GENERAL DESCRIPTION

HT72XX series are a set of Low technology.They can withstand voltage 10V. And they areavailable with low voltage drop and low quiescentcurrent, 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

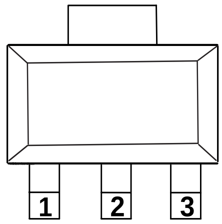
TYPICAL APPLICATIONS

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

PIN CONFIGURATION

SOT-89

Pin 1



PIN DESCRIPTION

PIN No. SOT-89	Name	Functions Description
1	ADJ	Adjustable
2	V_{OUT}	Output Voltage
3	V_{IN}	Input 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	℃
Operating Free-air Temperature Range	T_A	－40～＋85	℃

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.

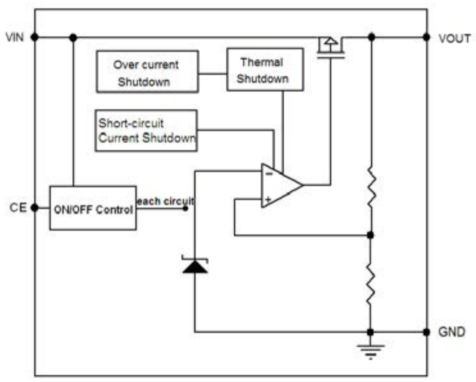
HEAT DISSIPATION

Description	Symbol	Value range	Unit
Thermal resistance	θ_{JA}	200	℃/W
Power dissipation	P_W	500	mW

OUTPUT

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

FUNCTIONAL BLOCK DIAGRAM



DC CHARACTERISTICS (unless otherwise noted T_A =＋25°C)

(V_{IN}= V_{OUT}+2V，V_{CE}＝V_{IN} ，C_{IN}=C_L=10uF，Ta=25^{O}C，unless otherwise noted)

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

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 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 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 Rt1 and Rt2 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.

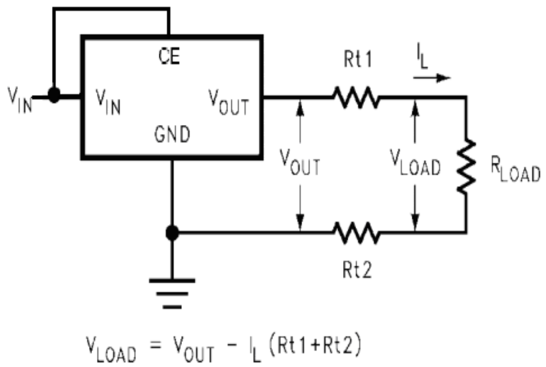
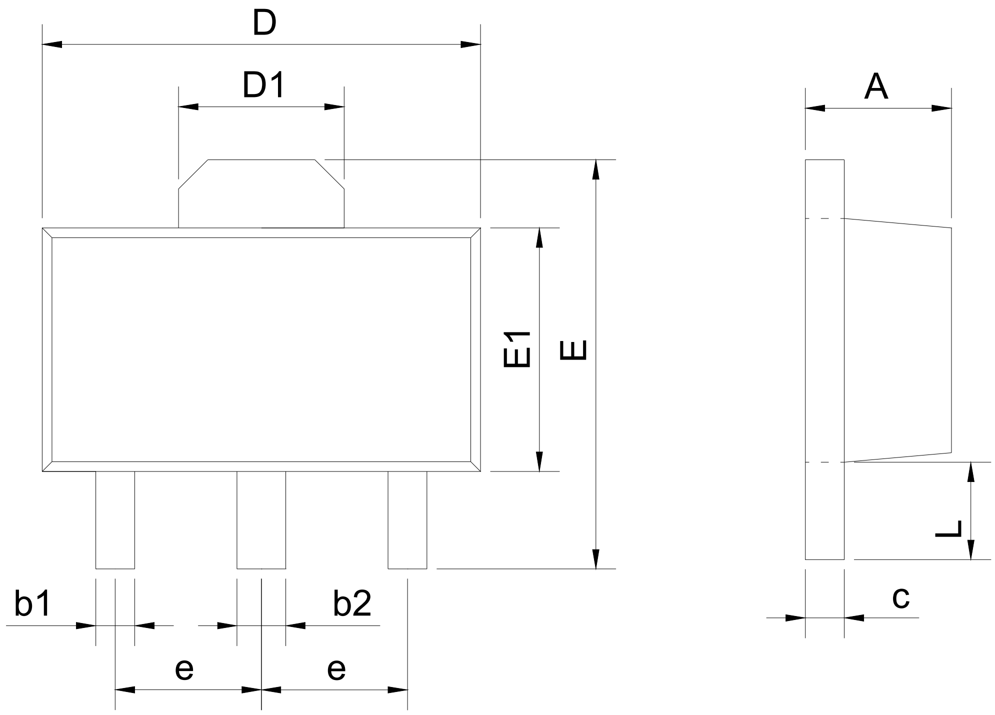


FIGURE 1. Typical Application using Fixed Output Regulator

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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