

Low Noise CMOS Positive Voltage Regulators

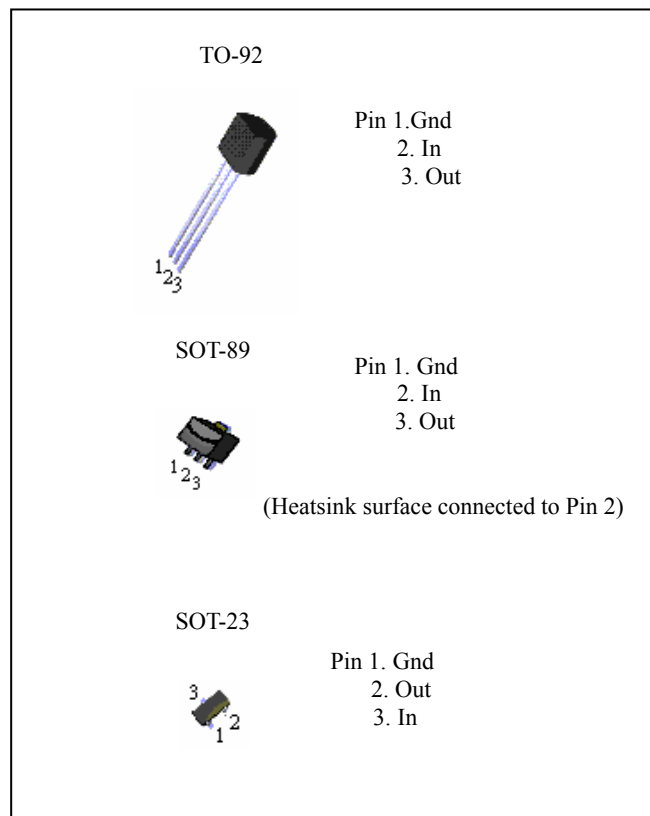
The PJ2700 series are highly precise, low noise, ultra low power consumption, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. The PJ2700 consists of a current limiter circuit, a driver 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.

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 : $\pm 2\%$
- Low Power Consumption : TYP 2 μ A at Vout=5.0V
- Operational Temperature Range : -20°C ~ 85°C
- 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

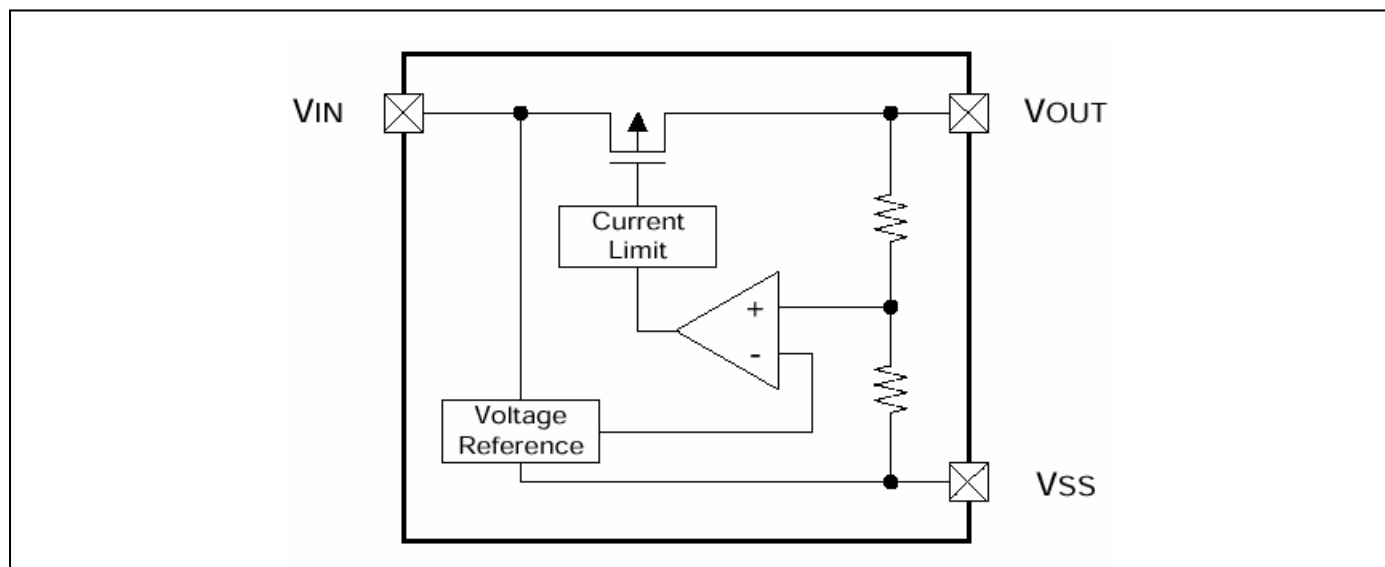


ORDER INFORMATION

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

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

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	10	V
Output Current	I_{OUT}	300	mA
Output Voltage	V_{OUT}	$V_{SS}-0.3 \sim V_{IN}+0.3$	V
Power Dissipation TO-92 SOT-89 SOT-23	P_d	625 550 300	mW
Operating Temp	T_{opr}	-20 ~ +85	°C
Storage Temp	T_{stg}	-40 ~ +125	°C

ELECTRICAL CHARACTERISTICS ($T_a = +25^{\circ}\text{C}$, $C_{in} = C_{out} = 1\mu\text{F}$ unless otherwise noted)

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

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

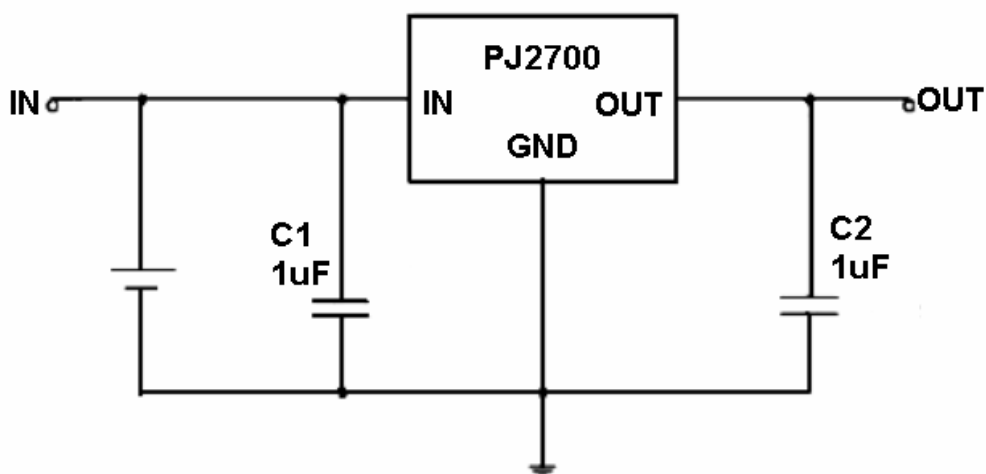
2. $V_{OUT} (E)$ =Effective output Voltage (i.e. the output voltage when “ $V_{OUT}(T)+1.0$ ” is provided while maintaining a certain I_{OUT} value).

3. $V_{dif}=\{V_{IN1}(\text{Note5})- V_{OUT1}(\text{Note4})\}$

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

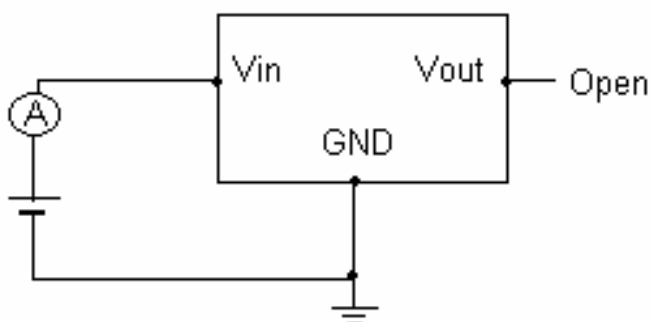
5. V_{IN} =The input voltage at the time $V_{OUT} 1$ is output (input voltage has been gradually reduced).

TYPICAL APPLICATIONS

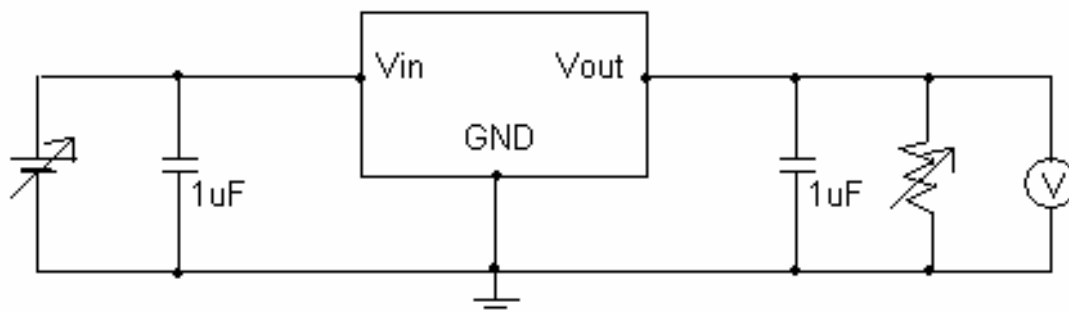


MEASURING CIRCUITS

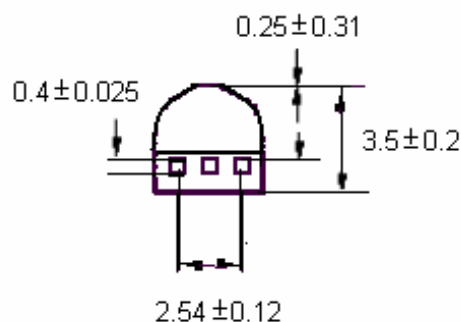
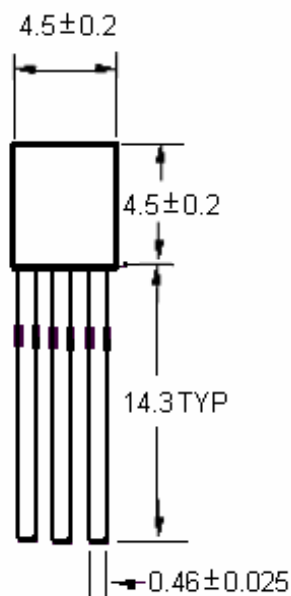
Measuring Circuit 1: Supply Current



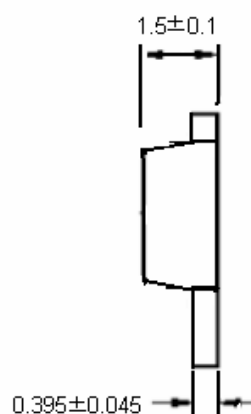
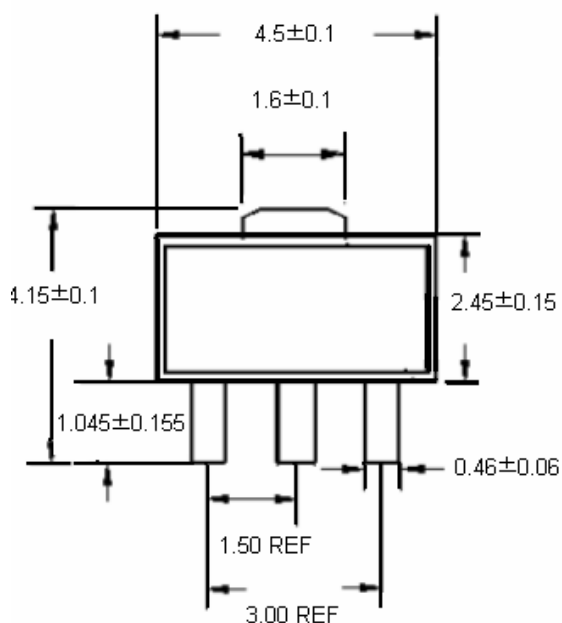
Measuring Circuit 2: Output Voltage, Oscillation Check, Line Regulation, Dropout Voltage, Load Regulation



TO-92 Unit:mm



SOT-89 Unit:mm



SOT-23 Unit:mm

