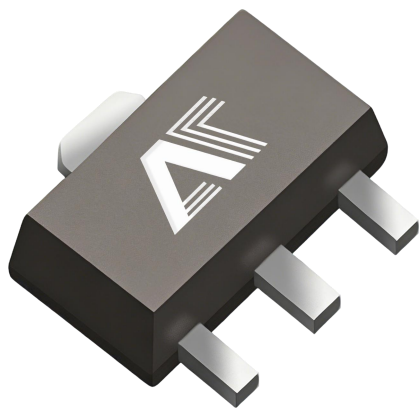




Three terminal low-power regulator

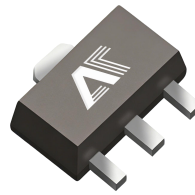
HT75XX-1

Product Data Sheet

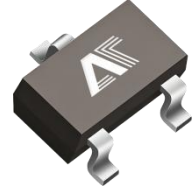
AOTE DCC
RELEASE

◆ Summary :

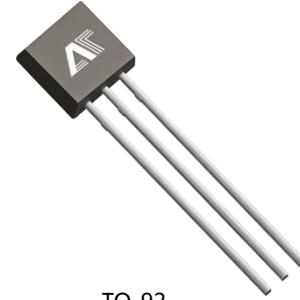
The HT75XXS series is a low-power high-voltage regulator manufactured using CMOS technology. The output current is 100mA and the maximum input voltage can reach 30V, with an output voltage range of 2.1V~5.0V. It has the characteristics of low voltage drop and low static current.



SOT-89



SOT-23-3



TO-92

◆ Product features

- Small Package: TO-92.SOT-89.SOT-23-3L
- low power consumption
- Low pressure drop
- Low temperature coefficient
- High current output
- High precision output voltage: tolerance of $\pm 1\%$

◆ Applications

- Power supply equipment such as batteries
- Various communication devices
- Audio/video equipment

◆ Model Selection

Product Name	Output voltage	Packing Specification	Package form
HT7521-1	2.1V	Tape and Reel, 1000	SOT-89 SOT-23-3 TO-92
HT7523-1	2.3V	Tape and Reel, 1000	
HT7525-1	2.5V	Tape and Reel, 1000	
HT7527-1	2.7V	Tape and Reel, 1000	
HT7530-1	3.0V	Tape and Reel, 1000	
HT7533-1	3.3V	Tape and Reel, 1000	
HT7536-1	3.6V	Tape and Reel, 1000	
HT7540-1	4.0V	Tape and Reel, 1000	
HT7544-1	4.4V	Tape and Reel, 1000	
HT7550-1	5.0V	Tape and Reel, 1000	

Note: "XX" represents the output voltage, -1 "is the internal version code, representing the HT75xx-1 series

◆ **Schematic diagram**

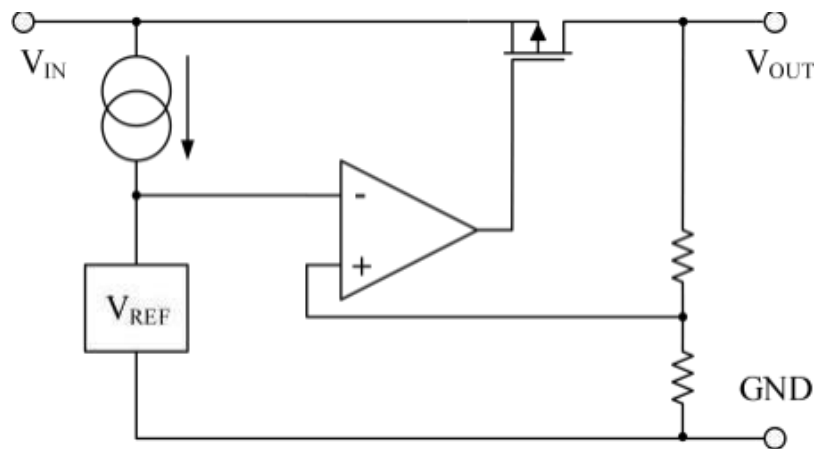


Figure 1.HT75XX schematic diagram

◆ **Pin description**

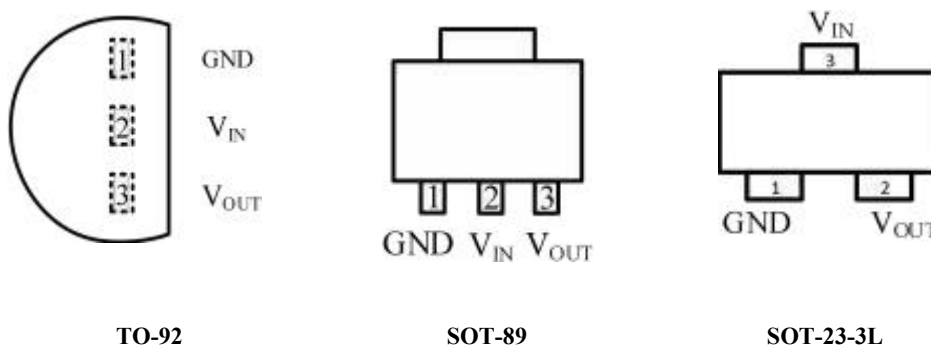


Figure 2.HT75XX Pin

Pin number			Symbol	Description
TO-92	SOT-89	SOT-23-3L		
1	1	1	GND	land
2	2	3	V _{IN}	Input pin
3	3	2	V _{OUT}	Output pin

◆ **limit parameter** (Unless otherwise specified, T_A=25 °C)

Parameter	Symbol	Scope	Unit
input voltage	V _{IN}	-0.3 ~ +33	V
Maximum Power Consumption	P _D	200	mW
Operating Temperature	T _{OPR}	-20~+125	°C
Storage temperature	T _{STG}	-65~+150	°C

◆ Electrical parameters (Unless otherwise specified, $T_A=25\text{ }^{\circ}\text{C}$)

7521

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	$V_{IN} = V_{OUT}+2V$, $I_{OUT} = 10\text{mA}$	2.037	2.100	2.163	V
Output current	IOUT	$V_{IN} = V_{OUT}+2V$	60	100	-	mA
Load regulation	ΔV_{OUT}	$V_{IN} = V_{OUT}+2V$, $1\text{mA} \leq I_{OUT} \leq 50\text{mA}$	-	60	100	mV
Dropout voltage	VDIF	$I_{OUT} = 1\text{mA}$	-	100	-	mV
Static current	IQ	$V_{IN} = V_{OUT}+2V$, no-load	-	2	5	μA
Linear adjustment rate	$\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$	$V_{OUT}+1V \leq V_{IN} \leq 30V$, $I_{OUT} = 1\text{mA}$	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	$\Delta V_{OUT} / \Delta T_A$	$I_{OUT} = 10\text{mA}$, $-20 \sim +125^{\circ}\text{C}$	-	± 0.45	-	mV/ $^{\circ}\text{C}$

7523

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	$V_{IN} = V_{OUT}+2V$, $I_{OUT} = 10\text{mA}$	2.231	2.300	2.369	V
Output current	IOUT	$V_{IN} = V_{OUT}+2V$	60	100	-	mA
Load regulation	ΔV_{OUT}	$V_{IN} = V_{OUT}+2V$, $1\text{mA} \leq I_{OUT} \leq 50\text{mA}$	-	60	100	mV
Dropout voltage	VDIF	$I_{OUT} = 1\text{mA}$	-	100	-	mV
Static current	IQ	$V_{IN} = V_{OUT}+2V$, no-load	-	2	5	μA
Linear adjustment rate	$\Delta V_{OUT} / (\Delta V_{IN} * V_{OUT})$	$V_{OUT}+1V \leq V_{IN} \leq 30V$, $I_{OUT} = 1\text{mA}$	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	$\Delta V_{OUT} / \Delta T_A$	$I_{OUT} = 10\text{mA}$, $-20 \sim +125^{\circ}\text{C}$	-	± 0.45	-	mV/ $^{\circ}\text{C}$

7525

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	2.425	2.500	2.575	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	$\frac{\Delta V_{OUT}}{(\Delta V_{IN} * V_{OUT})}$	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	$\Delta V_{OUT} / \Delta T_a$	IOU _T = 10mA, -20 ~ +125°C	-	±0.45	-	mV/ °C

7527

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	2.619	2.700	2.781	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	$\frac{\Delta V_{OUT}}{(\Delta V_{IN} * V_{OUT})}$	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	$\Delta V_{OUT} / \Delta T_a$	IOU _T = 10mA, -20 ~ +125°C	-	±0.45	-	mV/°C

7530

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	2.910	3.000	3.090	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	Δ VOUT / (Δ VIN * VOUT)	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	Δ VOUT / Δ Ta	IOU _T = 10mA, -20 ~ +125°C	-	±0.45	-	mV/ °C

7533

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	3.201	3.300	3.399	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	Δ VOUT / (Δ VIN * VOUT)	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	Δ VOUT / Δ Ta	IOU _T = 10mA, -20 ~ +125°C	-	±0.5	-	mV/°C

7536

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	3.492	3.600	3.708	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	Δ VOUT / (Δ VIN * VOUT)	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	Δ VOUT / Δ Ta	IOU _T = 10mA, -20 ~ +125°C	-	±0.6	-	mV/ °C

7540

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	3.880	4.000	4.120	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	Δ VOUT / (Δ VIN * VOUT)	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	Δ VOUT / Δ Ta	IOU _T = 10mA, -20 ~ +125°C	-	±0.45	-	mV/°C

7544

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	4.268	4.400	4.532	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	Δ VOUT / (ΔVIN *VOUT)	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	Δ VOUT / Δ Ta	IOU _T = 10mA, -20 ~ +125°C	-	±0.7	-	mV/ °C

7550

Parameter	symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	VOUT	VIN = VOUT+2V, IOU _T = 10mA	4.850	5.000	5.150	V
Output current	IOU _T	VIN = VOUT+2V	60	100	-	mA
Load regulation	Δ VOUT	VIN = VOUT+2V, 1 mA ≤ IOU _T ≤ 50 mA	-	60	100	mV
Dropout voltage	VDIF	IOU _T = 1mA	-	100	-	mV
Static current	IQ	VIN = VOUT+2V , no-load	-	2	5	uA
Linear adjustment rate	Δ VOUT / (ΔVIN *VOUT)	VOUT+1V ≤ VIN ≤ 30V, IOU _T = 1mA	-	0.2	-	%/V
input voltage	VIN	-	-	-	30	V
temperature coefficient	Δ VOUT / ΔTa	IOU _T = 10mA, -20 ~ +125°C	-	±0.75	-	mV/°C

◆ **Typical application routes**

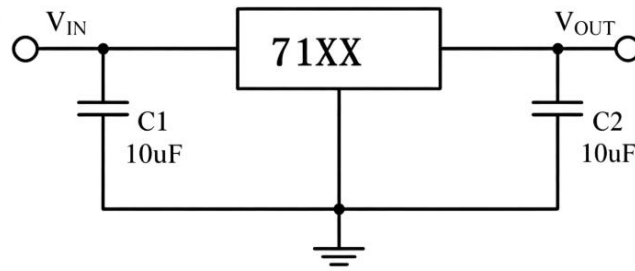


Figure 3. Basic Circuit

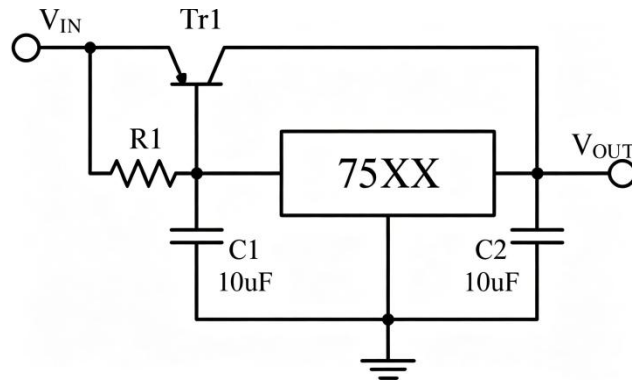


Figure 4. High output current stabilizing circuit

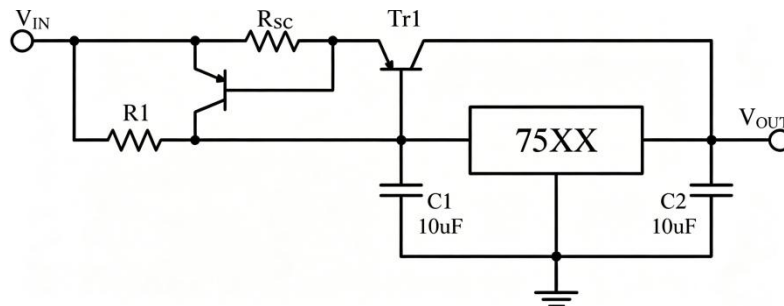


Figure 5. Short circuit protection circuit

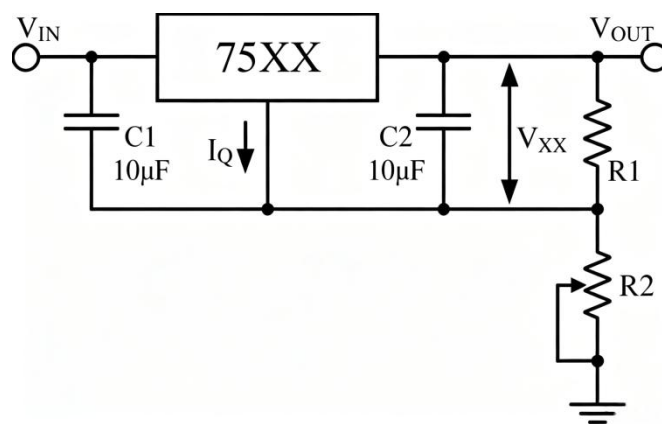


Figure 6. Increasing output voltage circuit 1

$$V_{OUT} = V_{XX} \left(1 + \frac{R2}{R1} \right) + I_Q \cdot R2$$

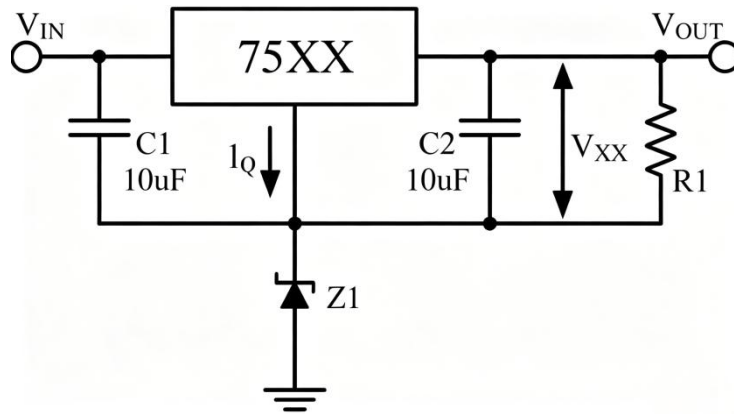


Figure 7 Increasing output voltage circuit 2
 $V_{OUT} = V_{XX} + V_{D1}$

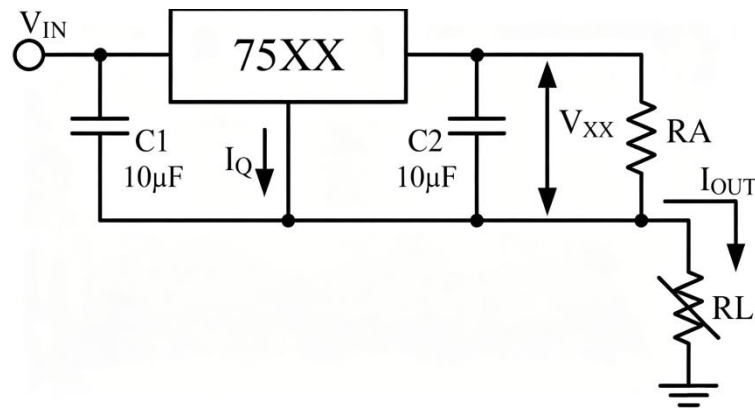


Figure 8. Current regulation circuit
 $I_{OUT} = V_{XX} / R_X + I_Q$

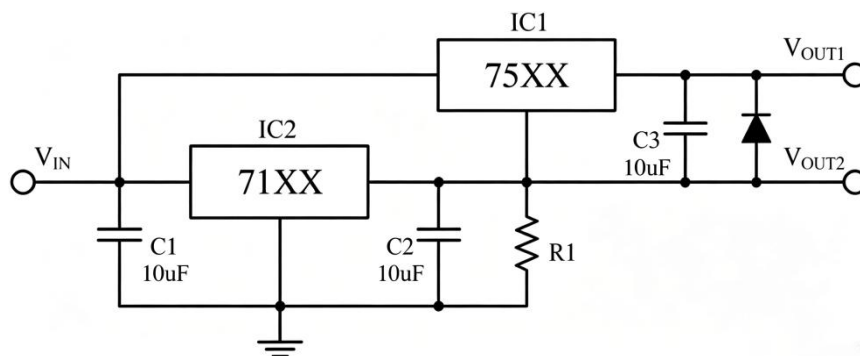
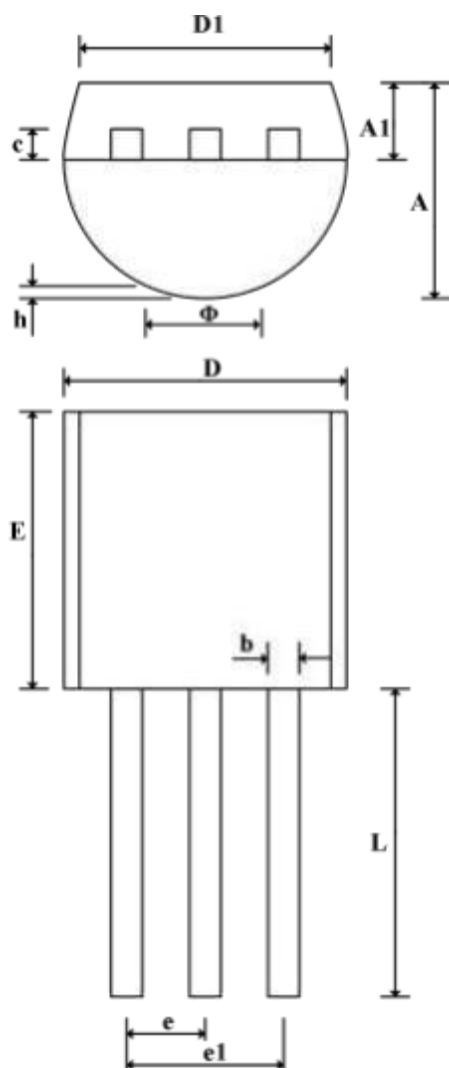


Figure 9. Dual ended output circuit

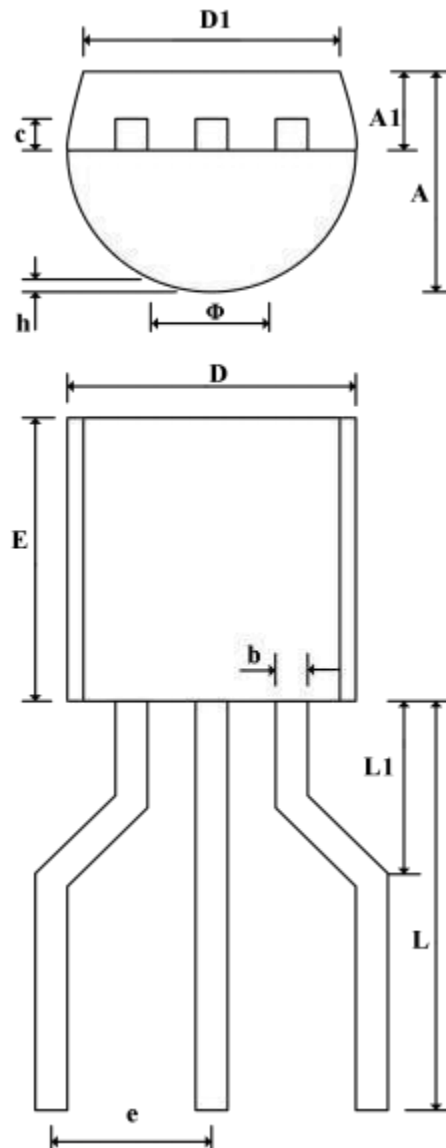
Note: "XX" represents the output voltage

♦ **Packaging specifications and dimensions**

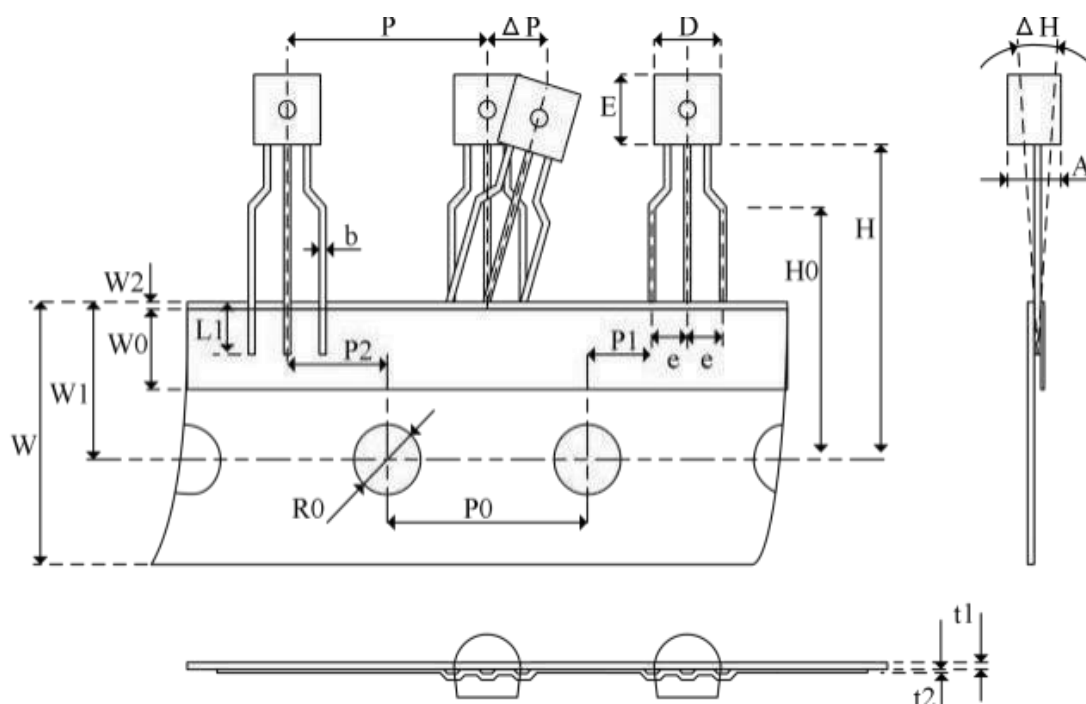
TO-92



symbol	Dimensions (unit: mm)		symbol	Dimensions (unit: mm)	
	Min	Max		Min	Max
A	3.300	3.700	E	4.300	4.700
A1	1.100	1.400	e	1.270 (TYP)	
b	0.360	0.560	e1	2.440	2.640
c	0.280	0.510	L	14.100	14.500
D	4.300	4.700	Φ		1.600
D1	3.430		h	0.000	0.380

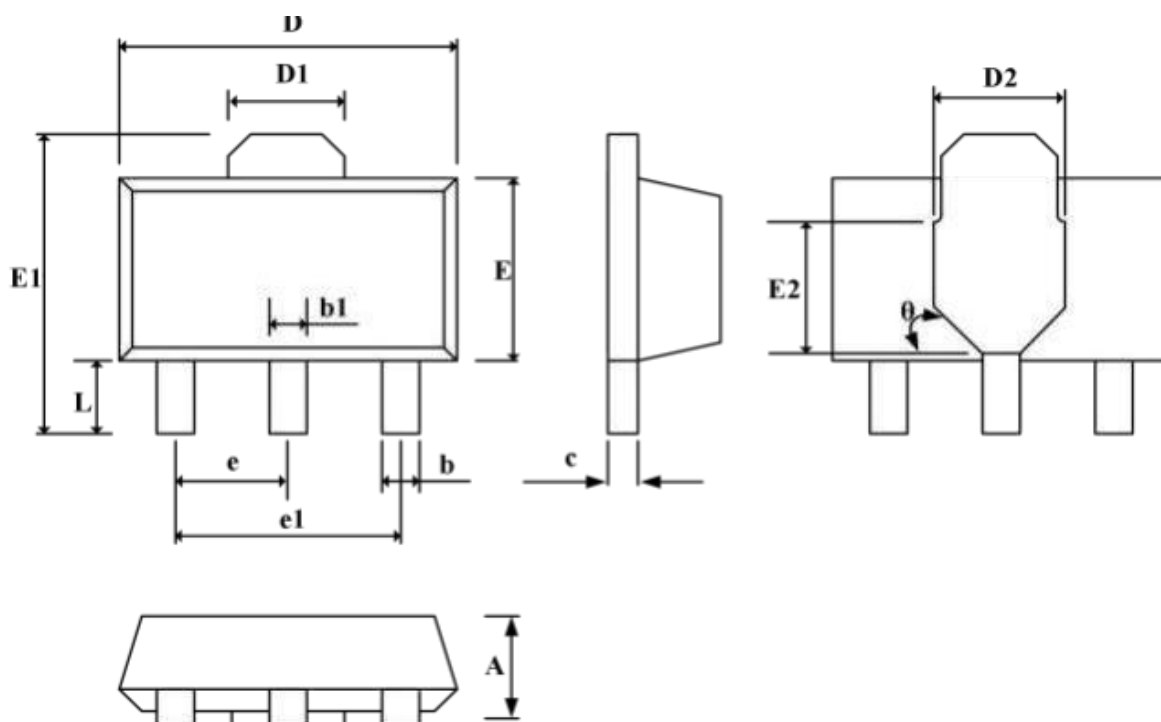
TO-92(Cutting feet)


symbol	Dimensions (unit: mm)		symbol	Dimensions (unit: mm)	
	Min	Max		Min	Max
A	3.300	3.700	E	4.300	4.700
A1	1.100	1.400	e	2.500 (TYP)	
b	0.380	0.550	L	6.100	6.900
c	0.360	0.510	L1	2.700	3.300
D	4.400	4.700	ϕ		1.600
D1	3.430		h	0.000	0.380

TO-92(Paper woven tape)


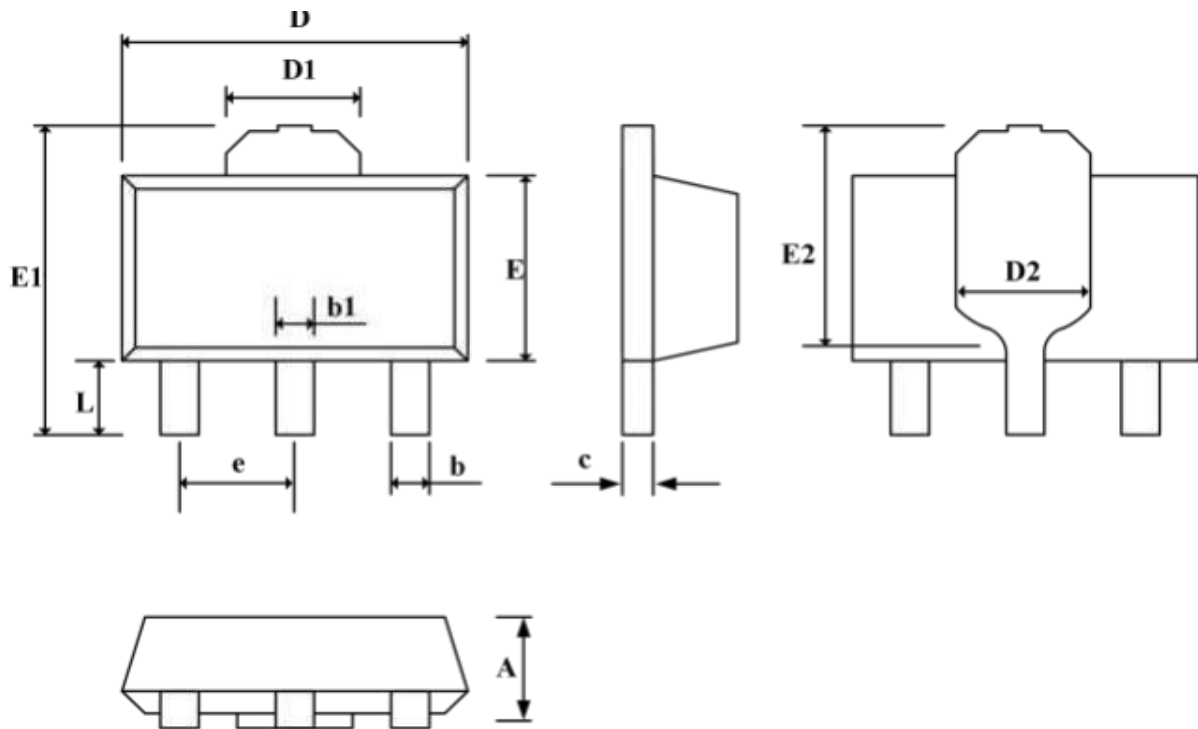
symbol	Dimensions (unit: mm)		symbol	Dimensions (unit: mm)	
	Min	Max		Min	Max
A	3.300	3.700	P0	12.500	12.900
D	4.300	4.700	P1	3.550	4.150
E	4.300	4.700	P2	6.050	6.650
b	0.380	0.550	R0	3.800	4.200
e	2.200	2.800	t1	0.350	0.450
L1	2.500		t2	0.150	0.250
H	18.000	21.000	W	17.500	19.000
ΔH	0	1.000	W0	5.500	6.500
H0	15.500	16.500	W1	8.500	9.500
P	12.400	13.000	W2		1.0
ΔP	0	1.000			

SOT-89



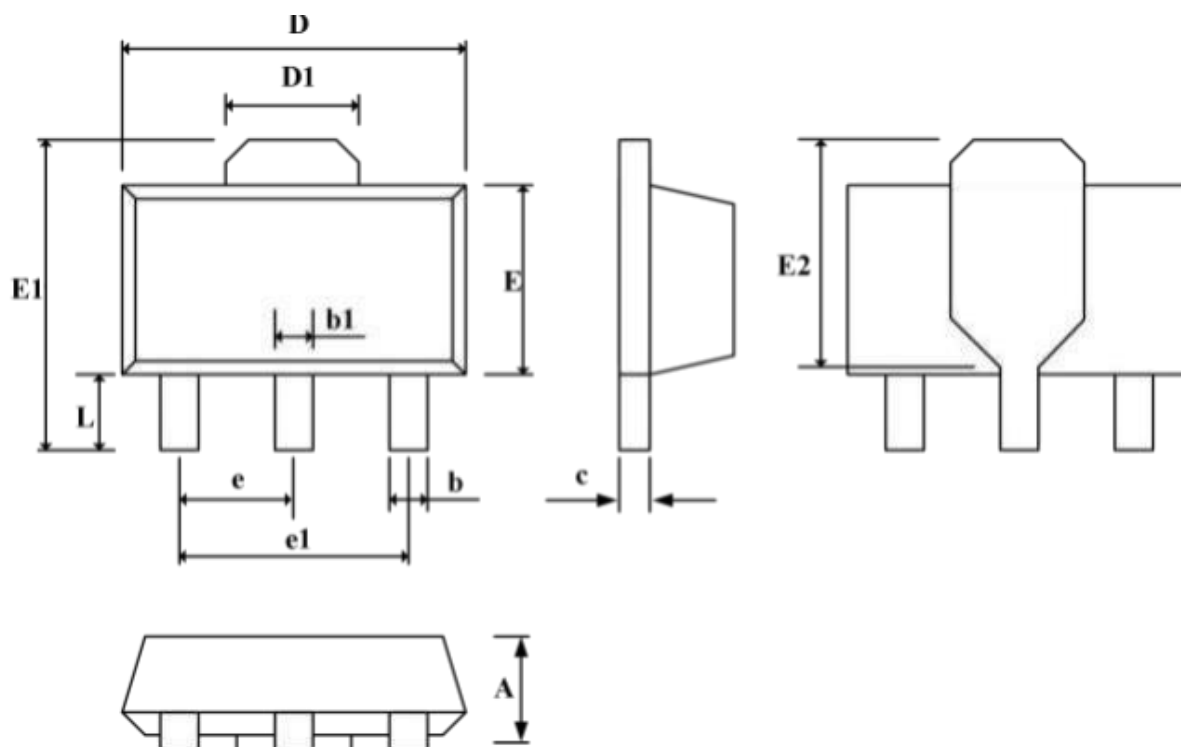
symbol	Dimensions (unit: mm)		symbol	Dimensions (unit: mm)	
	Min	Max		Min	Max
A	1.400	1.600	E	2.300	2.600
b	0.320	0.520	E1	3.940	4.250
b 1	0.400	0.580	E2	1.900 (REF)	
c	0.350	0.440	e	1.500 (REF)	
D	4.400	4.600	e1	3.000 (REF)	
D1	1.550 (REF)		L	0.900	1.200
D2	1.750 (REF)		θ	45°	

SOT-89



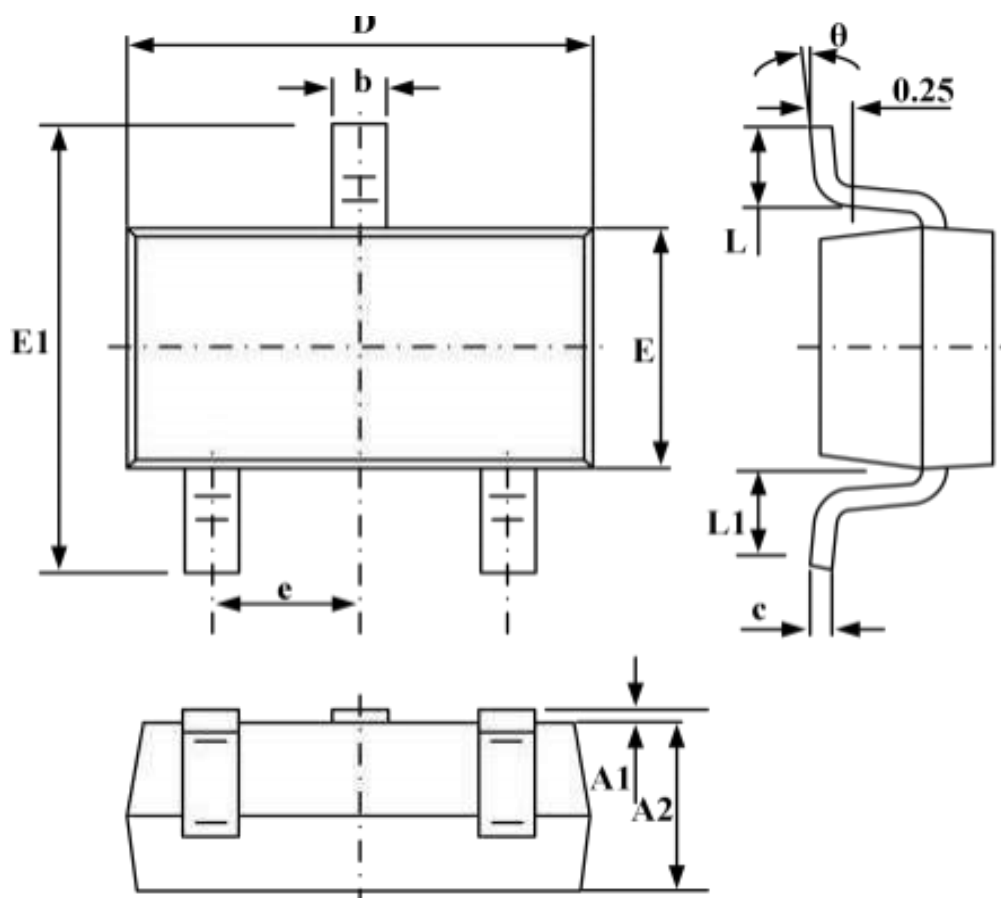
symbol	Dimensions (unit: mm)		symbol	Dimensions (unit: mm)	
	Min	Max		Min	Max
A	1.450	1.550	c	0.390	0.410
b	0.350	0.450	e	1.500 (REF)	
b 1	0.400	0.550	E	2.350	2.550
D	4.400	4.600	E1	4. 135	4.335
D1	1.550 (REF)		E2	2.650	2.850
D2	1.630 (REF)		L	0.950	1.050

SOT-89



symbol	Dimensions (unit: mm)		symbol	Dimensions (unit: mm)	
	Min	Max		Min	Max
A	1.400	1.600	E	2.350	2.550
b	0.350	0.520	E1	3.940	4.250
b 1	0.400	0.580	E2	2.700	(REF)
c	0.350	0.440	e	1.500	(REF)
D	4.400	4.600	e1	3.000	(REF)
D1	1.550	(REF)	L	0.900	1.100

SOT-23-3L



symbol	Dimensions (unit: mm)		symbol	Dimensions (unit: mm)	
	Min	Max		Min	Max
A1	0.03	0.130	E	1.520	1.720
A2	1.050	1.150	E1	2.800	3.000
b	0.350	0.450	L	0.400	0.500
c	0.120	0.135	L1	0.600	0.700
e	0.900	1.000	θ	0°	10°
D	2.820	3.020			

◆ Ordering Instructions

Ordering Information	Package form	Environmental Information	Surface printing	Surface printing	Remark
7521	TO-92	无铅	散包装	XXXX	XXX
7523				XXXX	XXX
7525				XXXX	XXX
7527				7527	XXX
7530				XXXX	XXX
7533				XXXX	XXX
7536				XXXX	XXX
7540				XXXX	XXX
7544				XXXX	XXX
7550				XXXX	XXX
7521	TO-92	无铅	纸编带装	XXXX	XXX
7523				XXXX	XXX
7525				XXXX	XXX
7527				XXXX	XXX
7530				XXXX	XXX
7533				XXXX	XXX
7536				XXXX	XXX
7540				XXXX	XXX
7544				XXXX	XXX
7550				XXXX	XXX
7521	TO-92	无铅	切脚散包装	XXXX	XXX
7523				XXXX	XXX
7525				XXXX	XXX
7527				XXXX	XXX
7530				XXXX	XXX
7533				XXXX	XXX
7536				XXXX	XXX

7540				XXXX	XXX
7544				XXXX	XXX
7550				XXXX	XXX
7521	SOT-89	无卤	编带盘装	XXXX	XXX
7523				XXXX	XXX
7525				XXXX	XXX
7527				XXXX	XXX
7530				XXXX	XXX
7533				XXXX	XXX
7536				XXXX	XXX
7540				XXXX	XXX
7544				XXXX	XXX
7550				XXXX	XXX
7521	SOT-23-3L	无卤	编带盘装	XXXX	XXX
7523				XXXX	XXX
7525				XXXX	XXX
7527				XXXX	XXX
7530				XXXX	XXX
7533				XXXX	XXX
7536				XXXX	XXX
7540				XXXX	XXX
7544				XXXX	XXX
7550				XXXX	XXX

◆ 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: