325S	2.5V	Tape and Reel, 3000	SOT-89 SOT-23-3 SOT-23-3L
HT7327S	2.7V	Tape and Reel, 3000	
HT7330S	3.0V	Tape and Reel, 3000	
HT7333S	3.3V	Tape and Reel, 3000	
HT7336S	3.6V	Tape and Reel, 3000	
HT7340S	4.0V	Tape and Reel, 3000	
HT7344S	4.4V	Tape and Reel, 3000	
HT7350S	5.0V	Tape and Reel, 3000	

Note: "XX" represents the output voltage

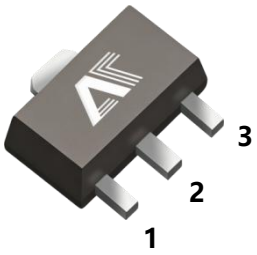
◆ Circuit Functional Block Diagram



◆ Pin diagram



SOT-23/
SOT-23-3L



SOT-89

◆ Pin description

Pin number	pin name	Functional Description
1	GND	Ground
2	Vin	Input foot
3	Vout	Output pin

◆ Limit parameter

Power supply voltage: 0.3V~+30V,
Working environment temperature: 0 ℃~+85 ℃
Storage temperature range: -50 ℃~+125 ℃

Note: Only the rated power is emphasized here. Exceeding the range specified by the limit parameters will cause damage to the chip, and it cannot be expected that the chip will be marked as such the working state outside the designated range, and if operated under conditions outside the marked range for a long time, may affect the reliability of the chip.

◆ Thermal energy information

Symbol	Parameter	Boxed type	Max.	Unit
θ_{JA}	Thermal resistance (connected to the environment) (assuming no ambient airflow and no heat sink)	SOT-23	500	℃/W
		SOT-23-3L	360	℃/W
		SOT-89	200	℃/W
P_D	Power consumption	SOT-23	0.2	W
		SOT-23-3L	0.2	W
		SOT-89	0.5	W

Note: The P_D value was measured at Ta=25 ℃

◆ DC electrical characteristics (Unless otherwise specified, T_A=+25℃)

HT7325 (T_{OPT}=25℃)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=3.5V，IOUT=40mA	2.425	2.5	2.575	V
IOUT	Output current	VIN=3.5V，VOUT ≥2.25V	180	-	-	mA
△VOUT	Load regulation	VIN=3.5V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	110	-	mV
ISS	Quiescent current	VIN=3.5V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	3.5V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=3.5V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

HT7327 (T_{OPT}=25℃)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=3.7V，IOUT=40mA	2.619	2.7	2.781	V
IOUT	Output current	VIN=3.7V，VOUT ≥2.43V	200	-	-	mA
△VOUT	Load regulation	VIN=3.7V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	110	-	mV
ISS	Quiescent current	VIN=3.7V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	3.7V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=3.7V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

HT7330 (T_{OPT}=25℃)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=4V，IOUT=40mA	2.91	3	3.09	V
IOUT	Output current	VIN=4V，VOUT ≥2.7V	250	-	-	mA
▵VOUT	Load regulation	VIN=4V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	95	-	mV
ISS	Quiescent current	VIN=4V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	4V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=4V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

HT7333 (T_{OPT}=25℃)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=4.3V，IOUT=40mA	3.201	3.3	3.399	V
IOUT	Output current	VIN=4.3V，VOUT ≥2.97V	250	-	-	mA
▵VOUT	Load regulation	VIN=4.3V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	90	-	mV
ISS	Quiescent current	VIN=4.3V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	4.3V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=4.3V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

HT7336 (T_{OPT}=25℃)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=4.5V，IOUT=40mA	3.495	3.6	3.705	V
IOUT	Output current	VIN=4.5V，VOUT ≥3.15V	250	-	-	mA
▵VOUT	Load regulation	VIN=4.5V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	80	-	mV
ISS	Quiescent current	VIN=4.5V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	4.5V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=4.5V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

HT7340 (T_{OPT}=25℃)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=5.4V，IOUT=40mA	3.92	4.0	4.08	V
IOUT	Output current	VIN=5.4V，VOUT ≥3.96V	250	-	-	mA
△VOUT	Load regulation	VIN=5.4V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	75	-	mV
ISS	Quiescent current	VIN=5.4V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	5.4V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=5.4V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

HT7344 (T_{OPT}=25℃)

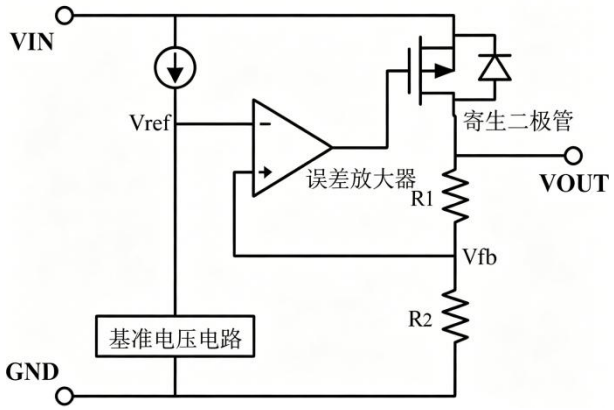
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=5.4V，IOUT=40mA	4.312	4.4	4.488	V
IOUT	Output current	VIN=5.4V，VOUT ≥3.96V	250	-	-	mA
△VOUT	Load regulation	VIN=5.4V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	70	-	mV
ISS	Quiescent current	VIN=5.4V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	5.4V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=5.4V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

HT7350 (T_{OPT}=25℃)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
VOUT	Output voltage	VIN=6V，IOUT=40mA	4.85	5	5.15	V
IOUT	Output current	VIN=2.8V，VOUT ≥4.5V	250	-	-	mA
△VOUT	Load regulation	VIN=6V，1mA≤IOUT≤60mA	-	45	90	mV
VDIF	Voltage drop	IOUT=40mA	-	60	-	mV
ISS	Quiescent current	VIN=6V，no-load	-	2	3	μA
ΔVOUT /(ΔVIN *VOUT)	Line Regulation	6V≤VIN ≤12V IOUT=40mA	-	0.2	0.3	%/V
VIN	Input voltage	-	-	-	30	V
ΔVOUT /ΔTa	Temperature coefficient	VIN=6V，IOUT=40mA，0℃≤Ta≤85℃	-	±0.7	-	mV/℃

◆ Functional Description

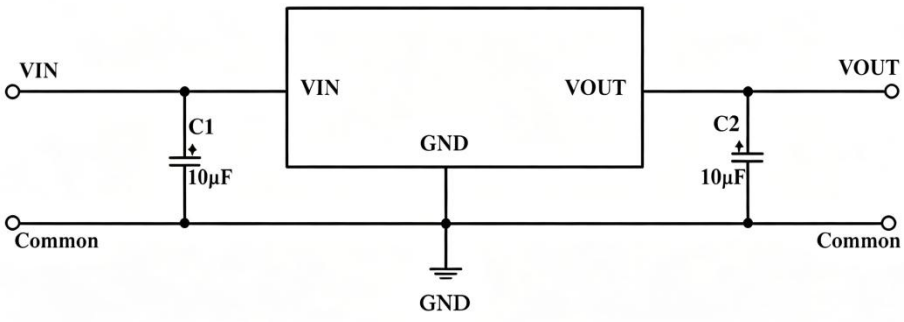
The error amplifier compares the input voltage Vfb, formed by the voltage divider of feedback resistors Rs and Rf, with the reference voltage (Vref). Through this error amplifier, the necessary gate voltage is supplied to the output transistor, ensuring the output voltage remains stable despite variations in input voltage or temperature.



1. Try to connect the capacitor to the VIN and VOUT pins as much as possible during application.
2. The circuit uses phase compensation circuit and ESR of output capacitor to compensate internally. So the output to ground must be connected to a capacitor with a capacitance greater than 2.2 μ F, and it is recommended to use tantalum capacitors.
3. Pay attention to the usage conditions of input and output voltage and load current, and avoid the internal power consumption of the IC exceeding the maximum power consumption allowed by the package.

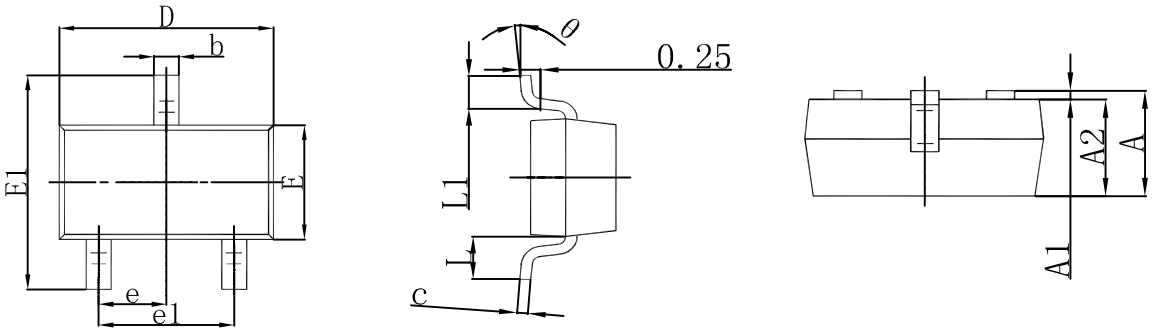
◆ Typical application circuit diagram

1. Basic application diagram



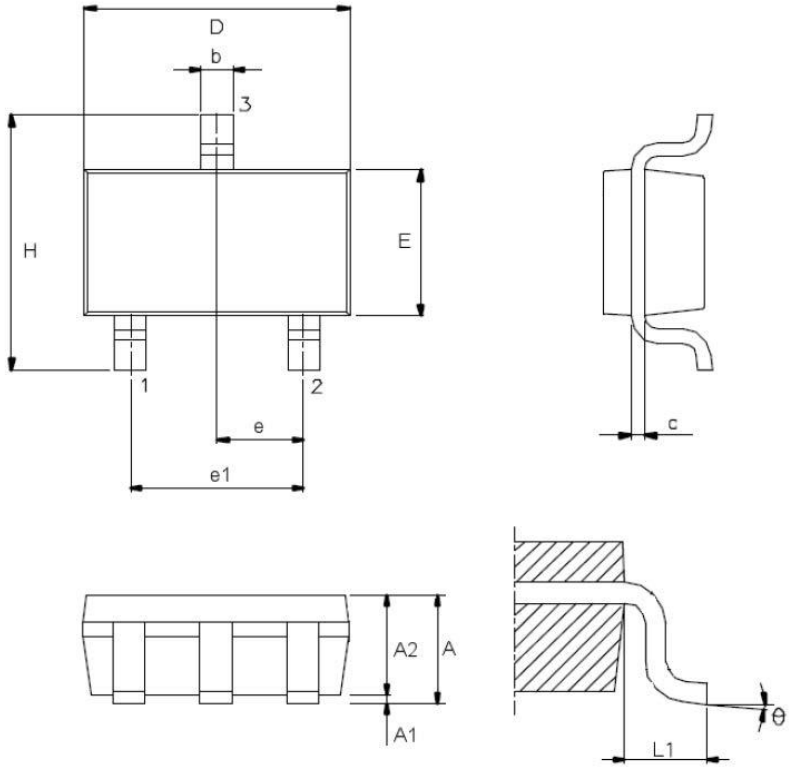
◆ Typical application circuit diagram

SOT-23 Package Outline Dimensions



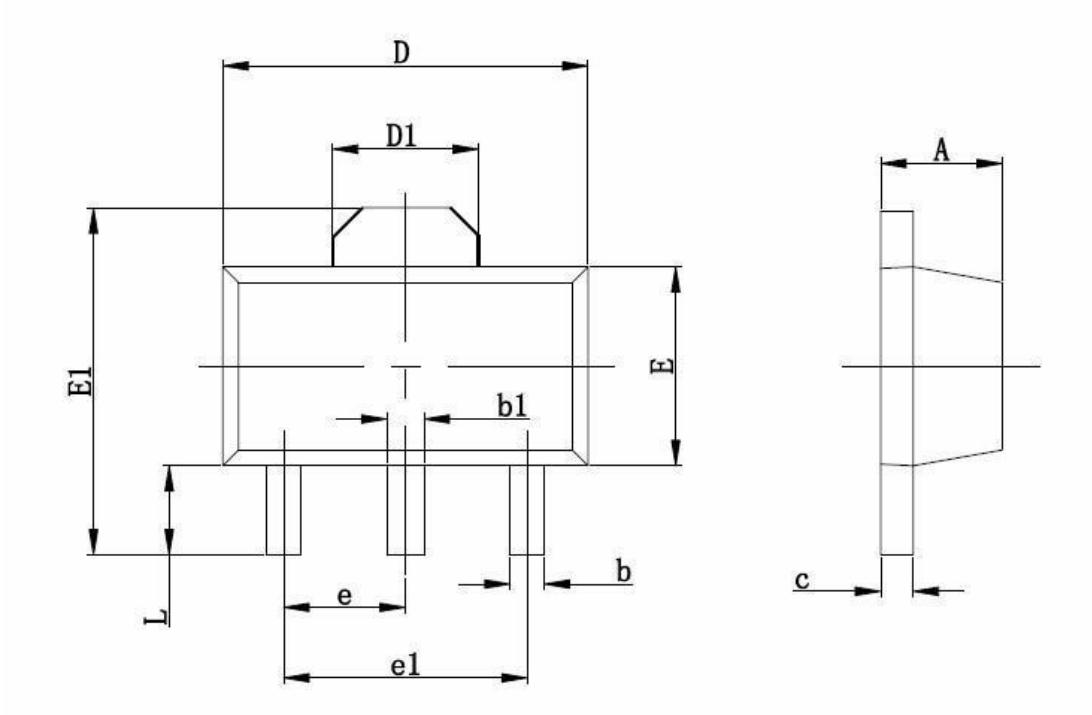
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037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



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	—	—	1.45
A1	—	—	0.15
A2	0.90	1.15	1.30
b	0.30	—	0.50
C	0.08	—	0.22
D	—	2.90	—
E	—	1.60	—
e	—	0.95	—
e1	—	1.90	—
H	—	2.80	—
L1	—	0.60	
θ	0°	—	9。

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		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.100	0.035	0.047

◆ Attention

- AOTE implements dynamic technical updates. Specifications are subject to change. Refer to the official website for the latest version.
- Users must strictly adhere to specified conditions. Failures caused by misuse (overload, high temperature, incompatible circuits) are excluded from warranty.
- Contact technical support for customized validation in critical applications (medical devices, industrial control).
- This document is valid until December 31, 2026. Updates will be notified on the official website.
- For further clarification on technical specifications or application solutions, please contact us through official channels: