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HT78XX-A series

LDO Linear Regulators

-Product Introduction

HT78XX-A

The series is a positive voltage type voltage stabilizer developed using CMOS technology with low voltage drop, high precision output voltage, and ultra-low power consumption.

Because of the built-in low on-resistance transistor, the output voltage difference is low, and at the same time it has high input voltage tolerance, the maximum working

The voltage can reach 12V, which is suitable for application circuits that require higher voltage resistance.

-Product Features

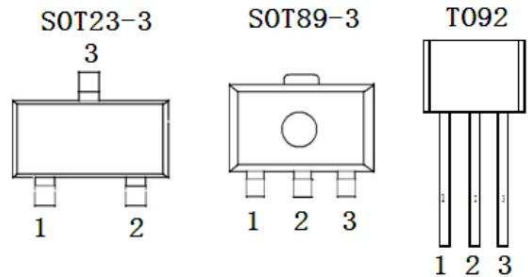
- High output voltage accuracy: $\pm 3\%$
- Ultra-low power consumption current: typical value 3uA
- Low output voltage temperature drift: typical value 50 ppm/°C
- High input withstand voltage: up to 12V to maintain output voltage regulation
- Package type: TO-92, SOT89-3, SOT23-3

-Product Usage

- Regulated power supply for battery-powered equipment
- Regulated power supply for communication equipment
- Regulated power supply for home appliances
- Voltage stabilizer for mobile phones
- Regulated power supply for portable medical equipment and toys

-Package form and pin function definition

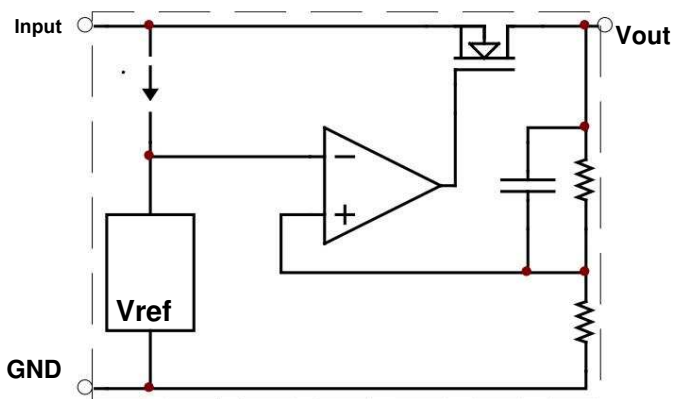
Pin number			Pins definition	Functional Description
TO-92	SOT89-3	SOT23-3		
1	1	1	GND	ground terminal
2	2	3	VIN	input
3	3	2	VOUT	output



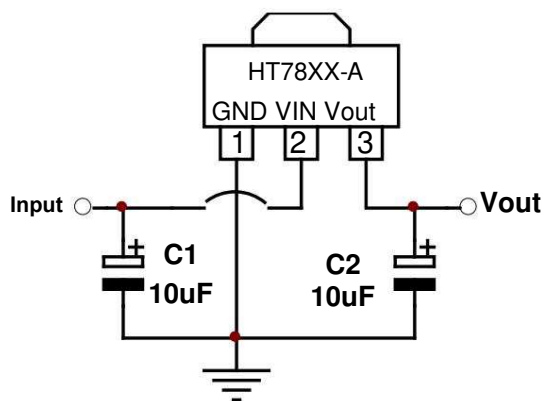
-Model selection

name	Model	Maximum Input Voltage (V)	Output Voltage (V)	Tolerance	Package Type
HT78XX-A	HT7818-A	12	1.8	$\pm 3\%$	TO92 SOT89-3 SOT23-3
	HT7825-A	12	2.5	$\pm 3\%$	
	HT7827-A	12	2.7	$\pm 3\%$	
	HT7830-A	12	3.0	$\pm 3\%$	
	HT7833-A	12	3.3	$\pm 3\%$	
	HT7836-A	12	3.6	$\pm 3\%$	
	HT7850-A	12	5.0	$\pm 3\%$	

-Principle block diagram



- Application Circuit



- Limit parameters

project	symbol	parameter	Limit value	unit
Voltage	VIN	Maximum input voltage	15	V
Power consumption	PD	Power consumption	400	mW
temperature	Tw	Operating temperature	-25-70	°C
	Tc	Storage temperature	-50-125	°C
	Th	Soldering temperature	260	°C,10s

- Electrical properties

• HT7818-A (TOPT=25°C)

symbol	parameter	Test conditions	Min	Typ	Max	Unit
VOUT	Output voltage	VIN=2.8V, IOU=40mA	1.746	1.8	1.854	V
IOU	Output current	VIN=2.8V, VOUT≥1.62V			450	mA
ΔVOUT	Load Regulation	VIN=2.8V 1mA≤ IOU ≤60mA		45	90	mV
VDIF	Dropout voltage	IOU=40mA		170		mV
ISS	Quiescent current	VIN=2.8V, no load		2	3	μA
ΔVOUT / (ΔVIN * VOUT)	Line Regulation	2.8V≤VIN≤12V IOU=40mA		0.2	0.3	%/V
VIN	Input voltage				12	V
ΔVOUT / ΔTa	Temperature Coefficient	VIN=2.8V, IOU=40mA 0°C≤Ta≤85°C		±0.7		mV/°C

• HT7825-A (TOPT=25°C)

symbol	parameter	Test	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			450	mA
ΔVOUT	Load Regulation	VIN=3.5V 1mA≤IOUT ≤60mA		45	90	mV
VDIF	Dropout voltage	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				12	V
ΔVOUT / ΔTa	Temperature Coefficient	VIN=3.5V, IOUT=40mA 0°C≤Ta≤85°C		±0.7		mV/°C

• HT7827-A (TOPT=25°C)

symbol	Parameters	Test	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			450	mA
ΔVOUT	Load Regulation	VIN=3.7V 1mA≤ IOUT ≤60mA		45	90	mV
VDIF	Dropout voltage	IOUT=40mA		100		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				12	V
ΔVOUT / ΔTa	Temperature Coefficient	VIN=3.7V, IOUT=40mA 0°C≤Ta≤85°C		±0.7		mV/°C

• HT7830-A (TOPT=25°C)

symbol	parameter	Test	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			450	mA
ΔVOUT	Load regulation	VIN=4V, 1mA≤ IOUT ≤60mA		45	90	mV
VDIF	Dropout voltage	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				12	V
ΔVOUT / ΔTa	Temperature Coefficient	VIN=4V, IOUT=40mA 0°C≤Ta≤8°C		±0.7		mV/°C

• HT7833-A (TOPT=25°C)

symbol	parameter	Test	Min	Typ	Max	Unit
VOUT	Output voltage	VIN=4.3V, IOU=40mA	3.201	3.3	3.399	V
IOUT	Output current	VIN=4.3V, VOUT≥2.97V			450	mA
ΔVOUT	Load Regulation	VIN=4.3V 1mA≤ IOU ≤60mA		45	90	mV
VDIF	Dropout voltage	IOU=40mA		90		mV
ISS	Quiescent current	VIN=4.3V, no load		2	3	μA
ΔVOUT / (ΔVIN * VOUT)	Line Regulation	4.3V≤VIN≤12V IOU=40mA		0.2	0.3	%/V
VIN	Input voltage				12	V
ΔVOUT / ΔTa	Temperature Coefficient	VIN=4.3V, IOU=40mA 0°C≤Ta≤85°C		±0.7		mV/°C

• HT7836-A (TOPT=25°C)

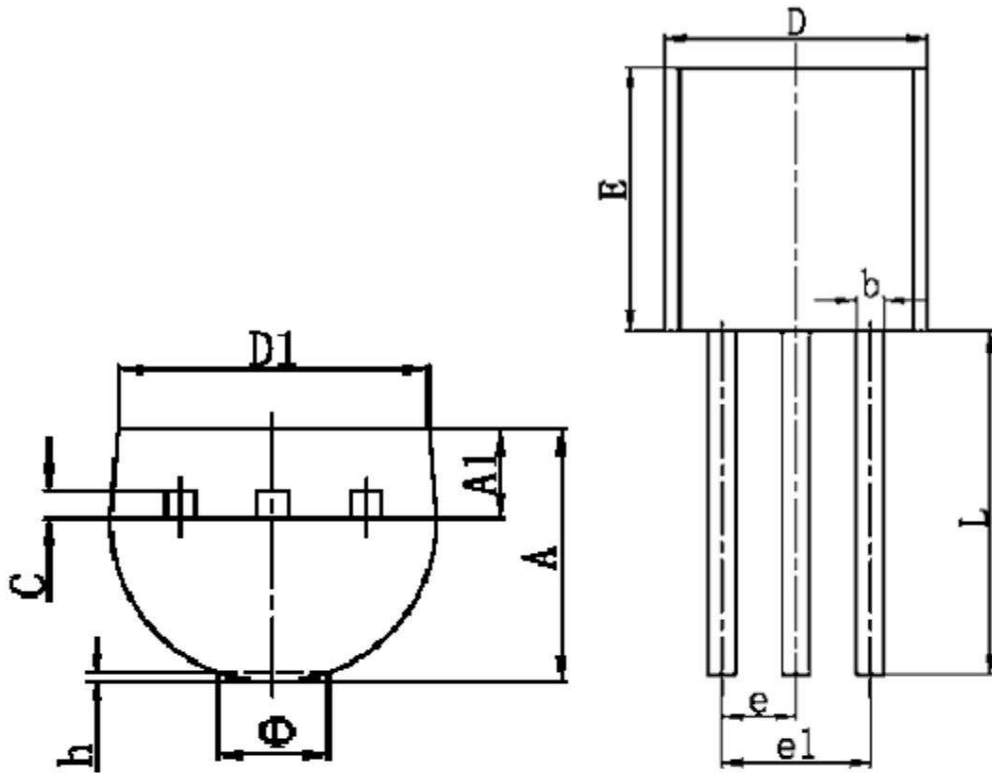
symbol	parameter	Test	Min	Typ	Max	Unit
VOUT	Output voltage	VIN=4.5V, IOU=40mA	3.492	3.6	3.708	V
IOUT	Output current	VIN=4.5V, VOUT≥3.15V			450	mA
ΔVOUT	Load regulation	VIN=4.5V 1mA≤ IOU ≤60mA		45	90	mV
VDIF	Dropout voltage	IOU=40mA		80		mV
ISS	Quiescent current	VIN=4.5V, no load		2	3	μA
ΔVOUT / (ΔVIN * VOUT)	Line Regulation	4.5V≤VIN≤12V IOU=40mA		0.2	0.3	%/V
VIN	Input voltage				12	V
ΔVOUT / ΔTa	Temperature Coefficient	VIN=4.5V, IOU=40mA 0°C≤Ta≤85°C		±0.7		mV/°C

• HT7850-A (TOPT=25°C)

symbol	parameter	Test	Min	Typ	Max	Unit
VOUT	Output voltage	VIN=6V, IOU=40mA	4.85	5	5.15	V
IOUT	Output current	VIN=6V, VOUT≥4.5V			450	mA
ΔVOUT	Load regulation	VIN=6V, 1mA≤ IOU ≤60mA		45	90	mV
VDIF	Drop voltage	IOU=40mA		60		mV
ISS	Quiescent current	VIN=6V, no load		2	3	μA
ΔVOUT / (ΔVIN * VOUT)	Line Regulation	6V≤VIN≤12V IOU=40mA		0.2	0.3	%/V
VIN	Input voltage				12	V
ΔVOUT / ΔTa	Temperature Coefficient	VIN=6V, IOU=40mA 0°C≤Ta≤85°C		±0.7		mV/°C

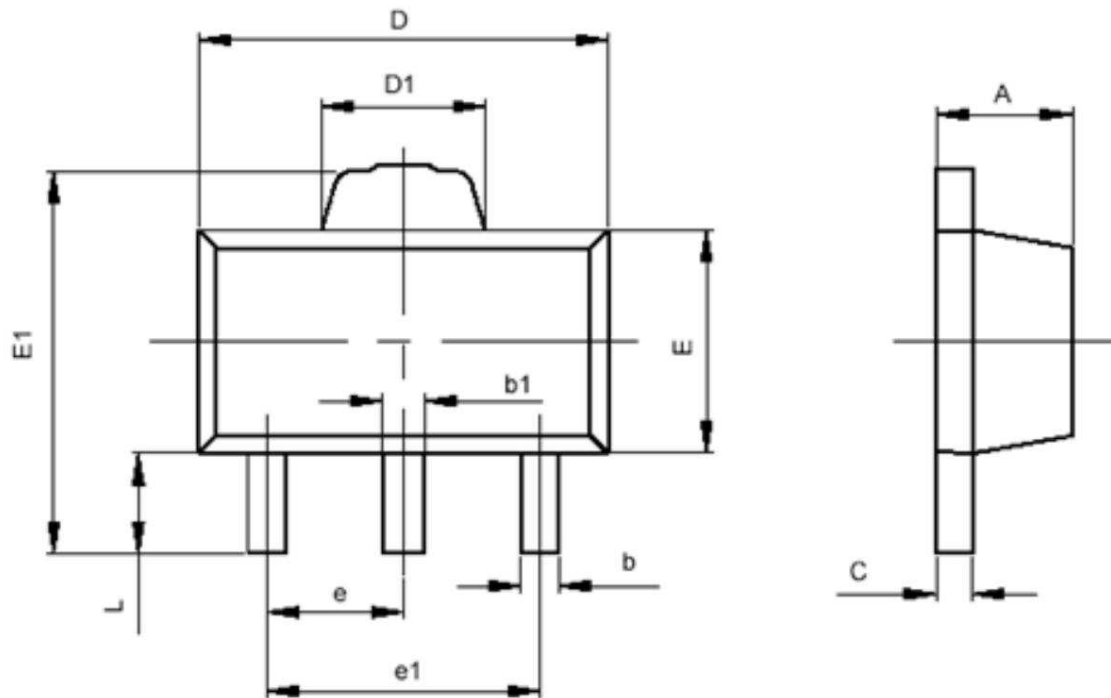
-Packaging information

T0-92



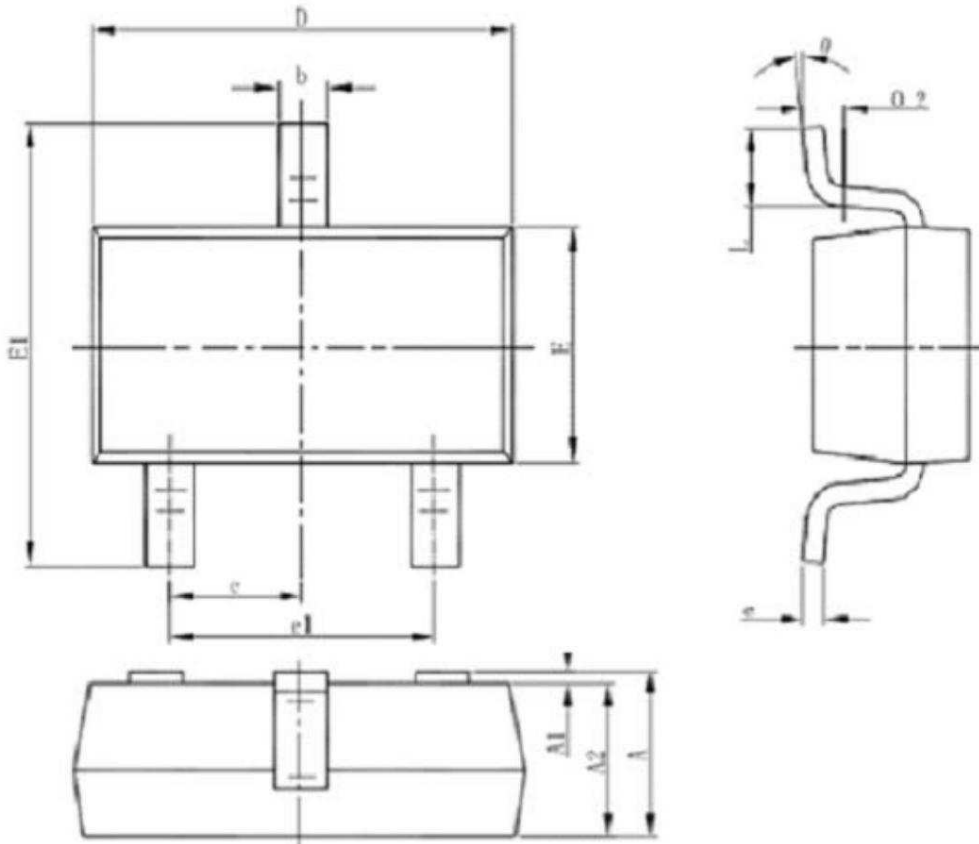
符号	最小值 (mm)	最大值 (mm)
A	3.300	3.700
A1	1.100	1.400
b	0.380	0.550
c	0.360	0.510
D	4.400	4.700
D1	3.430	
E	4.300	4.700
e	1.270 TYP	
e1	2.440	2.640
L	14.100	14.500
Φ		1.600
h	0.000	0.380

SOT-89-3



符号	最小值 (mm)	最大值 (mm)
A	1.400	1.600
b	0.320	0.520
b1	0.360	0.560
c	0.350	0.440
D	4.400	4.600
D1	1.400	1.800
E	2.300	2.600
E1	3.940	4.250
e	1.500TYP	
e1	2.900	3.100
L	0.900	1.100

SOT-23-3



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°