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HT75XX-2-MS/HT75XX-2(MS)

Product specification





GENERAL DESCRIPTION

HT75XX-2-MS/HT75XX-2(MS) series are a set of Low Dropout Linear RegulatorICs implemented inCMOS tec hnology. They can withstand voltage 30V. And they are available with low voltage drop and low quiescent curr ent, widely used in audio, video and communication appliances.

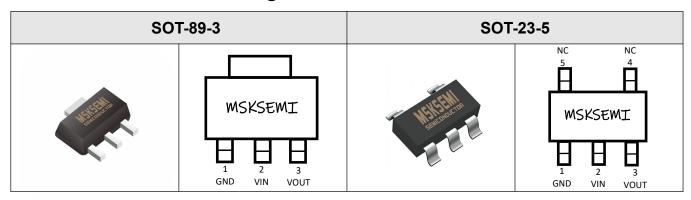
FEATURES

- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 30V
- Quiescent Current 1.5μA
- Output Voltage Accuracy:tolerance±1%
- High output current:100mA

TYPICAL APPLICATIONS

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

Reference News and Marking



HT7528-2-MS	HT7530-2-MS	HT7533-2-MS	HT7536-2-MS	HT7540-2-MS	HT7544-2-MS	HT7550-2-MS
MSKSEMI HT7528-2	MSKSEMI HT7530-2	MSKSEMI HT7533-2	MSKSEMI HT7536-2	MSKSEMI HT7540-2	MSKSEMI HT7544-2	MSKSEMI HT7550-2
HT7528-2(MS)	HT7530-2(MS)	HT7533-2(MS)	HT7536-2(MS)	HT7540-2(MS)	HT7544-2(MS)	HT7550-2(MS)
7528-2 🐇	7530-2 💆	7533-2 🐇	7536-2 ¥S	7540-2 💆	7544-2 ¥S	7550-2 ¥

NOTE: HT75XX-2-MS is SOT-89-3, HT75XX-2 (MS) is SOT-23-5.



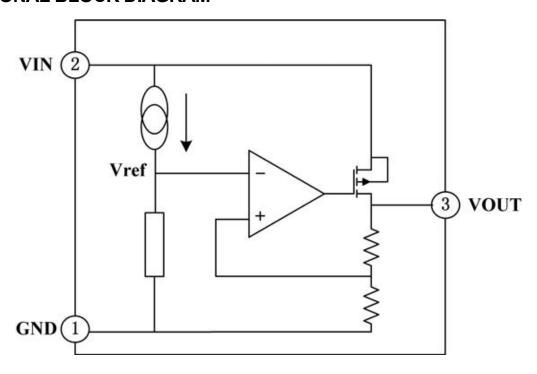
PIN DESCRIPTION

PIN No.			Functions Description			
SOT23-5	SOT89-3	Name	Functions Description			
1	1	GND	ground			
2	2	Vin	input			
3	3	Vout	output			
4		NC	No Connect			
5		NC	No Connect			

Order information

Series	Output	Package	QTY	Series	Output	Package	QTY
HT7528-2-MS	2.8V			HT7528-2(MS)	2.8V		
HT7530-2-MS	3.0V			HT7530-2(MS)	3.0V		
HT7533-2-MS	3.3V			HT7533-2(MS)	3.3V		
HT7536-2-MS	3.6V	SOT-89-3	1000	HT7536-2(MS)	3.6V	SOT-23-5	3000
HT7540-2-MS	4.0V			HT7540-2(MS)	4.0V		
HT7544-2-MS	4.4V			HT7544-2(MS)	4.4V		
HT7550-2-MS	5.0V			HT7550-2(MS)	5.0V	-	

FUNCTIONAL BLOCK DIAGRAM





ABSOLUTE MAXIMUM RATINGS

Description	Symbol	Value range	Unit
Limit Power Voltage	$V_{ m IN}$	− 0.3∼+33	V
Storage Temperature Range	T_{STG}	$-50 \sim +125$	${\mathbb C}$
Operating Free-air Temperature Range	T_{A}	-40~+85	$^{\circ}$

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	Package	Value range	Unit
	0	SOT89	200	°C/W
Thermal resistance	$ heta_{ m JA}$	SOT23-5	500	°C/W
Power dissipation	P_{W}	SOT89	500	mW
Tower dissipation	1 W	SOT23-5	200	mW

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

Series HT7528-2-MS/HT7528-2(MS)

Parameter	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Output Voltage	$ m V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10$ mA	2.772	2.80	2.828	V
Output Current	$I_{ m OUT}$	$V_{IN}=V_{OUT}+2.0V$	70	100	_	mA
Load Regulation	$ riangle V_{ ext{OUT}}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 50mA$	_	25	60	mV
Voltage Drop	$ m V_{DIF}$	$I_{OUT}=1$ mA, $\triangle V_{OUT}=2\%$		30	100	mV
Quiescent Current	Iss	No Load		1.5	3.0	μΑ
Line Regulation	$\triangle V_{OUT} / V_{OUT}^*$ $\triangle V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 30V$, $I_{OUT}=1$ mA			0.2	%/V
Input Voltage	$ m V_{IN}$	_			30	V
Temperature Coefficient	$\triangle V_{OUT} / $ $\triangle T_A * V_{OUT}$	V _{OUT} +2.0V, I _{OUT} =10mA, -40°C≤T _A ≤85°C	_	100		ppm/ °C



Series HT7530-2-MS/HT7530-2(MS)

Parameter	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Output Voltage	$ m V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10$ mA	2.97	3.00	3.03	V
Output Current	$ m I_{OUT}$	$V_{IN}=V_{OUT}+2.0V$	70	100	_	mA
Load Regulation	$ riangle V_{ ext{OUT}}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leq I_{OUT} \leq 50mA$	_	25	60	mV
Voltage Drop	$ m V_{DIF}$	$I_{OUT}=1$ mA, $\triangle V_{OUT}=2\%$	_	30	100	mV
Quiescent Current	Iss	No Load	_	1.5	3.0	μА
Line Regulation	$ riangle V_{ m OUT}/V_{ m OUT}^* \ riangle V_{ m IN}$	V_{OUT} +1.0V \leq V _{IN} \leq 30V, I_{OUT} =1mA		_	0.2	%/V
Input Voltage	$ m V_{IN}$	_	_	_	30	V
Temperature Coefficient	$ riangle V_{OUT}/ \ riangle T_{A} * V_{OUT}$	$V_{\text{IN}} = V_{\text{OUT}} + 2.0 \text{V},$ $I_{\text{OUT}} = 10 \text{mA},$ $-40 ^{\circ}\text{C} \leqslant T_{\text{A}} \leqslant 85 ^{\circ}\text{C}$	_	100		ppm/°C

Note: When $V_{IN}=V_{OUT}+2.0V$, as the output voltage declined 2%, the $V_{DIF}=V_{IN}-V_{OUT}$.

Series HT7533-2-MS/HT7533-2(MS)

Parameter	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Output Voltage	$ m V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10$ mA	3.267	3.30	3.333	V
Output Current	$I_{ m OUT}$	$V_{IN}=V_{OUT}+2.0V$	70	100	_	mA
Load Regulation	$\Delta m V_{OUT}$	$V_{\text{IN}}=V_{\text{OUT}}+2.0V$ $1\text{mA} \leq I_{\text{OUT}} \leq 50\text{mA}$	_	25	60	mV
Voltage Drop	$ m V_{DIF}$	$I_{OUT}=1$ mA, $\triangle V_{OUT}=2\%$		25	55	mV
Quiescent Current	I _{SS}	No Load		1.5	3.0	μА
Line Regulation	$\triangle V_{OUT} / V_{OUT}^*$ $\triangle V_{IN}$	V_{OUT} +1.0V \leq V _{IN} \leq 30V, I_{OUT} =1mA	_		0.2	%/V
Input Voltage	$ m V_{IN}$	_		_	30	V
Temperature Coefficient	$\triangle V_{OUT}/$ $\triangle T_A*V_{OUT}$	$V_{\text{IN}} = V_{\text{OUT}} + 2.0 \text{V},$ $I_{\text{OUT}} = 10 \text{mA},$ $-40 ^{\circ}\text{C} \leq T_{\text{A}} \leq 85 ^{\circ}\text{C}$	_	100	_	ppm/°C



Series HT7536-2-MS/HT7536-2(MS)

Parameter	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Output Voltage	$ m V_{OUT}$	$V_{IN} = V_{OUT} + 2.0V$, $I_{OUT} = 10mA$	3.564	3.60	3.636	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	_	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leq I_{OUT} \leq 50mA$	_	25	60	mV
Voltage Drop	$ m V_{DIF}$	I_{OUT} =1mA, $\triangle V_{OUT}$ =2%	_	25	55	mV
Quiescent Current	Iss	No Load	_	1.5	3.0	μΑ
Line Regulation	$ riangle V_{ m OUT}/V_{ m OUT}^* \ riangle V_{ m IN}$	$V_{OUT}+1.0V \leq V_{IN} \leq 30V$, $I_{OUT}=1 \text{ mA}$		_	0.2	%/V
Input Voltage	$ m V_{IN}$	_	_		30	V
Temperature Coefficient	$ riangle V_{OUT}/ \ riangle T_{A} * V_{OUT}$	$V_{\text{IN}} = V_{\text{OUT}} + 2.0 \text{V},$ $I_{\text{OUT}} = 10 \text{mA},$ $-40 ^{\circ}\text{C} \leqslant T_{\text{A}} \leqslant 85 ^{\circ}\text{C}$	_	100		ppm/°C

Note : When $V_{IN}=V_{OUT}+2.0V$, as the output voltage declined 2%, the $V_{DIF}=V_{IN}-V_{OUT}$.

Series HT7540-2-MS/HT7540-2(MS)

Parameter	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Output Voltage	$ m V_{OUT}$	$egin{aligned} V_{\text{IN}} = V_{\text{OUT}} + 2.0V, \ I_{\text{OUT}} = 10\text{mA} \end{aligned}$	3.96	4.0	4.04	V
Output Current	$ m I_{OUT}$	$V_{IN}=V_{OUT}+2.0V$	70	100		mA
Load Regulation	$ riangle V_{ ext{OUT}}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leq I_{OUT} \leq 50mA$	_	25	60	mV
Voltage Drop	$ m V_{DIF}$	I_{OUT} =1mA, $\triangle V_{OUT}$ =2%	_	25	55	mV
Quiescent Current	I_{SS}	No Load	_	1.5	3.0	μΑ
Line Regulation	$\triangle V_{\text{OUT}} / V_{\text{OUT}}^*$ $\triangle V_{\text{IN}}$	V_{OUT} +1.0V \leq V _{IN} \leq 30V, I_{OUT} =1mA		_	0.2	%/V
Input Voltage	V_{IN}	_	_		30	V
Temperature Coefficient	$\begin{array}{c} \triangle V_{OUT/} \\ \triangle T_{A} * V_{OUT} \end{array}$	$V_{\text{IN}} = V_{\text{OUT}} + 2.0 \text{V},$ $I_{\text{OUT}} = 10 \text{mA},$ $-40 ^{\circ}\text{C} \leqslant T_{\text{A}} \leqslant 85 ^{\circ}\text{C}$	_	100		ppm/℃



Series HT7544-2-MS/HT7544-2(MS)

Parameter	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Output Voltage	V _{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	4.356	4.4	4.444	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	_	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leq I_{OUT} \leq 50mA$	_	25	60	mV
Voltage Drop	$V_{ m DIF}$	$I_{OUT}=1$ mA, $\triangle V_{OUT}=2\%$	_	25	55	mV
Quiescent Current	I_{SS}	No Load		1.5	3.0	μΑ
Line Regulation	$\triangle V_{\text{OUT}} / V_{\text{OUT}}^*$ $\triangle V_{\text{IN}}$	V_{OUT} +1.0V \leq V _{IN} \leq 30V, I_{OUT} =1mA			0.2	%/V
Input Voltage	V_{IN}	_	_	_	30	V
Temperature Coefficient	△V _{OUT} / △T _A *V _{OUT}	$V_{\text{IN}} = V_{\text{OUT}} + 2.0 \text{V},$ $I_{\text{OUT}} = 10 \text{mA},$ $-40 ^{\circ}\text{C} \leqslant T_{\text{A}} \leqslant 85 ^{\circ}\text{C}$	_	100	_	ppm/°C

Note: When $V_{IN}=V_{OUT}+2.0V$, as the output voltage declined 2%, the $V_{DIF}=V_{IN}-V_{OUT}$.

Series HT7550-2-MS/HT7550-2(MS)

Parameter	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Output Voltage	$ m V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	4.95	5.0	5.05	V
Output Current	$ m I_{OUT}$	$V_{IN}=V_{OUT}+2.0V$	100	150	_	mA
Load Regulation	$ riangle V_{ ext{OUT}}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \leq I_{OUT} \leq 70mA$	_	25	60	mV
Voltage Drop	$ m V_{DIF}$	$I_{OUT}=1$ mA, $\triangle V_{OUT}=2\%$		25	55	mV
Quiescent Current	I_{SS}	No Load	_	1.5	3.0	μΑ
Line Regulation	$\triangle V_{\text{OUT}} / V_{\text{OUT}}^*$ $\triangle V_{\text{IN}}$	V_{OUT} +1.0 V \leq V _{IN} \leq 30V, I_{OUT} =1 mA			0.2	%/V
Input Voltage	$ m V_{IN}$	_	_	_	30	V
Temperature Coefficient	$\triangle V_{OUT}/$ $\triangle T_A*V_{OUT}$	$V_{\text{IN}} = V_{\text{OUT}} + 2.0 \text{V},$ $I_{\text{OUT}} = 10 \text{mA},$ $-40 ^{\circ} \text{C} \leq T_{\text{A}} \leq 85 ^{\circ} \text{C}$		100	_	ppm/°C

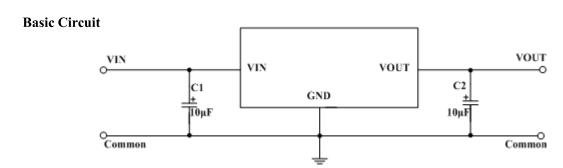


FUNCTIONAL DESCRIPTION

HT75XX-2-MS/HT75XX-2(MS) series are linear voltage regulator ICs withstanding 30V voltage. The series ICconsists 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.

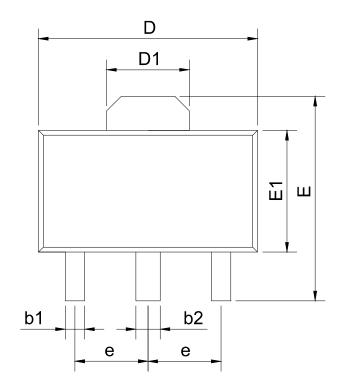
TYPICALAPPLICATION CIRCUIT

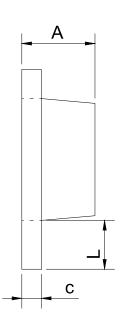




PACKAGE INFORMATION

SOT89

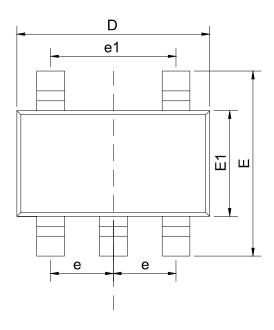


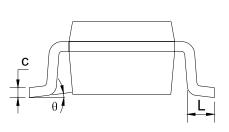


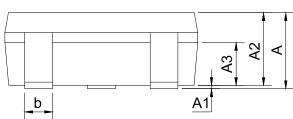
SYMBOL	mm	
	min	max
Α	1.40	1.60
b1	0.35	0.50
b2	0.45	0.60
С	0.36	0.46
D	4.30	4.70
D1	1.40	1.80
Е	4.00	4.40
E1	2.30	2.70
е	1.50BSC	
Ĺ	0.80	1.20



SOT23-5







SYMBOL	mm	
	min	max
Α		1.35
A1	0.04	0.15
A2	1.00	1.20
A3	0.55	0.75
b	0.38	0.48
С	0.10	0.25
D	2.72	3.12
Е	2.60	3.00
E1	1.40	1.80
е	0.95BSC	
e1	1.90BSC	
L	0.30	0.60
θ	0	8 º



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