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## HT73XX-2-MS/HT73XX-2(MS)

Product specification

## GENERAL DESCRIPTION

HT73XX-2-MS/HT73XX-2(MS) series are a set of Low Dropout Linear Regulator ICs implemented inCMO S technology.They can withstand voltage 24V.And they are available with lowvoltage drop and low quies cent current,widely used in audio,video and communication appliances

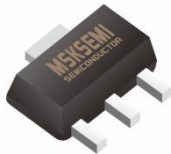
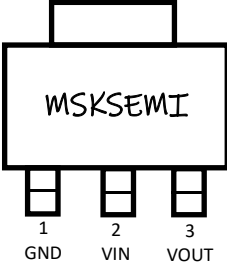

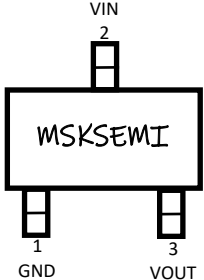
## FEATURES


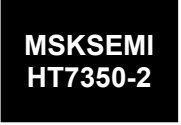
- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 24V
- Quiescent Current 2.0μA
- Output Voltage Accuracy:tolerance±1%
- High output current:300mA

## TYPICAL APPLICATIONS

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

## Reference News and Marking

SOT-89		SOT-23	
			

HT7328-2-MS	HT7330-2-MS	HT7333-2-MS	HT7336-2-MS	HT7344-2-MS	HT7350-2-MS
					
HT7328-2(MS)	HT7330-2(MS)	HT7333-2(MS)	HT7336-2(MS)	HT7344-2(MS)	HT7350-2(MS)
					

**NOTE:**HT73XX-2-MS is SOT-89, HT73XX-2 (MS) is SOT-23

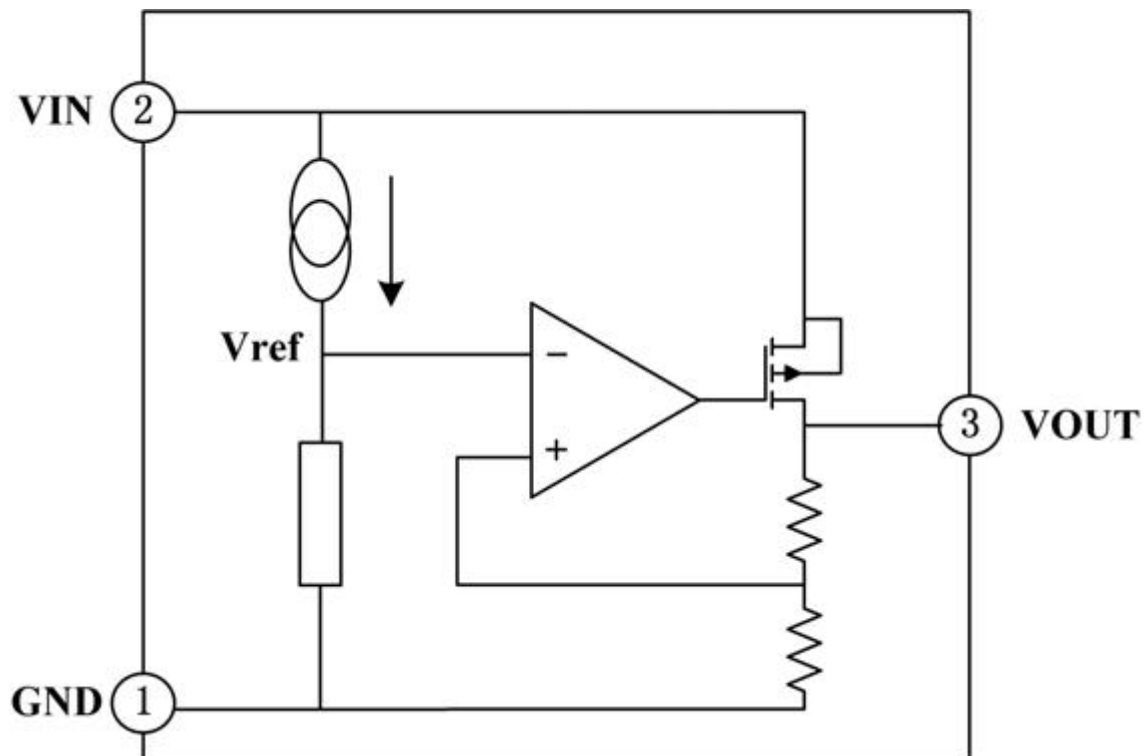
## PIN DESCRIPTION

No.	Name	Functions Description
1	GND	ground
2	V <sub>IN</sub>	input
3	V <sub>OUT</sub>	output

## Order information

Series	Output	Package	QTY	Series	Output	Package	QTY
HT7328-2-MS	2.8V	SOT-89	1000	HT7328-2(MS)	2.8V	SOT-23	3000
HT7330-2-MS	3.0V			HT7330-2(MS)	3.0V		
HT7333-2-MS	3.3V			HT7333-2(MS)	3.3V		
HT7336-2-MS	3.6V			HT7336-2(MS)	3.6V		
HT7344-2-MS	4.4V			HT7344-2(MS)	4.0V		
HT7350-2-MS	5.0V			HT7350-2(MS)	5.0V		

## FUNCTIONAL BLOCK DIAGRAM



**ABSOLUTE MAXIMUM RATINGS**

Description	Symbol	Value range	Unit
Limit Power Voltage	V <sub>IN</sub>	-3~+28	V
Storage Temperature Range	T <sub>STG</sub>	-50~+125	°C
Operating Free-air Temperature Range	T <sub>A</sub>	-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.

**HEATDISSIPATION**

Description	Symbol	Package	Value range	Unit
Thermal resistance	θ <sub>JA</sub>	SOT89-3	200	°C/W
		SOT23	500	°C/W
Power dissipation	P <sub>w</sub>	SOT89-3	500	mW
		SOT23	200	mW

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

Series HT7328-2-MS/HT7328-2(MS)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA	2.772	2.8	2.828	V
Output Current	I <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V	300	-	-	mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V I <sub>mA</sub> ≤I <sub>OUT</sub> ≤300mA	-	37	100	mV
Voltage Drop	V <sub>DIF</sub>	I <sub>OUT</sub> =10mA,ΔV <sub>OUT</sub> =2%	-	30	55	mV
Quiescent Current	I <sub>SS</sub>	No Load	-	2.0	2.5	μA
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT}} \cdot \frac{\Delta V_{IN}}{V_{IN}}$	V <sub>OUT</sub> +1.0V≤V <sub>IN</sub> ≤22V, I <sub>OUT</sub> =1mA	-	-	0.2	%/V
Input Voltage	V <sub>IN</sub>	-	-	-	24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A} \cdot V_{OUT}$	V <sub>OUT</sub> +2.0V,I <sub>OUT</sub> =10mA, -40C≤T <sub>A</sub> ≤85°C	-	±100	-	ppm/ °C
Overcurrent Protection	I <sub>lim</sub>	V <sub>OUT</sub> =0V	-	400	-	mA

**Note:**WhenV<sub>IN</sub>=V<sub>OUT</sub>+2.0V,as the output voltage declined 2%,the V<sub>DIF</sub>=V<sub>IN</sub>-V<sub>OUT</sub>

**Series HT7330-2-MS/HT7330-2(MS)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA	2.97	3.0	3.03	V
Output Current	I <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V	300	-	-	mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V I <sub>mA</sub> ≤I <sub>OUT</sub> ≤300mA	-	37	100	mV
Voltage Drop	V <sub>DIF</sub>	I <sub>OUT</sub> =10mA, ΔV <sub>OUT</sub> =2%	-	210	300	mV
Quiescent Current	I <sub>SS</sub>	No Load	-	2.0	2.5	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	V <sub>OUT</sub> +1.0V≤V <sub>IN</sub> ≤22V, I <sub>OUT</sub> =1mA	-	-	0.2	%/V
Input Voltage	V <sub>IN</sub>	-	-	-	24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A \cdot V_{OUT}}$	V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA, -40°C≤T <sub>A</sub> ≤85°C	-	±100	-	ppm/ °C
Overcurrent Protection	I <sub>lim</sub>	V <sub>OUT</sub> =0V	-	400	-	mA

**Note:**When V<sub>IN</sub>=V<sub>OUT</sub>+2.0V, as the output voltage declined 2%, the V<sub>DIF</sub>=V<sub>IN</sub>-V<sub>OUT</sub>

**Series HT7336-2-MS/HT7336-2(MS)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA	3.564	3.6	3.636	V
Output Current	I <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V	300	-	-	mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V I <sub>mA</sub> ≤I <sub>OUT</sub> ≤300mA	-	37	100	mV
Voltage Drop	V <sub>DIF</sub>	I <sub>OUT</sub> =10mA, ΔV <sub>OUT</sub> =2%	-	180	300	mV
Quiescent Current	I <sub>SS</sub>	No Load	-	2.0	2.5	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	V <sub>OUT</sub> +1.0V≤V <sub>IN</sub> ≤22V, I <sub>OUT</sub> =1mA	-	-	0.2	%/V
Input Voltage	V <sub>IN</sub>	-	-	-	24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A \cdot V_{OUT}}$	V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA, -40°C≤T <sub>A</sub> ≤85°C	-	±100	-	ppm/ °C
Overcurrent Protection	I <sub>lim</sub>	V <sub>OUT</sub> =0V	-	400	-	mA

**Note:**When V<sub>IN</sub>=V<sub>OUT</sub>+2.0V, as the output voltage declined 2%, the V<sub>DIF</sub>=V<sub>IN</sub>-V<sub>OUT</sub>

**Series HT7344-2-MS/HT7344-2(MS)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA	4.312	4.4	4.488	V
Output Current	I <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V	300	-	-	mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V 1mA≤I <sub>OUT</sub> ≤300mA	-	37	100	mV
Voltage Drop	V <sub>DIF</sub>	I <sub>OUT</sub> =10mA, ΔV <sub>OUT</sub> =2%	-	170	300	mV
Quiescent Current	I <sub>SS</sub>	No Load	-	2.0	2.5	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	V <sub>OUT</sub> +1.0V≤V <sub>IN</sub> ≤22V, I <sub>OUT</sub> =1mA	-	-	0.2	%/V
Input Voltage	V <sub>IN</sub>	-	-	-	24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A \cdot V_{OUT}}$	V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA, -40C≤T <sub>A</sub> ≤85°C	-	±100	-	ppm/ °C
Overcurrent Protection	I <sub>lim</sub>	V <sub>OUT</sub> =0V	-	400	-	mA

**Note:**When V<sub>IN</sub>=V<sub>OUT</sub>+2.0V, as the output voltage declined 2%, the V<sub>DIF</sub>=V<sub>IN</sub>-V<sub>OUT</sub>

**Series HT7350-2-MS/HT7350-2(MS)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA	4.9	5.0	5.1	V
Output Current	I <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V	300	-	-	mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +2.0V 1mA≤I <sub>OUT</sub> ≤300mA	-	37	100	mV
Voltage Drop	V <sub>DIF</sub>	I <sub>OUT</sub> =10mA, ΔV <sub>OUT</sub> =2%	-	150	300	mV
Quiescent Current	I <sub>SS</sub>	No Load	-	2.0	2.5	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$	V <sub>OUT</sub> +1.0V≤V <sub>IN</sub> ≤22V, I <sub>OUT</sub> =1mA	-	-	0.2	%/V
Input Voltage	V <sub>IN</sub>	-	-	-	24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A \cdot V_{OUT}}$	V <sub>OUT</sub> +2.0V, I <sub>OUT</sub> =10mA, -40C≤T <sub>A</sub> ≤85°C	-	±100	-	ppm/ °C
Overcurrent Protection	I <sub>lim</sub>	V <sub>OUT</sub> =0V	-	400	-	mA

**Note:**When V<sub>IN</sub>=V<sub>OUT</sub>+2.0V, as the output voltage declined 2%, the V<sub>DIF</sub>=V<sub>IN</sub>-V<sub>OUT</sub>

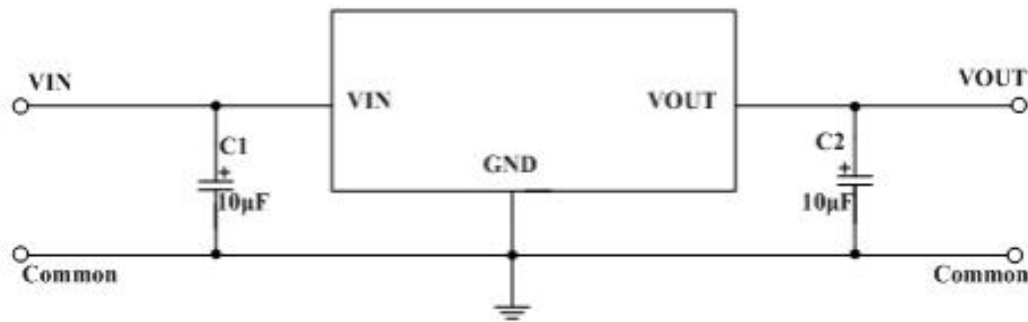
## FUNCTIONAL DESCRIPTION

HT73XX-2-MS/HT73XX-2(MS) series are linear voltage regulator ICs withstanding 24V voltage. The series IC consists of a voltage reference, an error amplifier, a current limiter and a phase compensation circuit plus a driver transistor. The output stabilization capacitor is also compatible with low ESR ceramic capacitors.

The over current protection circuit and the over voltage protection circuit are built-in. The protection circuit will operate when the output current or input voltage reaches limit level.

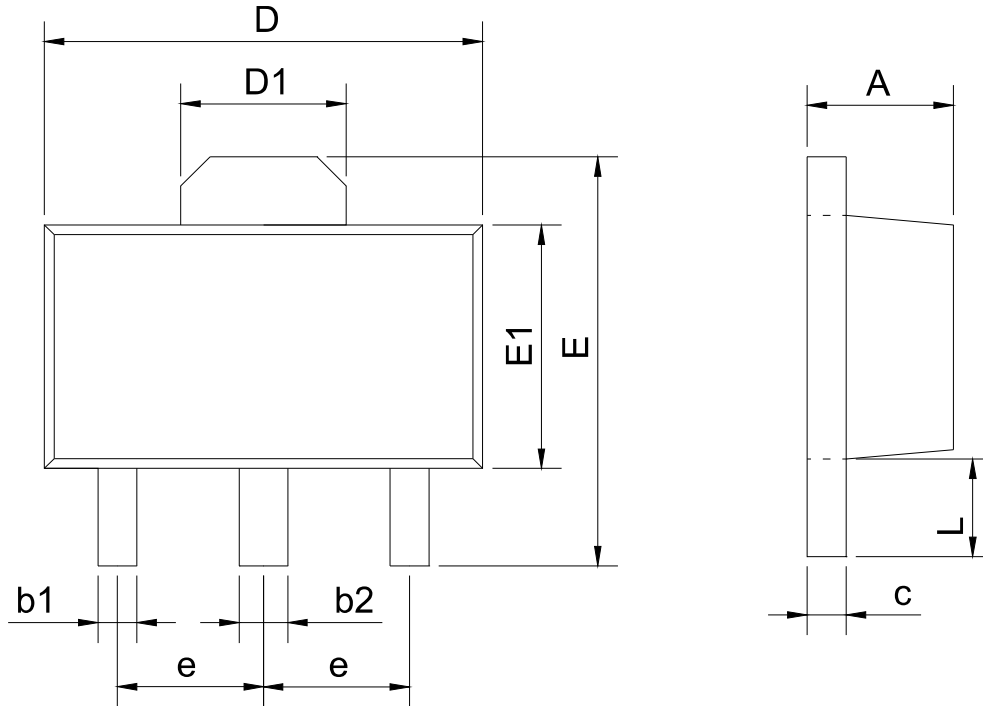
## TYPICAL APPLICATION CIRCUIT

### Basic Circuit



**PACKAGE INFORMATION**

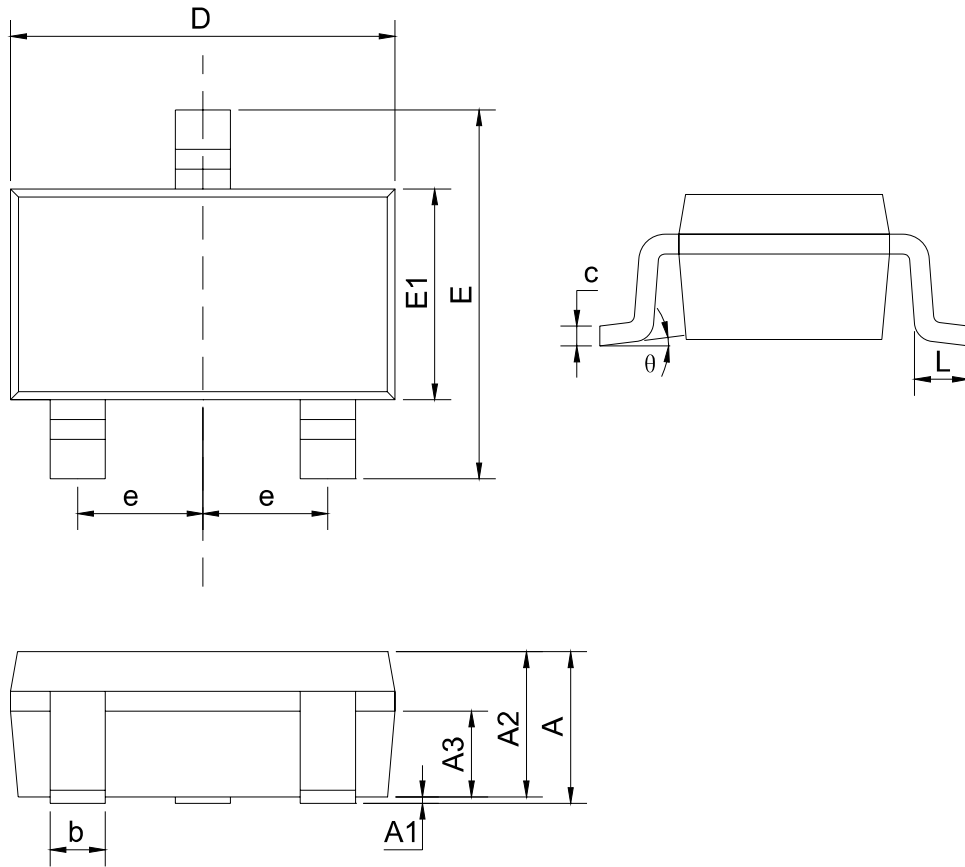
**SOT89**



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



| SOT23-3



SYMBOL	mm	
	min	max
A		1.35
A1	0.04	0.15
A2	1.00	1.20
A3	0.55	0.75
b	0.38	0.48
c	0.10	0.25
D	2.72	3.12
E	2.60	3.00
E1	1.20	1.80
e	0.95BSC	
L	0.30	0.60
$\theta$	0	8°

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