

**High Input Voltage & Low Power CMOS Voltage Regulators****■ General Description**

The LN75XX series is a set of three-terminal middle current low voltage regulator implemented in CMOS technology. They can deliver 150mA output current and allow an input voltage as high as 22V. They are available with several fixed output voltages ranging from 3.0V to 8.0V. 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	Tolerance	Package
LN7530	3.0	$\pm 2\%$	TO-92 SOT-89-3L
LN7533	3.3	$\pm 2\%$	
LN7536	3.6	$\pm 2\%$	
LN7544	4.4	$\pm 2\%$	
LN7550	5.0	$\pm 2\%$	
LN7580	8.0	$\pm 2\%$	

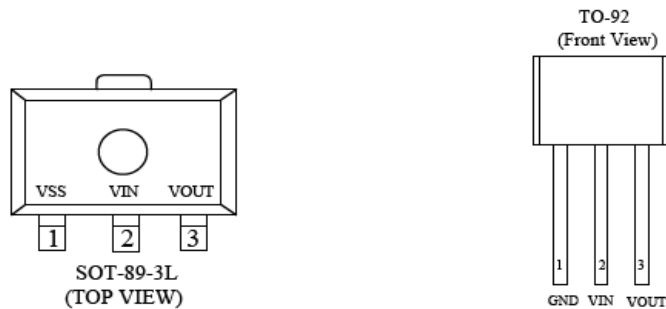
**■ Ordering Information**

LN75 ①②③④

Item	Symbol	Description
①②	30-80	Output voltage: Eg: ②=3, ③=0 represents 3.0V
③		Package type
	T	TO-92
	P	SOT-89-3
④		Device orientation
	R	Embossed Tape: Standard Feed
	L	Embossed Tape: Reverse Feed



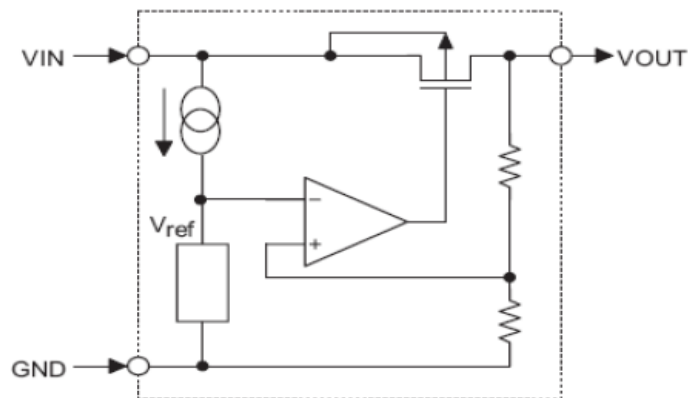
### Pin Configuration



### Pin Assignment

Pin Number		Pin Name	Function Description
TO-92	SOT-89-3		
2	2	VIN	Power Input
1	1	GND	Ground
3	3	VOUT	Output

### Function Block Diagram



### Absolute Maximum Ratings

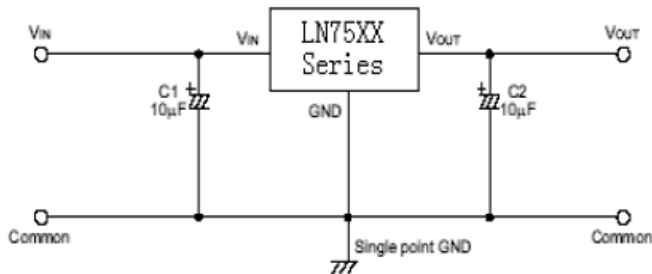
Parameter		Symbol	Maximum Rating	Unit
Input Voltage		Vin	-0.3~23	V
Power Dissipation	SOT-89-3	Pd	500	mW
	TO-92		300	
Operating Ambient Temperature		Topr	-40~+85	°C
Storage Temperature		Tstg	-40~+125	°C

**Caution:** The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.

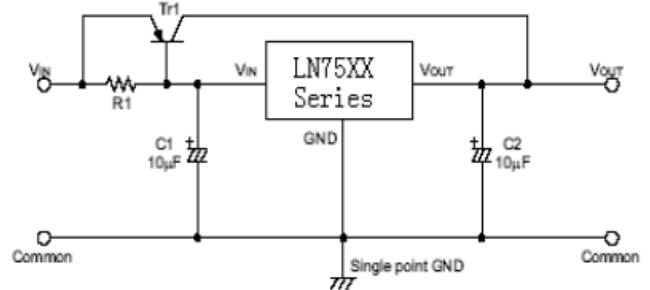


## ■ Typical Application Circuit

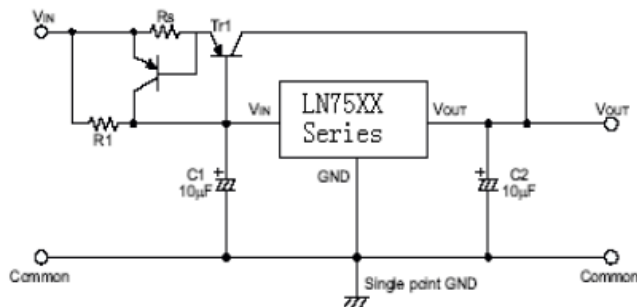
### 1、Basic circuit



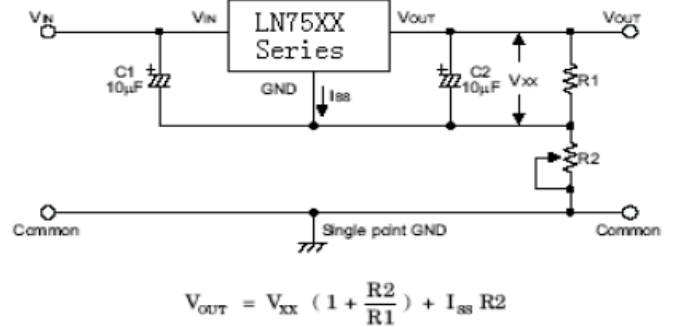
### 2、High output current positive voltage regulator



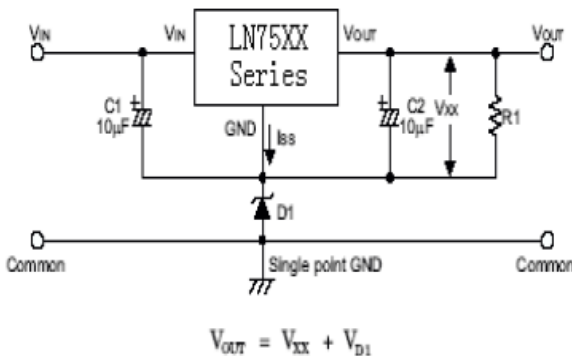
### 3、Short-circuit protection for Tr1



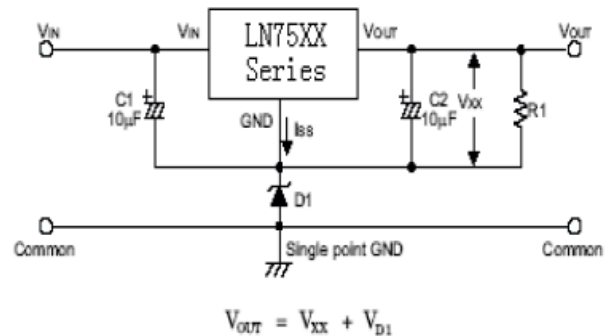
### 4、Circuit A for increasing output voltage



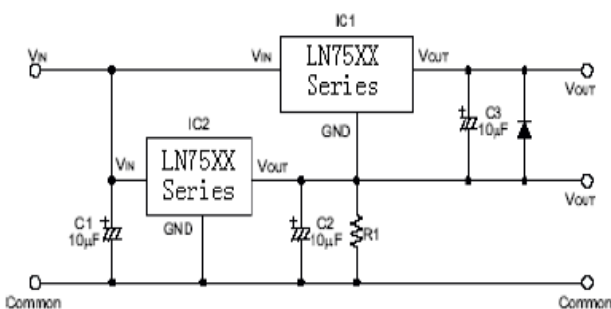
### 5、Circuit B for increasing output voltage



### 6、Circuit for increasing output voltage



### 7、Circuit for increasing output voltage





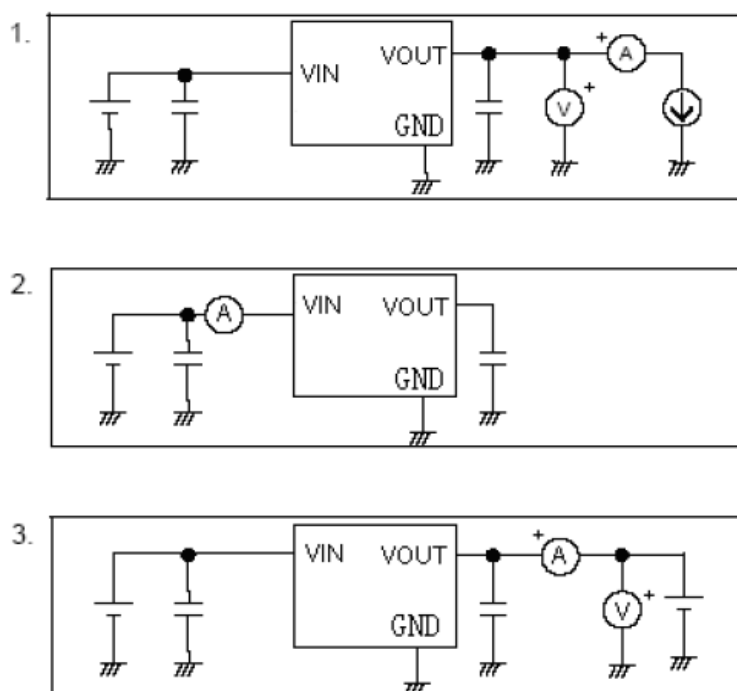
## ■ Electrical Characteristics

$T_a=25^{\circ}\text{C}$

Symbol	Parameters	Test Conditions		Min.	Typ.	Max.	Unit	Testing Circuit
		$V_{IN}$	Conditions					
$V_{OUT}$	Output Voltage Tolerance	$V_{OUT}+2V$	$I_{OUT}=10\text{mA}$	$0.95 \times V_{OUT}$	$V_{OUT}^{[1]}$	$1.05 \times V_{OUT}$	V	1
$I_{OUT}$	Output Current	$V_{OUT}+2V$	-	60	100	150	mA	3
$\Delta V_{OUT}$	Load Regulation	$V_{OUT}+2V$	$1\text{mA} \leq I_{OUT} \leq 50\text{mA}$	-	60	150	mV	1
$V_{DIF}$	Voltage Drop	-	$I_{OUT}=1\text{mA}$	-	100	-	mV	1
$I_{SS}$	Current Consumption	$V_{OUT}+2V$	No Load	-	10	20	$\mu\text{A}$	2
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	-	$V_{OUT}+2V \leq V_{IN} \leq 18$ $I_{OUT}=1\text{mA}$	-	0.2	-	%/V	1
$V_{IN}$	Input Voltage	-	-	-	-	22	V	-
$\frac{\Delta V_{OUT}}{\Delta T_a}$	Temperature Coefficient	$V_{OUT}+2V$	$I_{OUT}=10\text{mA}$ $-40^{\circ}\text{C} \leq T_a \leq 85^{\circ}\text{C}$	-	$\pm 0.45 \times \frac{V_{OUT}}{3}$	-	$\frac{\text{mV}}{^{\circ}\text{C}}$	1

**Note[1]:** “ $V_{OUT}$ ” is the fixed output voltage. eg. “ $V_{OUT}$ ” equal 3.0V for LN7530 and equal 5.0V for LN7550

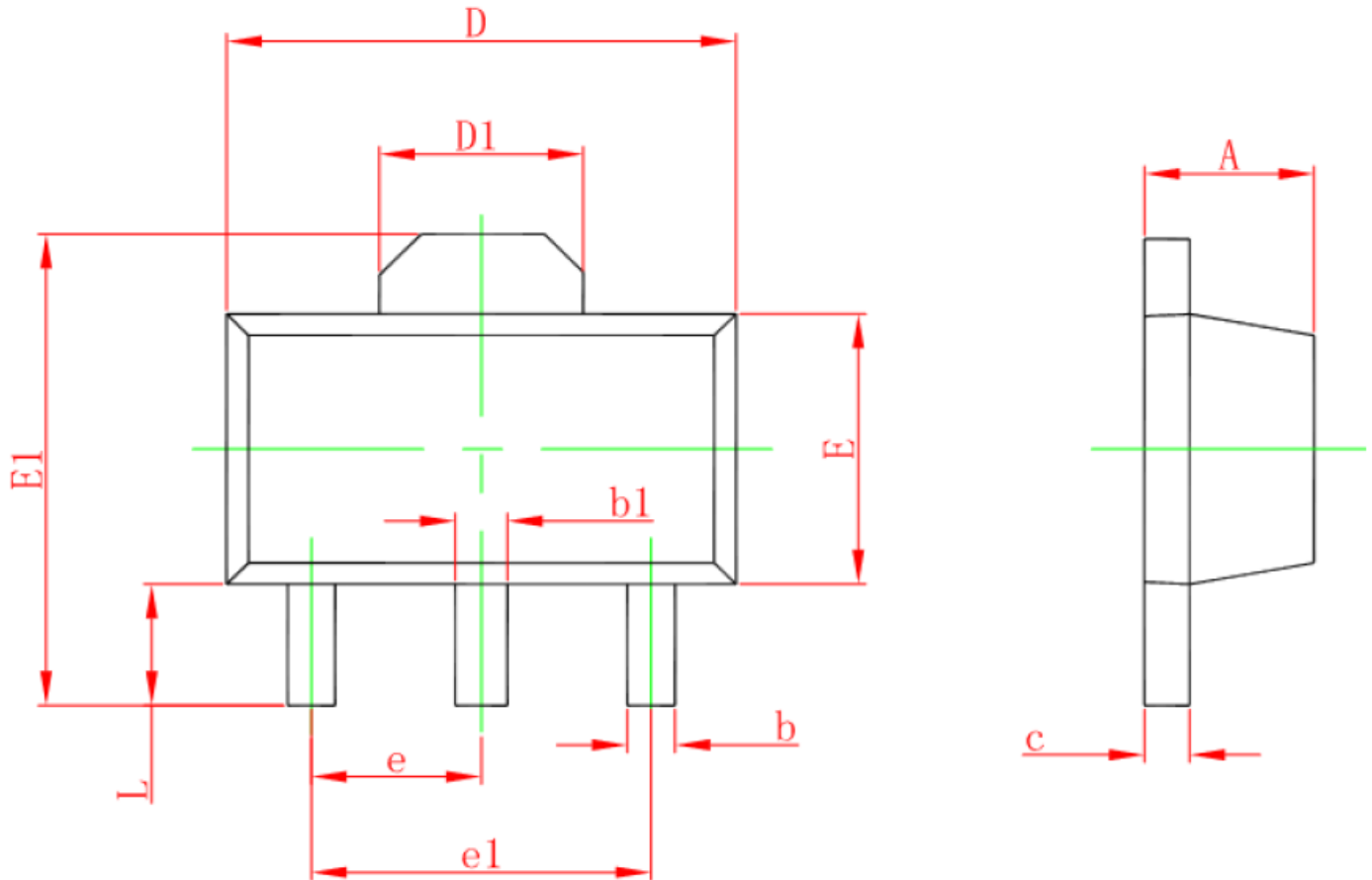
## ■ Testing Circuits





■ Package Information

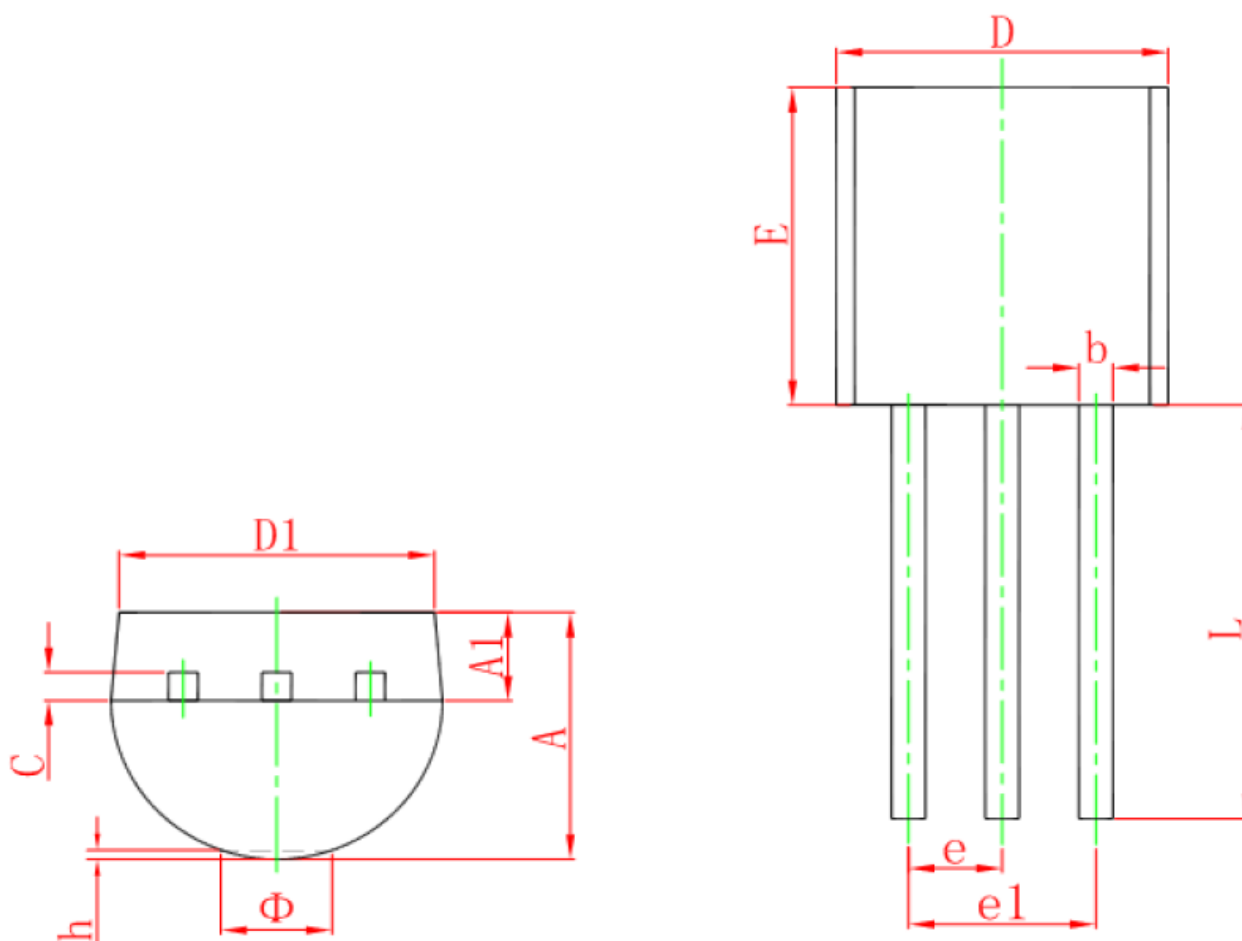
- SOT-89-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047



- TO-92



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015