Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage (up to 30V)
- Quiescent current 1μA
- High output current : 100mA
- Output voltage accuracy: tolerance ±2%
- TO92 and SOT89 packages

General Description

The HT7534-3 & HT755-3 are three-terminal high current low voltage regulator implemented in CMOS technology. They can deliver 100mA output current and allow an input voltage as high as 30V. CMOS technology ensures low voltage drop and low quiescent current.

Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents.

Applications

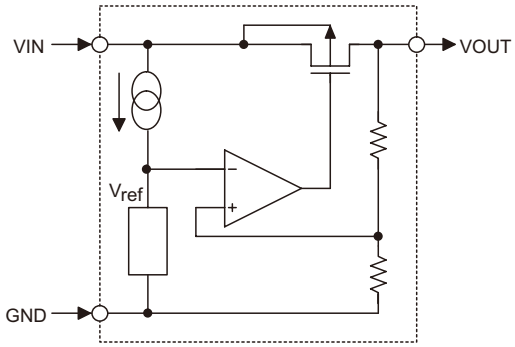
- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

Selection Table

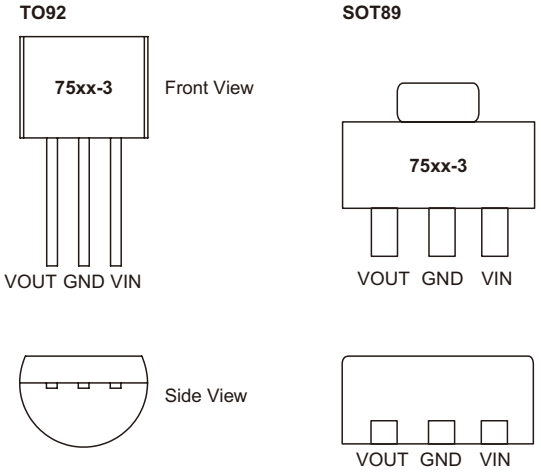
Part No.	Output Voltage	Package	Marking
HT7534-3	3.3V	TO92 SOT89	7534-3
HT7551-3	5.0V		7551-3

Note: "xx" stands for output voltages.

Block Diagram



Pin Assignment



AbsolutemAximum Ratings

Supply Voltage ..... −0.3V to 33V

Storage Temperature ..... −50°C to 125°C

Operating Temperature ..... −40°C to 85°C

Note: These are stress ratings only. Stresses exceeding the range specified under "AbsolutemAximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditionsmAy affect device reliability.

Thermal Information

Symbol	Parameter	Package	Max.	Unit
θ_{JA}	Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink)	SOT89	200	°C/W
		TO92	200	°C/W
P_D	Power Dissipation	SOT89	0.50	W
		TO92	0.50	W

Note: P_D is measured at Ta=25°C

Electrical Characteristics

HT7534-3, +3.3V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage Tolerance	$V_{IN}=V_{OUT}+2V$, $I_{OUT}=10mA$	3.234	3.300	3.366	V
I_{OUT}	Output Current	$V_{IN}=V_{OUT}+2V$	70	100	—	mA
ΔV_{OUT}	Load Regulation	$V_{IN}=V_{OUT}+2V$, $1mA \le I_{OUT} \le 50mA$	—	—	60	mV
V_{DIF}	Dropout Voltage	$I_{OUT}=1mA$, $\Delta V_O=2\%$	—	—	55	mV
I_{SS}	Quiescent Current	No load	—	1.0	1.5	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	$V_O+1V \le V_{IN} \le 30V$, $I_{OUT}=1mA$	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	$I_{OUT}=10mA$, $-40°C<T_a<85°C$	—	100	—	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at $V_{IN}= V_{OUT}+2V$ with a fixed load.

HT7551-3, +5.0V Output Type

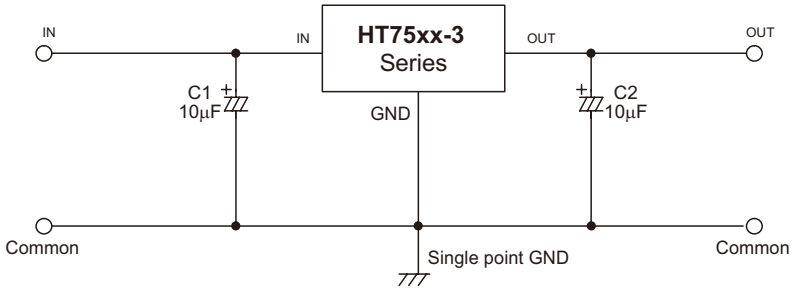
Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
		Conditions				
V_{IN}	Input Voltage	—	—	—	30	V
V_{OUT}	Output Voltage Tolerance	$V_{IN}=V_{OUT}+2V$, $I_{OUT}=10mA$	4.900	5.000	5.100	V
I_{OUT}	Output Current	$V_{IN}=V_{OUT}+2V$	100	—	—	mA
ΔV_{OUT}	Load Regulation	$V_{IN}=V_{OUT}+2V$, $1mA \le I_{OUT} \le 70mA$	—	—	60	mV
V_{DIF}	Dropout Voltage	$I_{OUT}=1mA$, $\Delta V_O=2\%$	—	—	55	mV
I_{SS}	Quiescent Current	No load	—	1.0	1.5	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	$V_O+1V \le V_{IN} \le 30V$, $I_{OUT}=1mA$	—	—	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_a \times V_{OUT}}$	Temperature Coefficient	$I_{OUT}=10mA$, $-40°C<T_a<85°C$	—	100	—	ppm/°C

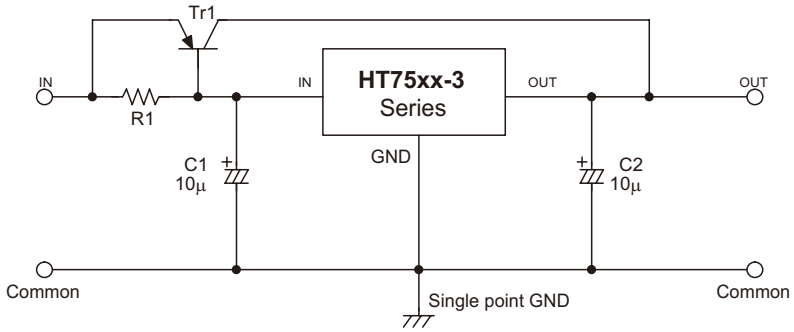
Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at $V_{IN}= V_{OUT}+2V$ with a fixed load.

Application Circuits

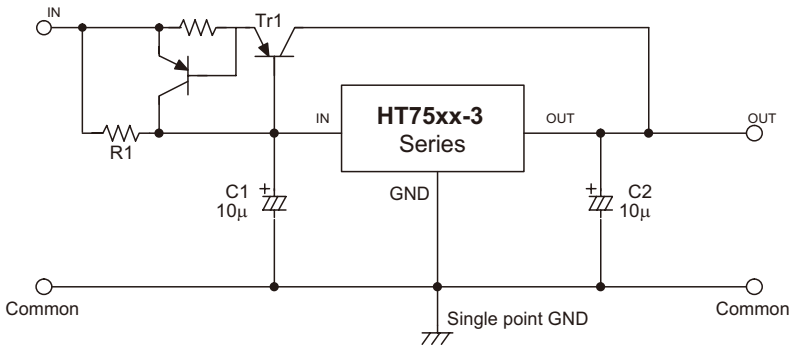
Basic Circuit



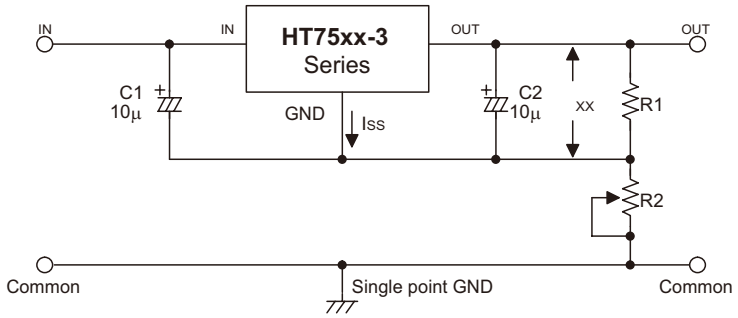
High Output Current Positive Voltage Regulator



Short-Circuit Protection for Tr1

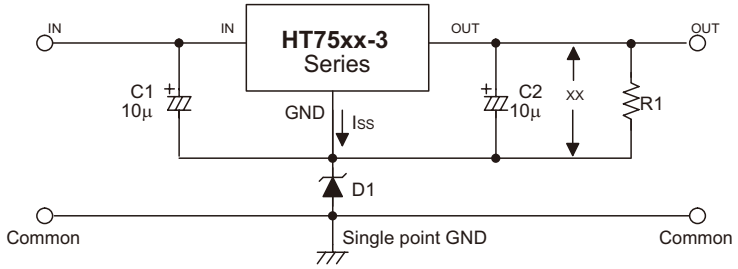


Circuit for Increasing Output Voltage



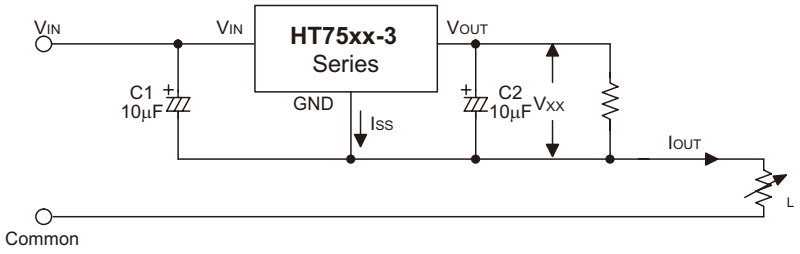
$V_{OUT}=V_{XX}\ (1+R2/R1)+I_{SS}\times R2$

Circuit for Increasing Output Voltage



$V_{OUT}=V_{XX}+V_{D1}$

Constant Current Regulator



$I_{OUT}=V_{XX}/R_A+I_{SS}$

Dual Supply