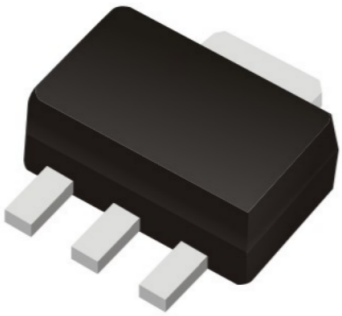
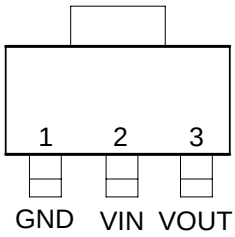
SOT89-3L



PIN CONFIGURATION



PIN	SYMBOL	DESCRIPTION
1	GND	ground
2	VIN	input
3	VOUT	output

DESCRIPTION

HT75xx series are a set of Low Dropout Linear Regulator ICs implemented in CMOS technology. They can withstand voltage 24V.
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 24V
Quiescent Current 1.5uA
Output Voltage Accuracy:± 2%
Output Current :Typ. 100mA

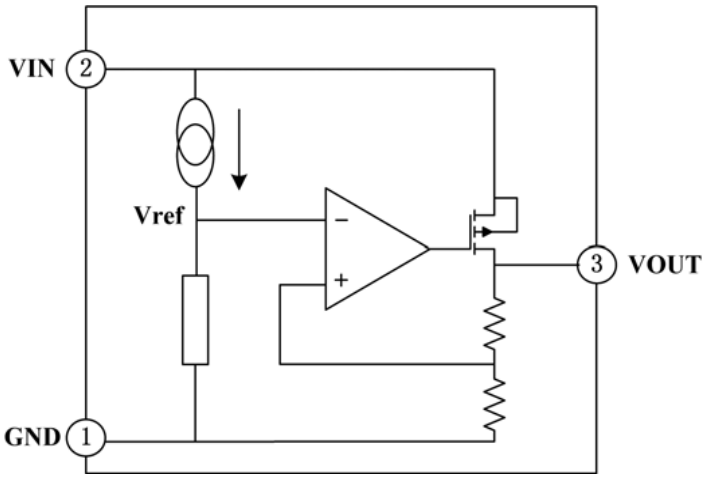
TYPICAL APPLICATION

Battery-powered Equipments
Communication Equipments
Audio/Video Equipments

Model selection

Number	Maximum Input Voltage	Output Voltage	Package
7528	24 V	2.8 V	SOT89-3L
7530	24 V	3.0 V	SOT89-3L
7533	24 V	3.3 V	SOT89-3L
7536	24 V	3.6 V	SOT89-3L
7540	24 V	4.0 V	SOT89-3L
7544	24 V	4.4 V	SOT89-3L
7550	24 V	5.0 V	SOT89-3L
7590	24 V	9.0 V	SOT89-3L

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS（T_A=25℃ Without special instructions）

Name	Symbol	Range	Unit
Supply Voltage	V_{IN}	−0.3～+30	V
Storage temperature	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.

HEAT DISSIPATION

Description	Symbol	Package	Value range	Unit
Thermal resistance	θ_{JA}	SOT89	200	℃/W
Power dissipation	P_W	SOT89	500	mW

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

Series 7528

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	2.744	2.800	2.856	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
Load Regulation	△V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA，△V_{OUT}=2%	—	30	100	mV
Quiescent Current	I_{SS}	No Load	—	1.5	3.0	μA
Line Regulation	△V_{OUT}/ V_{OUT}* △V_{IN}	V_{OUT}+1.0V≤V_{IN}≤24V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	△V_{OUT}/ △T_A*V_{OUT}	V_{OUT}+2.0V，I_{OUT}=10mA， -40℃≤T_A≤85℃	—	100	—	ppm/ ℃

Note :

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

Series 7530

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	2.94	3.00	3.06	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
Load Regulation	△V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA，△V_{OUT}=2%	—	30	100	mV
Quiescent Current	I_{SS}	No Load	—	1.5	3.0	μA
Line Regulation	△V_{OUT}/ V_{OUT}* △V_{IN}	V_{OUT}+1.0V≤V_{IN}≤24V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	△V_{OUT}/ △T_A*V_{OUT}	V_{OUT}+2.0V，I_{OUT}=10mA， -40℃≤T_A≤85℃	—	100	—	ppm/ ℃

Note :

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

Series 7533

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	3.234	3.300	3.366	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_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	No Load	—	1.5	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 24V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

Note :

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

Series 7536

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	3.528	3.600	3.672	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_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	No Load	—	1.5	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 24V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

Note :

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

Series 7540

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	3.92	4.00	4.08	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_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	No Load	—	2.0	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 24V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

Note :

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

Series 7544

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	4.312	4.400	4.488	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_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	No Load	—	1.5	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 24V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

Note :

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

Series 7550

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	4.90	5.00	5.1	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	100	150	—	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA\leq I_{OUT}\leq 70mA$	—	25	60	mV
Voltage Drop	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	No Load	—	1.5	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 24V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

Note：

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

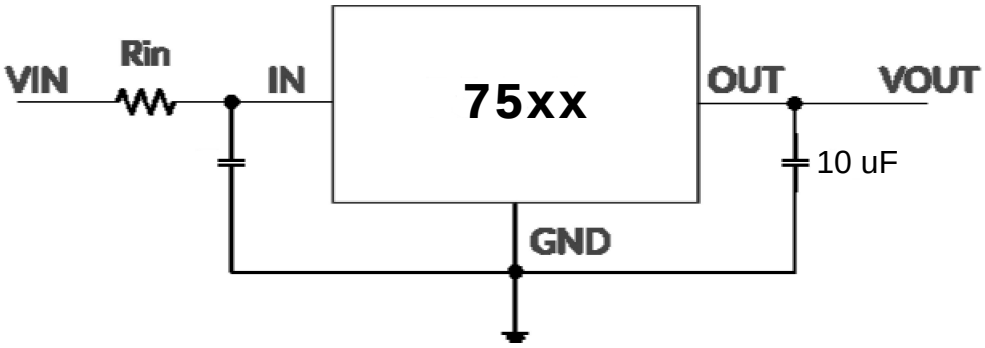
Series 7590

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	8.82	9.00	9.18	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	100	150	—	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA\leq I_{OUT}\leq 70mA$	—	25	60	mV
Voltage Drop	V_{DIF}	$I_{OUT}=1mA$，$\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	No Load	—	1.5	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 24V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

Note：

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

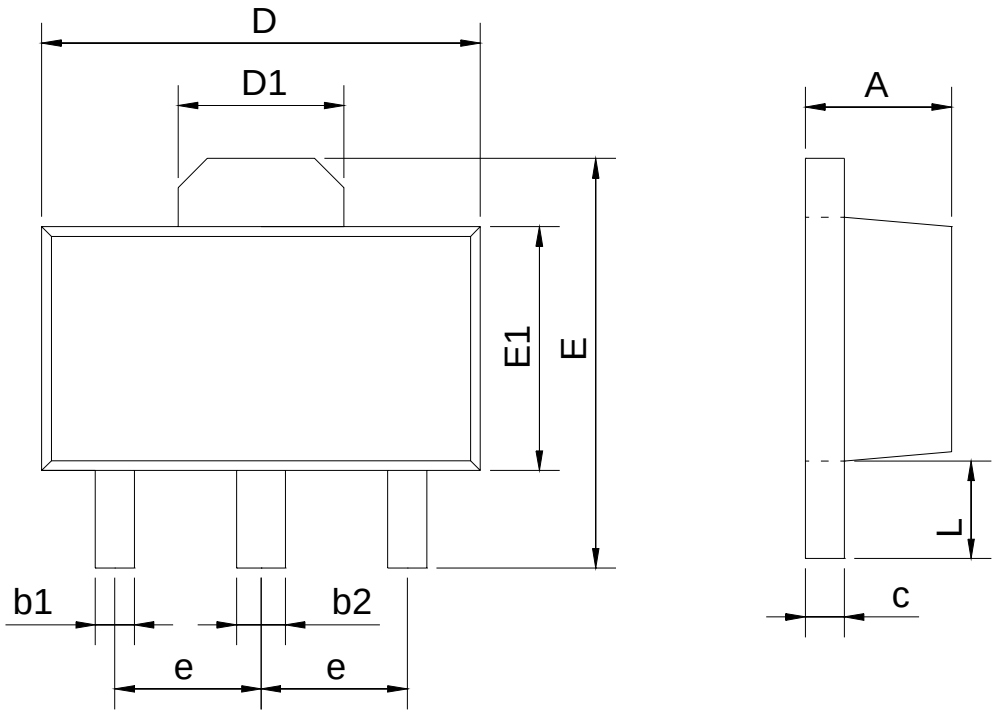
TYPICAL APPLICATION CIRCUIT



Note : Place a resistor with appropriate resistance in series before the IN of the voltage regulator, which can help the voltage regulator share part of the energy in case of surge. The resistance value of the resistance should not be too large. The specific resistance value depends on the application of the circuit. Generally, the resistance value of this resistance does not exceed 20Ω.

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