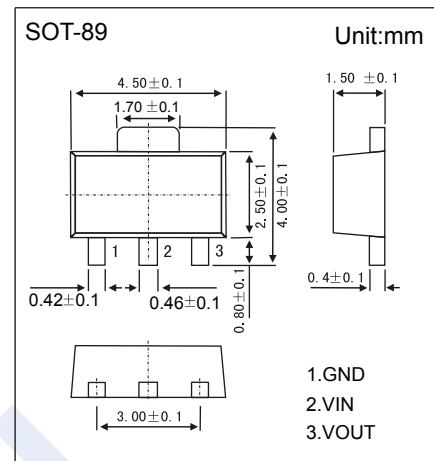
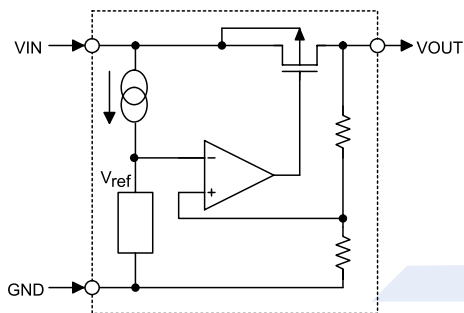


## High Driver Regulator HT75XX

### ■ Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage (up to 24V)
- High output current : 100mA



### ■ Selection Table

Part No.	Output Voltage	Tolerance
HT7530	3V	±5%
HT7533	3.3V	±5%
HT7536	3.6V	±5%
HT7544	4.4V	±5%
HT7550	5V	±5%
HT7580	8V	±5%

### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Supply Voltage	V <sub>SS</sub>	-0.3 to 26	V
Power Consumption	P <sub>C</sub>	250	mW
Junction Temperature	T <sub>J</sub>	125	°C
Operating Temperature	T <sub>opr</sub>	0 to 70	
Storage Temperature range	T <sub>stg</sub>	-50 to 125	

### ■ Marking

NO.	HT7530	HT7533	HT7536	HT7544	HT7550	HT7580
Marking	D7530 *****	D7533 *****	D7536 *****	D7544 *****	D7550 *****	D7580 *****

## High Driver Regulator

### HT75XX

#### ■ Electrical Characteristics Ta = 25°C

HT7530, +3.0V output type

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
		V <sub>IN</sub>	Conditions				
Output Voltage Tolerance	V <sub>OUT</sub>	5V	I <sub>OUT</sub> = 10mA	2.85	3	3.15	V
Output Current	I <sub>OUT</sub>	5V		60	100		mA
Load Regulation	ΔV <sub>OUT</sub>	5V	1mA ≤ I <sub>OUT</sub> ≤ 50mA		60	150	mV
Voltage Drop	V <sub>DIF</sub>		I <sub>OUT</sub> = 1mA		100		mV
Current Consumption	I <sub>SS</sub>	5V	No load		10	20	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times \Delta V_{OUT}}$		4V ≤ V <sub>IN</sub> ≤ 12V I <sub>OUT</sub> =1mA		0.2		%/V
Input Voltage	V <sub>IN</sub>					24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_a}$	5V	I <sub>OUT</sub> =10mA 0 °C < T <sub>a</sub> < 70 °C		±0.45		mV/°C

HT7533, +3.3V output type

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
		V <sub>IN</sub>	Conditions				
Output Voltage Tolerance	V <sub>OUT</sub>	5.5V	I <sub>OUT</sub> = 10mA	3.14	3.3	3.47	V
Output Current	I <sub>OUT</sub>	5.5V		60	100		mA
Load Regulation	ΔV <sub>OUT</sub>	5.5V	1mA ≤ I <sub>OUT</sub> ≤ 50mA		60	150	mV
Voltage Drop	V <sub>DIF</sub>		I <sub>OUT</sub> = 1mA		100		mV
Current Consumption	I <sub>SS</sub>	5.5V	No load		10	20	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times \Delta V_{OUT}}$		4.5V ≤ V <sub>IN</sub> ≤ 12V I <sub>OUT</sub> =1mA		0.2		%/V
Input Voltage	V <sub>IN</sub>					24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_a}$	5.5V	I <sub>OUT</sub> =10mA 0 °C < T <sub>a</sub> < 70 °C		±0.5		mV/°C

HT7536, +3.6V output type

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
		V <sub>IN</sub>	Conditions				
Output Voltage Tolerance	V <sub>OUT</sub>	5.6V	I <sub>OUT</sub> = 10mA	3.42	3.6	3.78	V
Output Current	I <sub>OUT</sub>	5.6V		60	100		mA
Load Regulation	ΔV <sub>OUT</sub>	5.6V	1mA ≤ I <sub>OUT</sub> ≤ 50mA		60	150	mV
Voltage Drop	V <sub>DIF</sub>		I <sub>OUT</sub> = 1mA		100		mV
Current Consumption	I <sub>SS</sub>	5.6V	No load		10	20	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times \Delta V_{OUT}}$		4.6V ≤ V <sub>IN</sub> ≤ 12V I <sub>OUT</sub> =1mA		0.2		%/V
Input Voltage	V <sub>IN</sub>					24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_a}$	5.6V	I <sub>OUT</sub> =10mA 0 °C < T <sub>a</sub> < 70 °C		±0.6		mV/°C

## High Driver Regulator

### HT75XX

#### ■ Electrical Characteristics Ta = 25°C

HT7544, +4.4V output type

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
		V <sub>IN</sub>	Conditions				
Output Voltage Tolerance	V <sub>OUT</sub>	6.4V	I <sub>OUT</sub> = 10mA	4.18	4.4	4.62	V
Output Current	I <sub>OUT</sub>	6.4V		60	100		mA
Load Regulation	ΔV <sub>OUT</sub>	6.4V	1mA ≤ I <sub>OUT</sub> ≤ 50mA		60	150	mV
Voltage Drop	V <sub>DIF</sub>		I <sub>OUT</sub> = 1mA		100		mV
Current Consumption	I <sub>SS</sub>	6.4V	No load		10	20	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times \Delta V_{OUT}}$		5.4V ≤ V <sub>IN</sub> ≤ 12V I <sub>OUT</sub> =1mA		0.2		%/V
Input Voltage	V <sub>IN</sub>					24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_a}$	6.4V	I <sub>OUT</sub> =10mA 0 °C < T <sub>a</sub> < 70 °C		±0.7		mV/°C

HT7550, +5.0V output type

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
		V <sub>IN</sub>	Conditions				
Output Voltage Tolerance	V <sub>OUT</sub>	7V	I <sub>OUT</sub> = 10mA	4.75	5	5.25	V
Output Current	I <sub>OUT</sub>	7V		100	150		mA
Load Regulation	ΔV <sub>OUT</sub>	7V	1mA ≤ I <sub>OUT</sub> ≤ 70mA		60	150	mV
Voltage Drop	V <sub>DIF</sub>		I <sub>OUT</sub> = 1mA		100		mV
Current Consumption	I <sub>SS</sub>	7V	No load		10	20	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times \Delta V_{OUT}}$		6V ≤ V <sub>IN</sub> ≤ 15V I <sub>OUT</sub> =1mA		0.2		%/V
Input Voltage	V <sub>IN</sub>					24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_a}$	7V	I <sub>OUT</sub> =10mA 0 °C < T <sub>a</sub> < 70 °C		±0.75		mV/°C

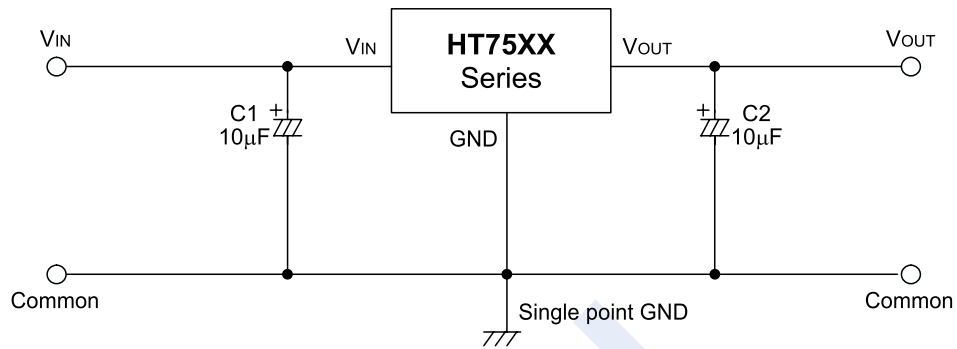
HT7580, +8.0V output type

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
		V <sub>IN</sub>	Conditions				
Output Voltage Tolerance	V <sub>OUT</sub>	10V	I <sub>OUT</sub> = 10mA	7.61	8	8.4	V
Output Current	I <sub>OUT</sub>	10V		100	150		mA
Load Regulation	ΔV <sub>OUT</sub>	10V	1mA ≤ I <sub>OUT</sub> ≤ 70mA		60	150	mV
Voltage Drop	V <sub>DIF</sub>		I <sub>OUT</sub> = 1mA		100		mV
Current Consumption	I <sub>SS</sub>	10V	No load		10	20	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times \Delta V_{OUT}}$		9V ≤ V <sub>IN</sub> ≤ 20V I <sub>OUT</sub> =1mA		0.2		%/V
Input Voltage	V <sub>IN</sub>					24	V
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_a}$	10V	I <sub>OUT</sub> =10mA 0 °C < T <sub>a</sub> < 70 °C		±1.2		mV/°C

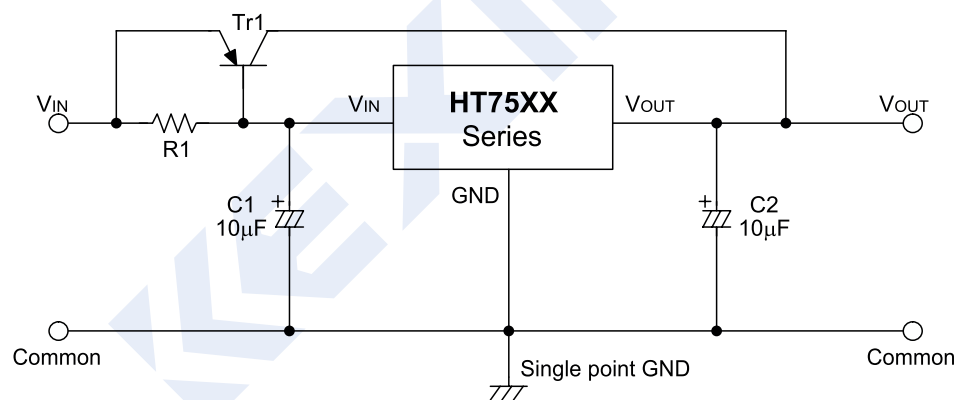
## High Driver Regulator HT75XX

### ■ Typical Characteristics

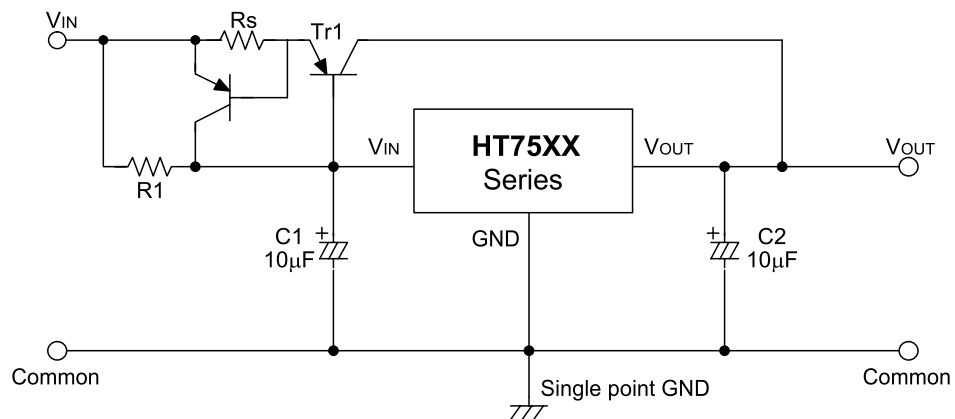
#### Basic circuit



#### High output current positive voltage regulator

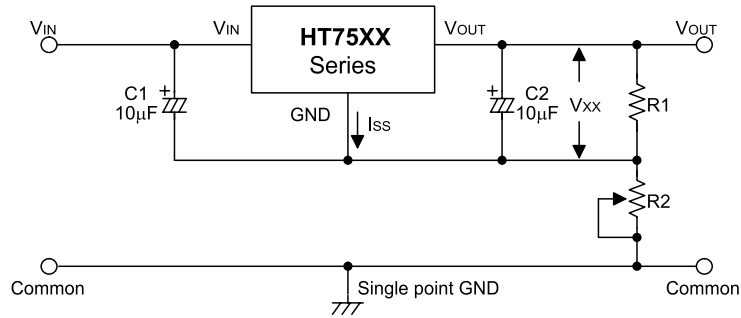


#### Short-Circuit protection for Tr1



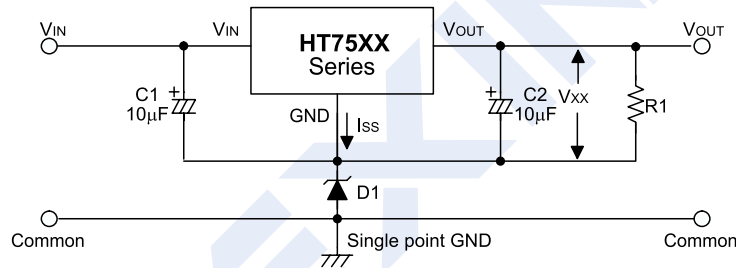
# High Driver Regulator HT75XX

■ Typical Characteristics



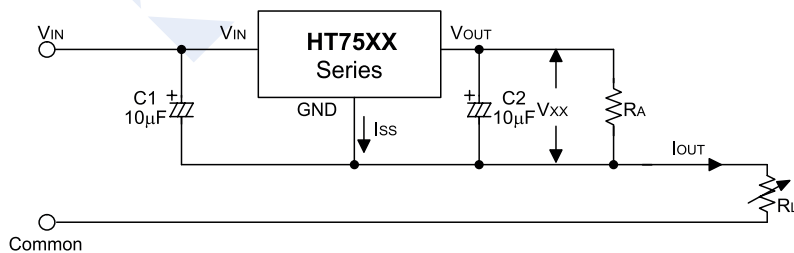
$$V_{OUT} = V_{xx} \left( 1 + \frac{R2}{R1} \right) + I_{SS} R2$$

Circuit for increasing output voltage



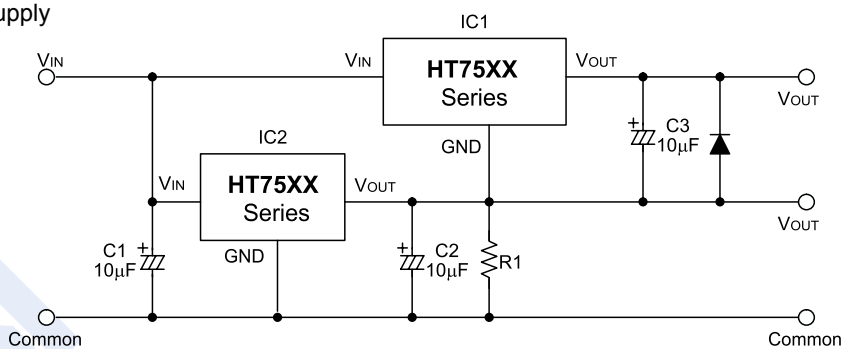
$$V_{OUT} = V_{xx} + V_{D1}$$

Constant current regulator



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

Dual supply



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