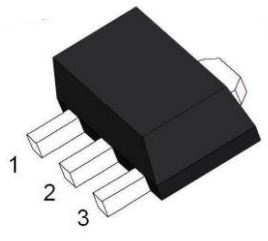
Low Dropout Regulators



1.GND
2.VIN
3.VOUT

SOT-89

DESCRIPTION

The HT73xxsl series is a set of three-terminal low power high voltage regulators implemented in CMOS technology. They allow input voltages as high as 20v. They are available with several fixed output voltages ranging from 2.1V to 9.0V. Because of the low power dissipation,HT73xxSI are widely used in a variety of equipment such as audio device, video device, communication device and so on.

FEATURES

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage (up to 20V)
- Quiescent current:1.5μA
- Output voltage tolerance: ±2%
- HAF(halogen and antimony free) is acquired

Selection Tablet

Designator	Symbol	Description
HT73XXSI-1	21	2.1V(output)
	23	2.3V
	25	2.5V
	28	2.8V
	30	3.0V
	33	3.3V
	36	3.6V
	40	4.0V
	44	4.4V
	50	5.0V
	90	9.0V

Absolute Maximum Ratings (Ta=25℃)

Parameter	Limit	Unit
Supply voltage	-0.3 ~ +22	V
Storage temperature range	-50 ~ +125	℃
Operating temperature range	-40 ~ 85	℃

Note:
1.Stresses beyond 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 conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

Parameter	Symbol	Value	Unit
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	200	℃/W
Power Consumption	P_D	500	mW

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7321SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	2.058	2.10	2.142	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=10mA$, $\Delta V_{OUT}=2\%$	--	45	55	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40℃ \le T_A \le 85℃$	--	100	--	ppm/℃
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7323SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	2.254	2.30	2.346	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=10mA$, $\Delta V_{OUT}=2\%$	--	40	55	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7325SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	2.45	2.50	2.55	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=10mA$, $\Delta V_{OUT}=2\%$	--	35	55	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7328SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	2.744	2.80	2.856	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=10mA$, $\Delta V_{OUT}=2\%$	--	30	55	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT}/V_{OUT}\times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT}/V_{OUT}\times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/℃
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7330SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	2.94	3.0	3.06	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=100mA$, $\Delta V_{OUT}=2\%$	--	210	300	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT}/V_{OUT}\times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT}/V_{OUT}\times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/℃
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7333SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	3.234	3.30	3.366	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=100mA$, $\Delta V_{OUT}=2\%$	--	195	300	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7336SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	3.528	3.60	3.672	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=100mA$, $\Delta V_{OUT}=2\%$	--	180	300	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7340SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	3.92	4.0	4.08	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=100mA$, $\Delta V_{OUT}=2\%$	--	170	300	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7344SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	4.312	4.4	4.488	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=100mA$, $\Delta V_{OUT}=2\%$	--	160	300	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7350SI-1

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	4.90	5.0	5.10	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=100mA$, $\Delta V_{OUT}=2\%$	--	150	300	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

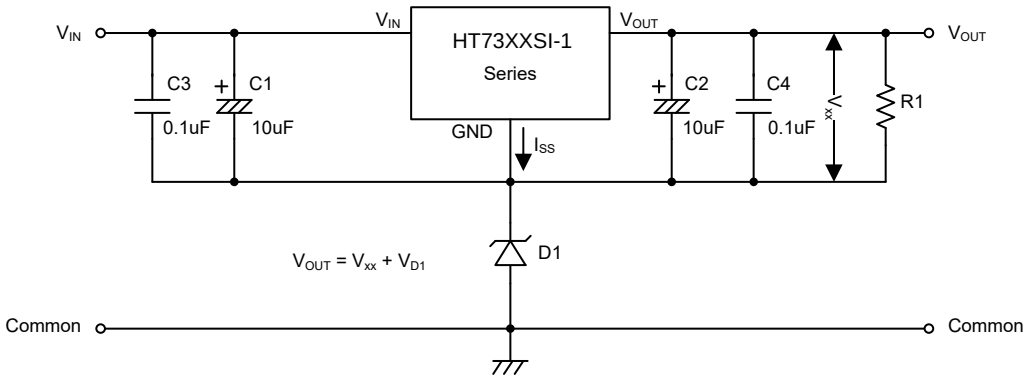
Electrical Characteristics(TA = 25 °C unless otherwise specified)

HT7390SI-1

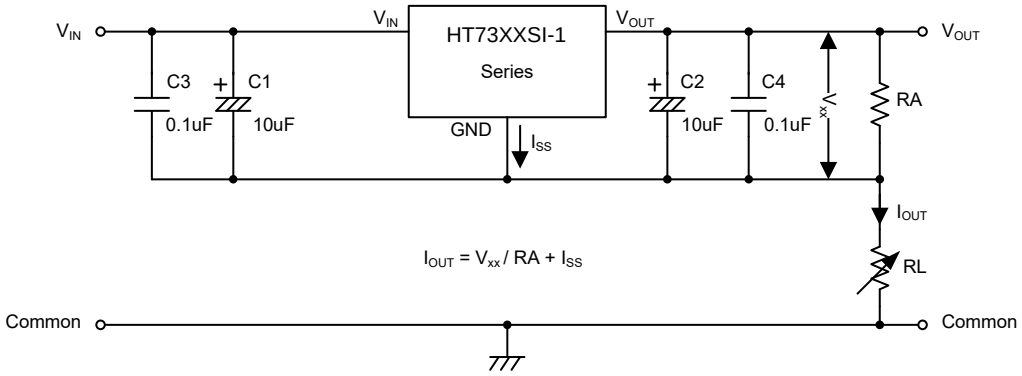
Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	8.82	9.0	9.18	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	--	--	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 300mA$	--	37	100	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=100mA$, $\Delta V_{OUT}=2\%$	--	130	300	mV
Quiescent Current	I_Q	No Load	--	1.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$, $I_{OUT}=1mA$	--	--	0.2	%/V
Input voltage	V_{IN}	--	--	--	20	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40^{\circ}C \le T_A \le 85^{\circ}C$	--	100	--	ppm/°C
Short Current	I_{Short}	$V_{OUT}=0V$	--	400	--	mA

Applications Circuit

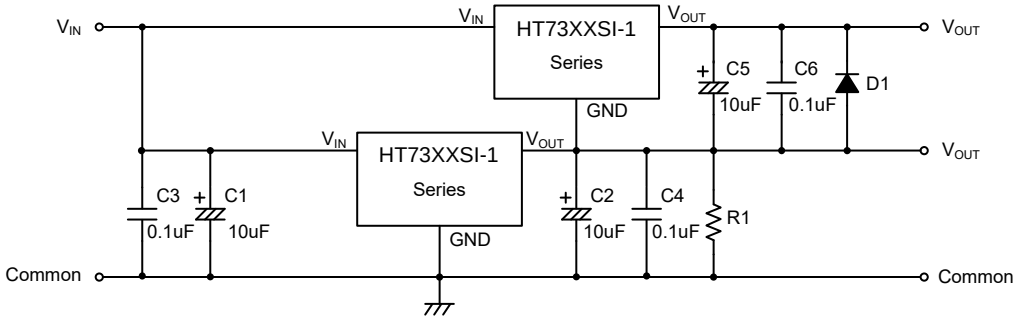
Circuit used to increase output voltage



Constant current regulator circuit



Dual power circuit

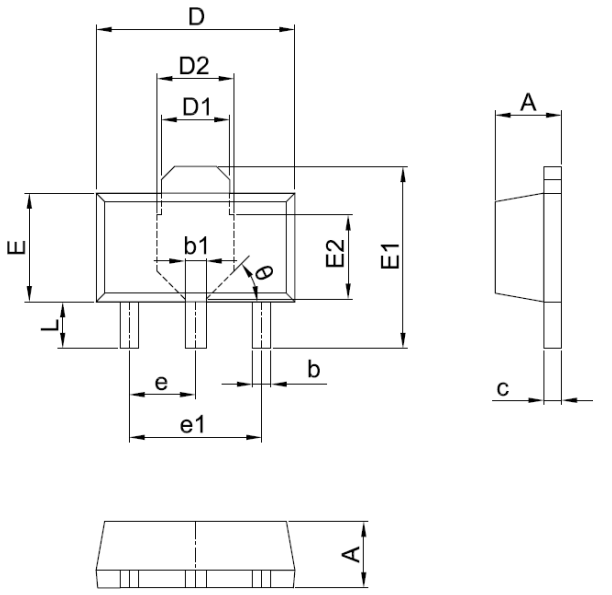


Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel,7"reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

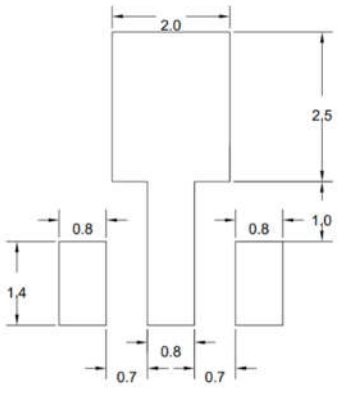
Package Dimensions

SOT-89



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

The recommended mounting pad size



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