



GENERAL DESCRIPTION

HT72XX SOT-89 series are a set of Low technology. They can withstand voltage 10V. And they are available with low voltage drop and low quiescent current widely used in audio, video and communication appliances.

FEATURES

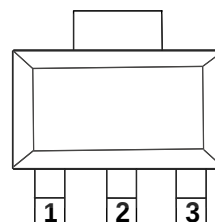
- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 10V
- Quiescent Current 2.0μA
- Output Voltage Accuracy: tolerance
- ±2% High output current: 300mA

TYPICAL APPLICATIONS

- Battery-powered Equipments
- Communication Equipments
- Audio/Video Equipments

PIN CONFIGURATION

SOT-89



PIN DESCRIPTION

PIN No.	Name IN	Functions Description
1	ADJ	Adjustable
2	V	Input Voltage
3	V _{OUT}	Output Voltage

ABSOLUTE MAXIMUM RATINGS

Description	Symbol	Value range	Unit
Limit Power Voltage	V _{IN}	-0.3 ~ +12	V
Storage Temperature Range	T _{STG}	-50 ~ +125	°C
Operating Free-air Temperature Range	T _A	-40 ~ +85	°C

Note: Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

HEAT DISSIPATION

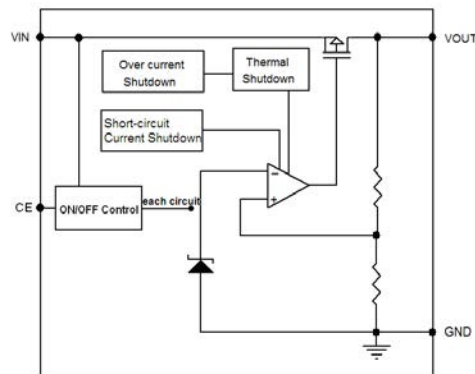
Description	Symbol	Value range	Unit
Thermal resistance	θ _{JA}	200	°C/W
Power dissipation	P _W	500	mW



OUTPUT

Series	Output	Package
HT7228 SOT-89	2.8V	SOT-89
HT7230 SOT-89	3.0V	
HT7233 SOT-89	3.3V	
HT7236 SOT-89	3.6V	
HT7250 SOT-89	5.0V	

FUNCTIONAL BLOCK DIAGRAM



DC CHARACTERISTICS(unless otherwise noted $T_A=+25^{\circ}\text{C}$)

($V_{IN}=V_{OUT}+2\text{V}$, $V_{CE}=V_{IN}$, $C_{IN}=C_L=10\mu\text{F}$, $T_a=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=10\text{mA}$, $V_{IN}=V_{OUT}+2\text{V}$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Maximum Output Current	I_{OUTMAX}	$V_{IN}=V_{OUT}+2\text{V}$		300		mA
Load Regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2\text{V}$, $1\text{mA}\leq I_{OUT}\leq 300\text{mA}$		37		mV
Dropout Voltage (Note 1)	V_{DIF1}	$I_{OUT}=100\text{mA}$		180		mV
	V_{DIF2}	$I_{OUT}=200\text{mA}$		260		mV
Supply Current	I_{SS}	$V_{IN}=V_{OUT}+2\text{V}$		2		μA
Stand-by Current	I_{CEL}	$V_{CE}=0\text{V}$		0		μA
Line Regulation	ΔV_{OUT}	$I_{OUT}=30\text{mA}$ $V_{OUT}+2\text{V}\leq V_{IN}\leq 10\text{V}$		0.2		%/V
CE "High" Voltage	V_{CEH}	Start up	1.20			V
CE "Low" Voltage	V_{CEL}	Shut down			0.8	V
Short-circuit Current	I_{SHORT}	$V_{OUT}=0\text{V}$		200		mA
Thermal Shutdown Protection	T_{sd}	$I_{OUT}=10\text{mA}$, $V_{IN}=V_{OUT}+2\text{V}$		100		$^{\circ}\text{C}$



FUNCTIONAL DESCRIPTION

1. Input Bypass Capacitor

An input capacitor is recommended. A 10uF tantalum on the input is a suitable input bypassing for almost all applications.

2. Output Capacitor

The output capacitor is critical in maintaining regulator stability, and must meet the required conditions for both minimum amount of capacitance and ESR (Equivalent Series Resistance). The minimum output capacitance required by the HT72XX SOT-89 is 10μF, if a tantalum capacitor is used. Any increase of the output capacitance will merely improve the loop stability and transient response. The ESR of the output capacitor should be less than 0.5Ω.

3. Load Regulation

The HT72XX SOT-89 regulates the voltage that appears between its output and ground pins, or between its output and adjust pins. In some cases, line resistances can introduce errors to the voltage across the load. To obtain the best load regulation, a few precautions are needed. Figure1, shows a typical application using a fixed output regulator. The R_{t1} and R_{t2} are the line resistances. It is obvious that the V_{LOAD} is less than the V_{OUT} by the sum of the voltage drops along the line resistances. In this case, the load regulation seen at the degraded from the datasheet specification. To improve this, the load should be tied directly to R_{LOAD} would be the output terminal on the positive side and directly tied to the ground terminal on the negative side.

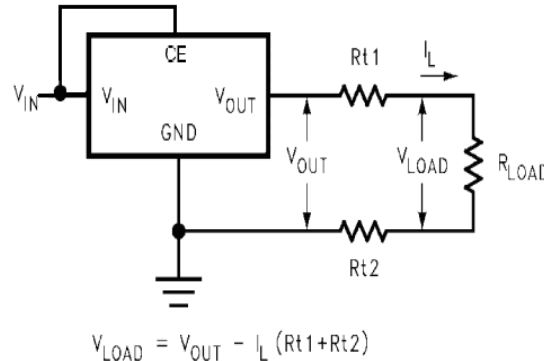
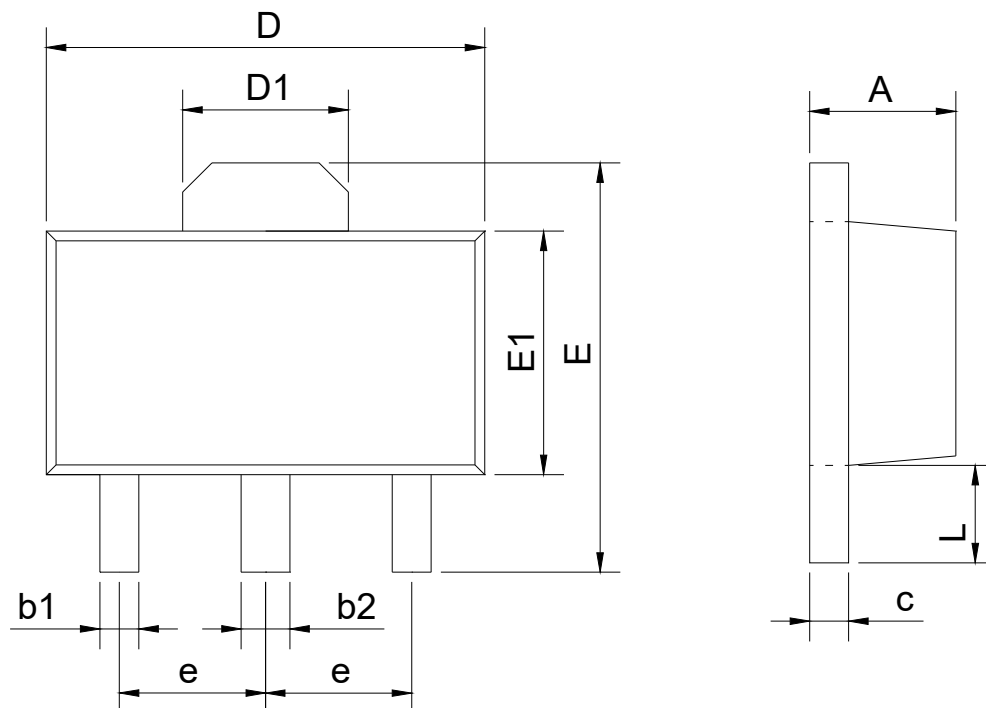


FIGURE 1. Typical Application using Fixed Output Regulator



PACKAGE INFORMATION

SOT-89



SYMBOL	mm	
	min	max
A	1.40	1.60
b1	0.35	0.50
b2	0.45	0.60
c	0.36	0.46
D	4.30	4.70
D1	1.40	1.80
E	4.00	4.40
E1	2.30	2.70
e	1.50BSC	
L	0.80	1.20



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