

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage (up to -24V)
- High output current : 100mA ($P_d \leq 250\text{mW}$)
- TO-92 and SOT-89 package

Applications

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

General Description

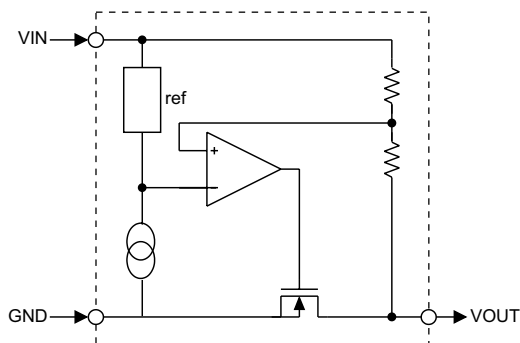
The HT74XX series is a set of three-terminal high current high voltage regulator implemented in CMOS technology. They can deliver 100mA output current and allow an input voltage as high as -24V. They are available with several fixed output voltages ranging from -2.4V to -15V. CMOS technology ensures 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.

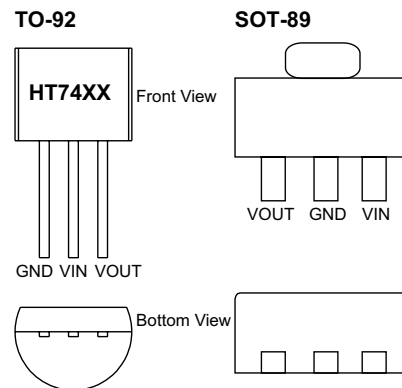
Selection Table

Part No.	Output Voltage	Tolerance
HT7430	-3.0V	±5%
HT7450	-5.0V	±5%

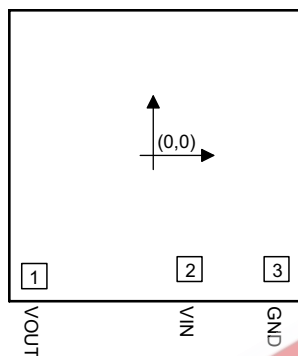
Block Diagram



Pin Assignment



Pad Assignment



Pad Coordinates

Unit: μm

Pad No.	X	Y
1	-571.75	-578.00
2	175.75	-545.50
3	592.25	-545.50

Chip size: $1550 \times 1562 (\mu\text{m})^2$

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

Absolute Maximum Ratings

Supply Voltage.....+0.3V to -26V

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

Power Consumption..... 250mW

Operating Temperature0°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
HT7430, -3.0V output type
T_a=25°C

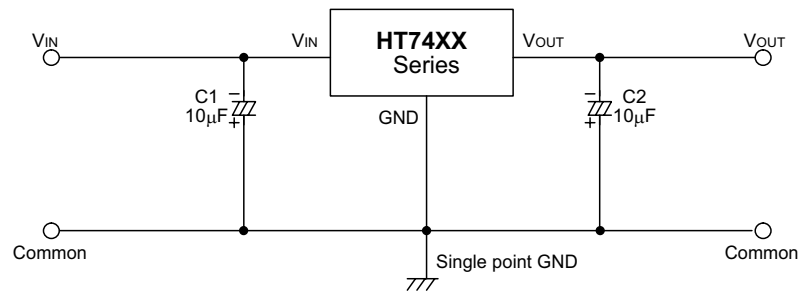
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V _{IN}	Conditions				
V _{OUT}	Output Voltage Tolerance	-5V	I _{OUT} =10mA	-2.85	-3.0	-3.15	V
I _{OUT}	Output Current	-5V	—	60	100	—	mA
ΔV _{OUT}	Load Regulation	-5V	1mA≤I _{OUT} ≤50mA	—	60	120	mV
V _{DIF}	Voltage Drop	—	I _{OUT} =1mA	—	100	—	mV
I _{SS}	Current Consumption	-5V	No load	—	200	350	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	-4V≤V _{IN} ≤-12V I _{OUT} =1mA	—	0.2	—	%/V
V _{IN}	Input Voltage	—	—	—	—	-24	V
$\frac{\Delta V_{OUT}}{\Delta T_a}$	Temperature Coefficient	-5V	I _{OUT} =10mA 0°C<T _a <70°C	—	±0.45	—	mV/°C

HT7450, -5.0V output type
T_a=25°C

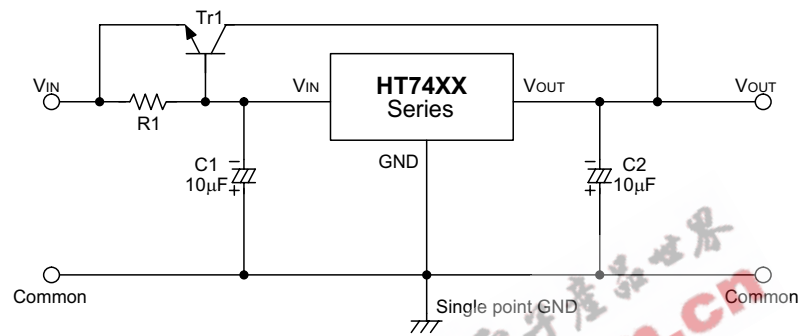
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V _{IN}	Conditions				
V _{OUT}	Output Voltage	-7V	I _{OUT} =10mA	-4.75	-5.0	-5.25	V
I _{OUT}	Output Current	-7V	—	100	150	—	mA
ΔV _{OUT}	Load Regulation	-7V	1mA≤I _{OUT} ≤30mA	—	60	150	mV
V _{DIF}	Voltage Drop	—	I _{OUT} =1mA	—	100	—	mV
I _{SS}	Current Consumption	-7V	No load	—	330	500	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	-6V≤V _{IN} ≤-15V I _{OUT} =1mA	—	0.2	—	%/V
V _{IN}	Input Voltage	—	—	—	—	-24	V
$\frac{\Delta V_{OUT}}{\Delta T_a}$	Temperature Coefficient	-7V	I _{OUT} =10mA 0°C<T _a <70°C	—	±0.75	—	mV/°C

Application Circuits

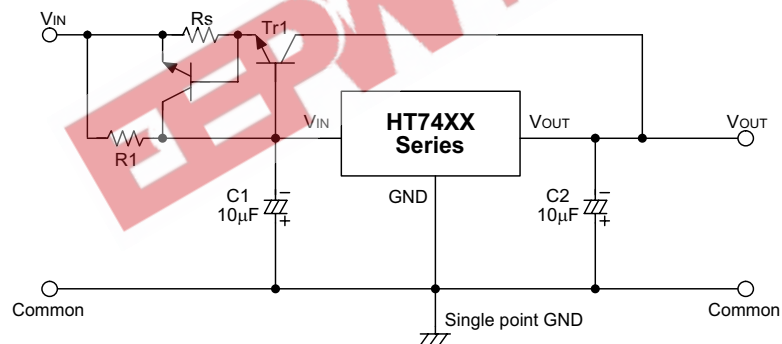
Basic circuit



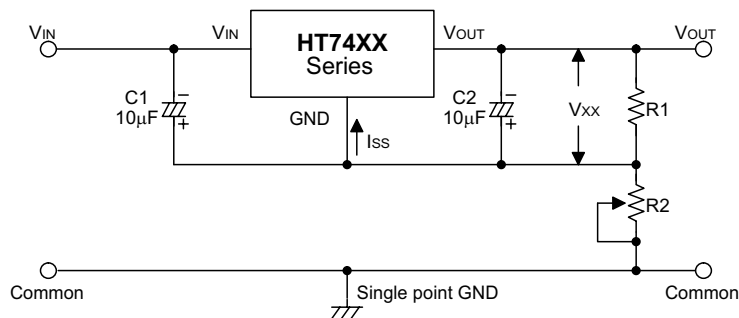
High output current positive voltage regulator



Short-Circuit protection by $Tr1$

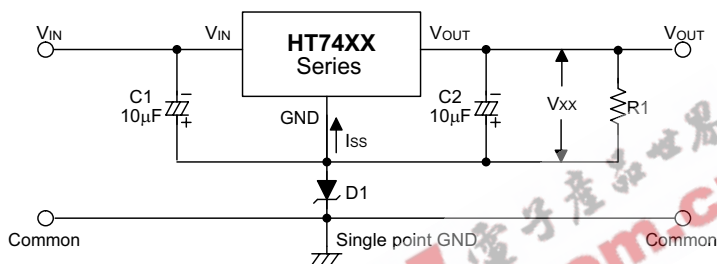


Circuit for increasing output voltage



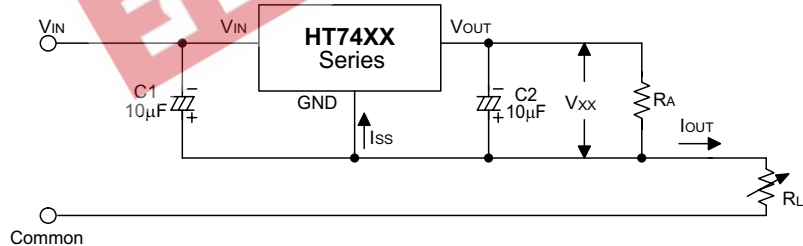
$$V_{OUT} = V_{XX} \left(1 + \frac{R2}{R1} \right) + I_{SS} R2$$

Circuit for increasing output voltage



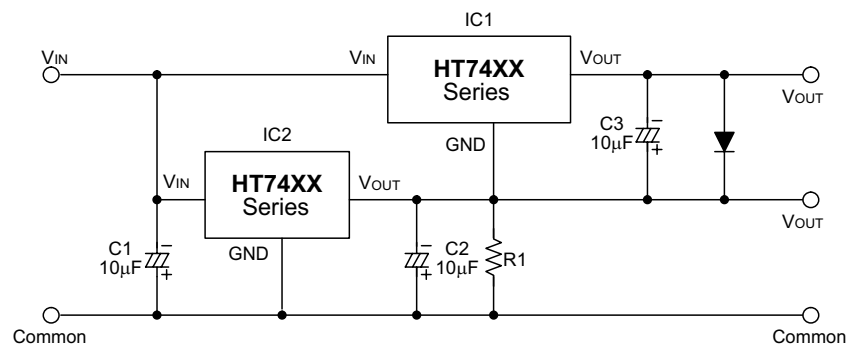
$$V_{OUT} = V_{XX} + V_{D1}$$

Constant current regulator



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

Dual supply



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