HT10XX
Voltage Regulator

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Wide operating voltage (12V max.)
- TO-92 and SOT-89 packages

Applications

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

General Description

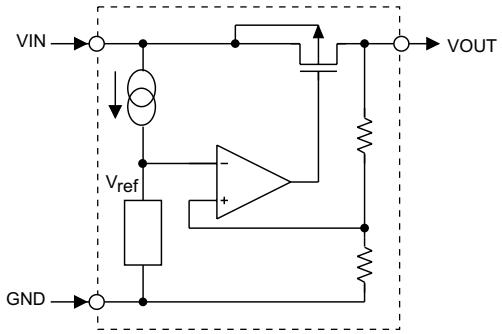
The HT10XX is a set of three-terminal low power voltage regulators implemented in CMOS technology. It is available with a fixed output voltages at 1.5V. CMOS technology ensures low voltage drop and low quiescent current.

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

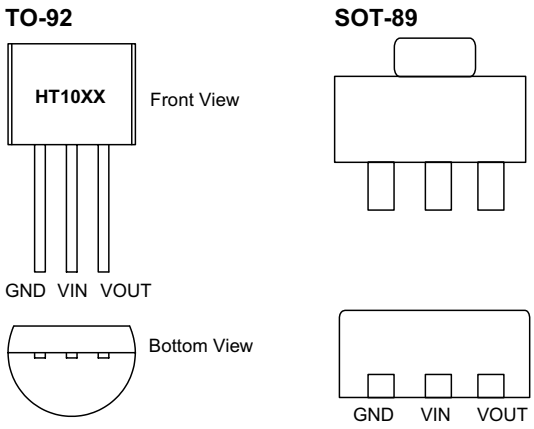
Selection Table

Part No.	Output Voltage	Tolerance
HT1015	1.5V	±5%

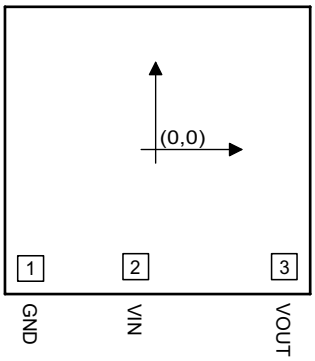
Block Diagram



Pin Assignment



Pad Assignment



Chip size: 1524 × 1524 $(\mu m)^2$

* The IC substrate should be connected to VDD in the PCB layout artwork.

Pad Coordinates

Unit: μm

Pad No.	X	Y
1	–544.8	–553
2	–95.2	–555.6
3	575.8	–547.6

Absolute Maximum Ratings

Supply Voltage.....–0.3V to 13V
Power Consumption.....250mW
Storage Temperature.....–50°C to 125°C
Operating Temperature .....0°C to 70°C

Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum 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 conditions may affect device reliability.

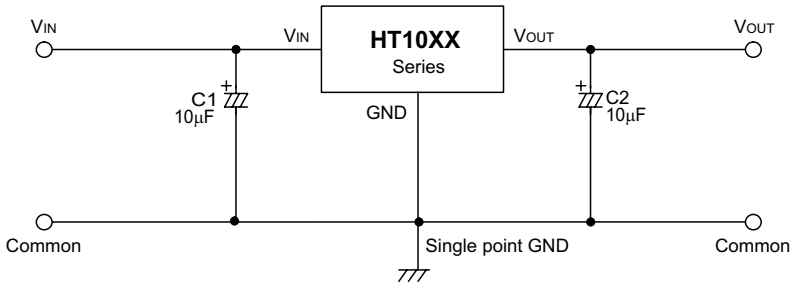
Electrical Characteristics

HT1015, +1.5V output type Ta=25°C

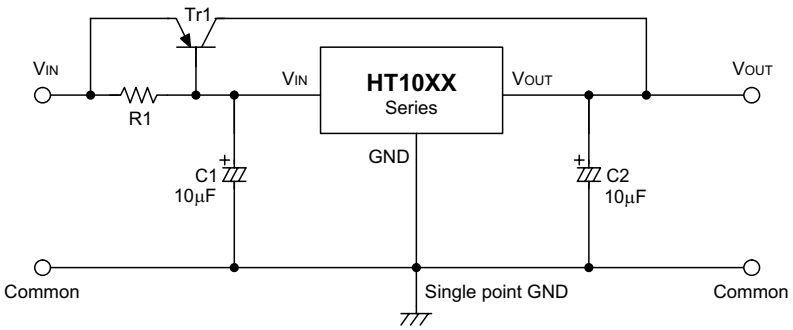
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage Tolerance	3.5V	I_{OUT}=0.5mA	1.425	1.5	1.575	V
I_{OUT}	Output Current	3.5V	—	7.0	—	—	mA
ΔV_{OUT}	Load Regulation	3.5V	1mA≤I_{OUT}≤7mA	—	80	—	mV
V_{DIF}	Voltage Drop	—	I_{OUT}=0.5mA	—	300	—	mV
I_{SS}	Current Consumption	3.5V	No load	—	2.2	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	2.5V≤V_{IN}≤12V I_{OUT}=0.5mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	12	V
$\frac{\Delta V_{OUT}}{\Delta T_a}$	Temperature Coefficient	3.5V	I_{OUT}=0.5mA 0°C<Ta<70°C	—	±0.25	—	mV/°C

Application Circuits

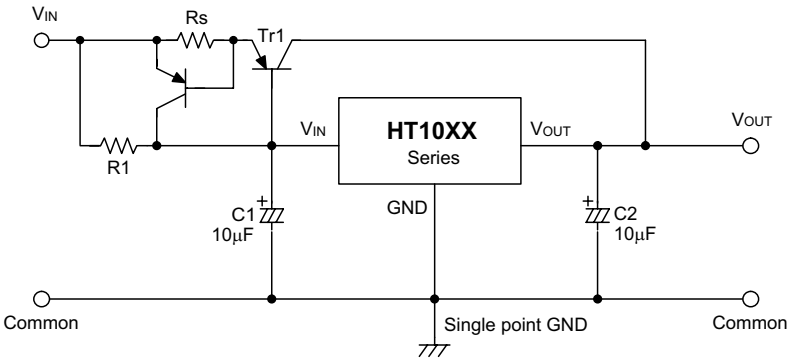
Basic circuits



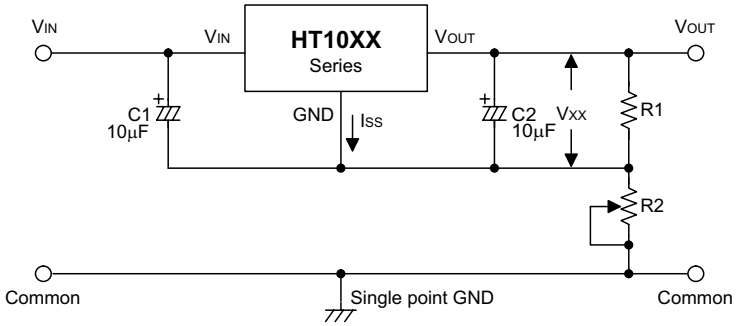
High output current positive voltage regulator



Short-Circuit protection by Tr1

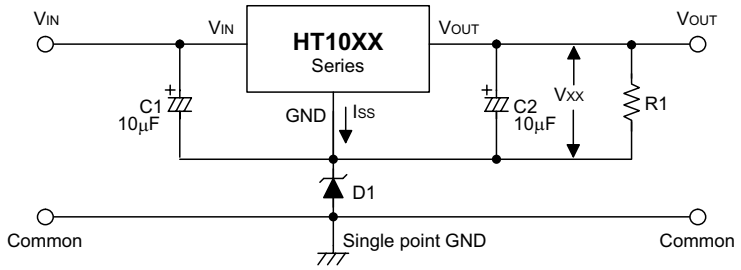


Circuit for increasing output voltage



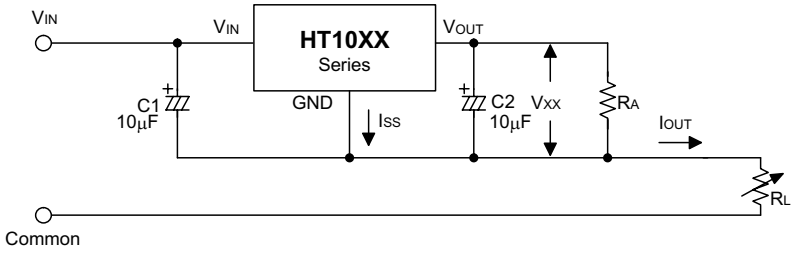
$$V_{OUT} = V_{XX} \left(1 + \frac{R2}{R1}\right) + I_{SS} R2$$

$$\approx V_{XX} \left(1 + \frac{R2}{R1}\right)$$



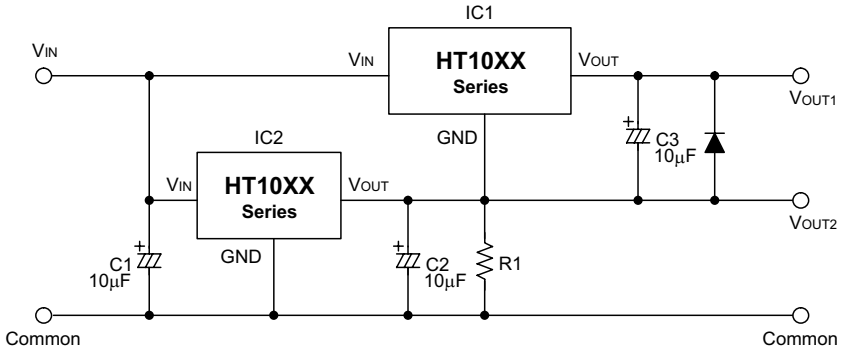
$$V_{OUT} = V_{XX} + V_{D1}$$

Constant current regulator



$$I_{OUT} = \frac{V_{XX}}{R_A} + I_{SS}$$

Dual supply



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