Low Noise CMOS Positive Voltage Regulators

The PJ2700 series are highly precise, low noise, ultra low power consumption, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. The PJ2700 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error amplifier. Output voltage is selectable in 0.1V steps between 2.0V ~ 6.0V in TO-92, SOT-89 and SOT-23 packages are available.

TO-92

Pin 1.Gnd
2. In
3. Out

SOT-89

Pin 1. Gnd
2. In
3. Out

(Heatsink surface connected to Pin 2)

SOT-23

Pin 1. Gnd
2. Out
3. In

FEATURES

- Maximum Output Current:300mA
- Dropout Voltage :300mV @ 100mA
- Maximum Operating Voltage : 10V
- Output Voltage Range :2.0V~6.0V(selectable in 0.1V steps)
- Highly Accurate : ±2%
- Low Power Consumption : TYP 2μA at Vout=5.0V
- Operational Temperature Range : -20℃ ~ 85℃
- Ultra Small Packages : TO-92, SOT-89, SOT-23

Applications

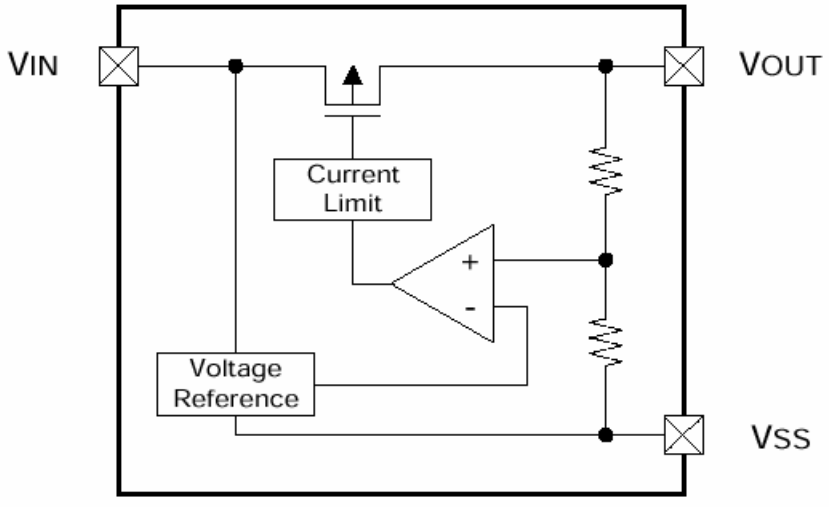
- Mobile phones
- Cordless phones
- Cameras, video recorders
- Portable games
- Portable AV equipment
- CD-Rom, DVD and LAN Card
- Battery powered equipment

ORDER INFORMATION

Device	Operation Temperature	Package
PJ27xxCT	-20℃ ~ +85℃	TO-92
PJ27xxCY		SOT-89
PJ27xxCX		SOT-23

Remark: xx is output voltage, ex 33 = 3.3V, 25 = 2.5V

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	10	V
Output Current	I_{OUT}	300	mA
Output Voltage	V_{OUT}	Vss-0.3 ~ V_{IN} +0.3	V
Power Dissipation TO-92 SOT-89 SOT-23	Pd	625 550 300	mW
Operating Temp	Topr	-20 ~ +85	℃
Storage Temp	Tstg	-40 ~ +125	℃

ELECTRICAL CHARACTERISTICS (Ta = +25°C, Cin = Cout = 1uF unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit	Circuit
Output Voltage	V_{OUT} (E) (Note 2)	I_{OUT}=40mA V_{IN}=V_{OUT} + 1V	-2%	--	+2%	V	2
Maximum Output Current	I_{OUT} max	V_{IN}= V_{OUT} + 1V,	300	--	--	mA	2
Load Regulation	ΔV_{OUT}	V_{IN}= V_{OUT} + 1V 1mA≦I_{OUT}≦100mA	--	45	90	mV	--
Dropout Voltage (Note3)	Vdif 1 Vdif 2 Vdif 3	I_{OUT}=80mA I_{OUT}=160mA Iout=300mA	--	200 450 800	360 700 950	mV	2
Supply Current	Iss	V_{IN}= V_{OUT} + 1V	--	3.0	5.0	μA	1
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	IOUT=40mA V_{OUT} + 1V≦Vin ≦10V	--	0.2	0.3	%/V	2
Input Voltage	V_{IN}	--	--	--	10	V	--
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta Topr \cdot V_{OUT}}$	I_{OUT}=40mA -40 °C≦Topr ≦85°C	--	±100	--	ppm/ °C	2

Note: 1. V_{OUT} (T)=Specified Output Voltage.

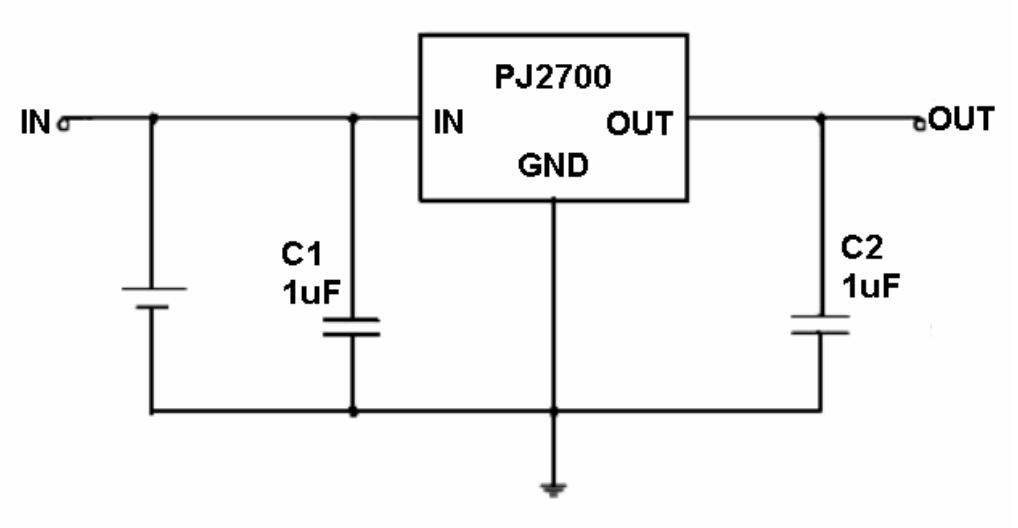
2. V_{OUT} (E)=Effective output Voltage (i.e. the output voltage when "V_{OUT}(T)+1.0" is provided while maintaining a certain I_{OUT} value).

3. Vdif={V_{IN}1(Note5)- V_{OUT}1(Note4)}

4. V_{OUT} 1=A voltage equal to 98% of the output voltage when a stabilized (V_{OUT}(T)+1.0V) is input.

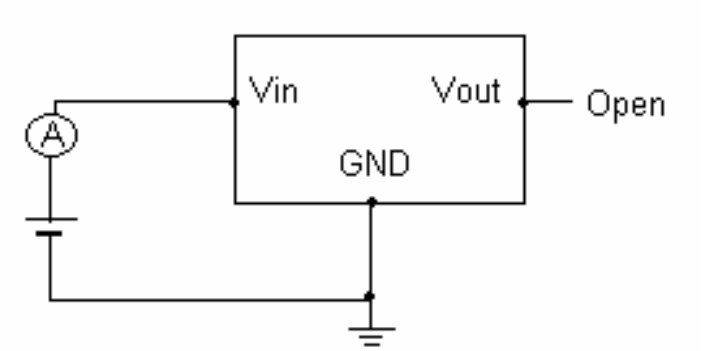
5. V_{IN}=The input voltage at the time V_{OUT} 1 is output (input voltage has been gradually reduced).

TYPICAL APPLICATIONS

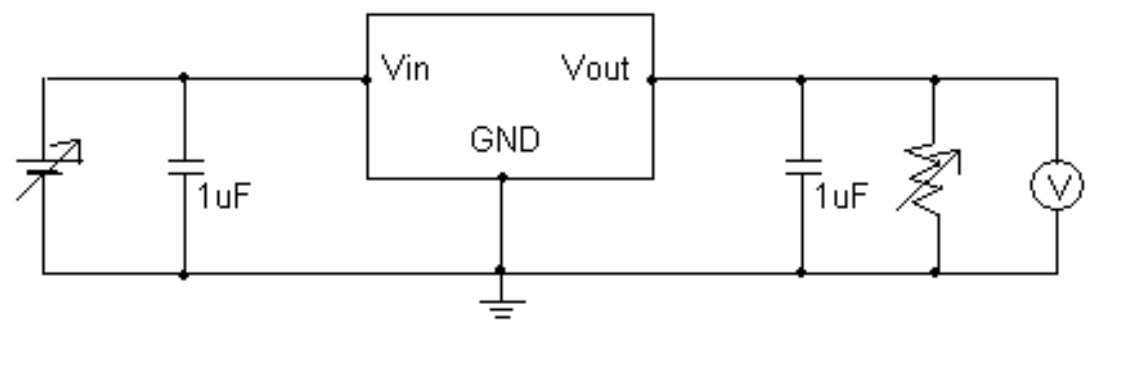


MEASURING CIRCUITS

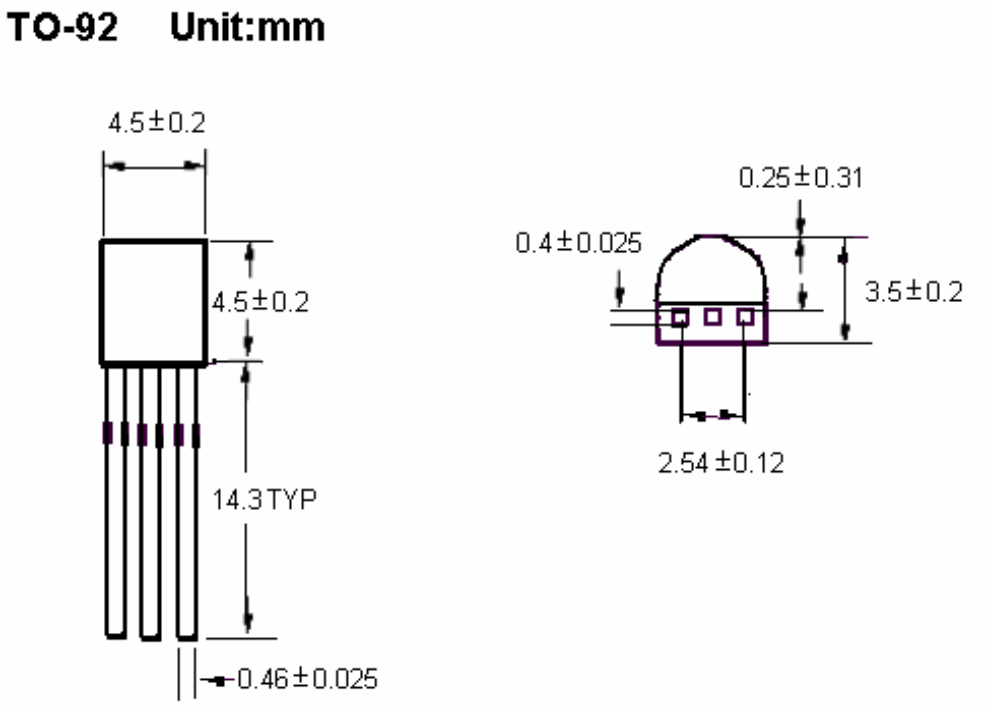
Measuring Circuit 1: Supply Current



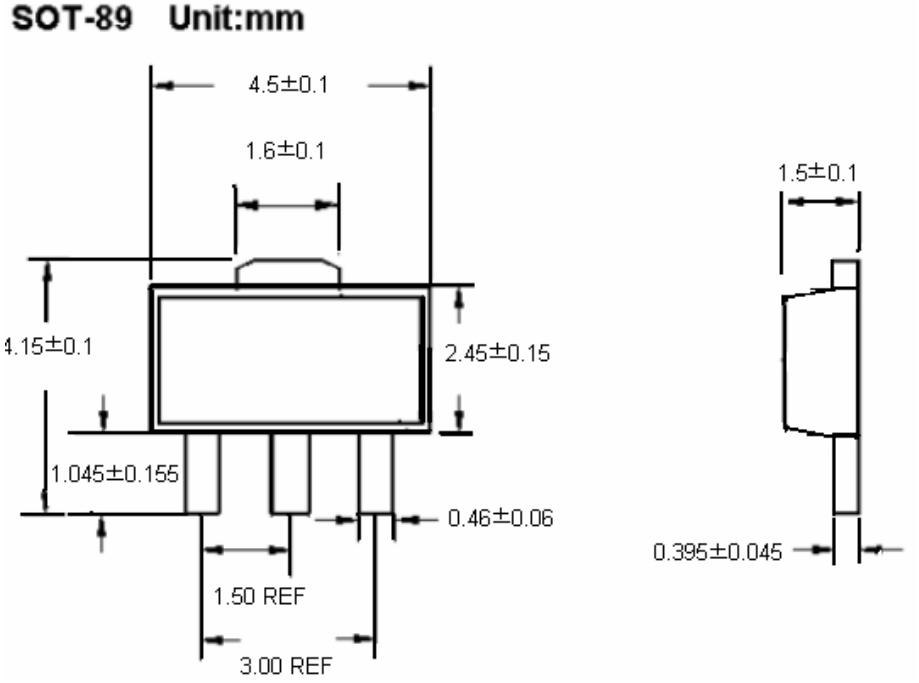
Measuring Circuit 2: Output Voltage, Oscillation Check, Line Regulation, Dropout Voltage, Load Regulation



TO-92 Unit:mm



SOT-89 Unit:mm



SOT-23 Unit:mm