

1A Low Dropout Positive Voltage Regulator

LM1117L3

Features

- Adjustable or Fixed Output
- Output Current of 1A
- Low Dropout, 1.3V max at 1A Output Current
- 0.04% Line Regulation
- 0.2% Load Regulation
- 100% Thermal Limit Burn-in
- Fast Transient Response

Description

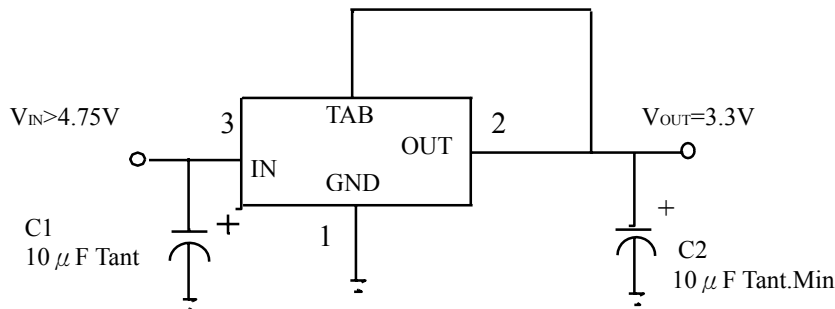
The LM1117 series of positive adjustable and fixed regulators are designed to provide 1A with high efficiency. All internal circuitry is designed to operate down to 1.3V input to output differential. On-chip trimming adjusts the reference voltage to 1%.

Applications

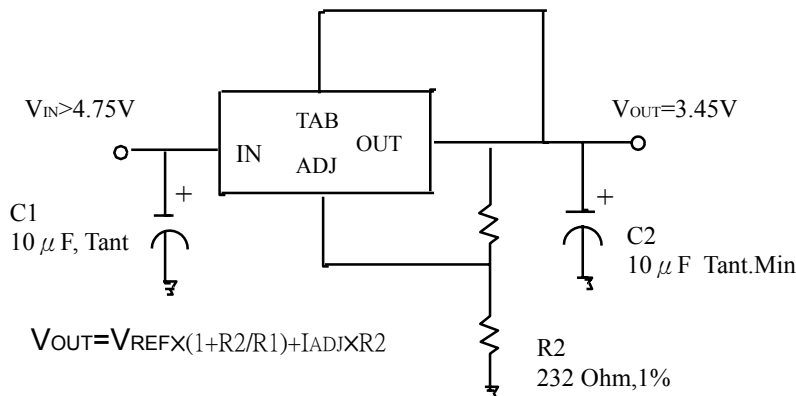
- High Efficiency Linear Regulators
- Post Regulators for Switching Supplies
- Adjustable Power Supply

Typical Application Data

Fixed Voltage Regulator



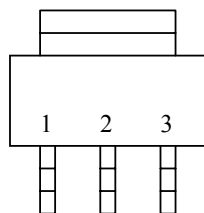
Adjustable Voltage Regulator



Notes:

- 1) C1 needed if device is far from filter capacitors
- 2) C2 minimum value required for stability

Package Information



SOT-223

Pin	Function
1	ADJ/GND
2	OUTPUT
3	INPUT

Absolute Maximum Ratings

Symbol	Parameter	Maximum	Units
PD	Power Dissipation	Internally Limited	W
VIN	Input Voltage	7	V
TJ	Operating Junction Temperature Range		
	Control Section	0 to 125	°C
	Power Transistor	0 to 150	
TSTG	Storage Temperature	-65 to 150	°C
TLEAD	Lead Temperature(Soldering, 10 sec)	300	°C

Device Selection Guide

Device	Output Voltage
LM1117-Adj	Adjustable
LM1117-1.5	1.5V
LM1117-1.8	1.8V
LM1117-2.5	2.5V
LM1117-2.85	2.85V
LM1117-3.0	3.0V
LM1117-3.3	3.3V
LM1117-3.5	3.5V
LM1117-5.0	5.0V

Electrical Characteristics @I_{LOAD}=0mA, T_J=25°C, unless otherwise specified

Parameter	Device	Test Conditions	Min	Typ	Max	Units
Reference voltage (Note 1)	Adj Version	V _{IN} =5V, I _{LOAD} =10mA	1.238	1.250	1.262	V
		V _{IN} =2.65V to 7V, I _{LOAD} =10mA to 1A	*	1.225	1.250	
Output Voltage (Note 1)	All fixed version	V _{IN} =V _{OUT} +1.5V Variator from nominal V _{OUT}	-1		+1	%
		V _{IN} =V _{OUT} +1.5V to 7V I _{LOAD} =0mA to 1A Variator from nominal V _{OUT}	*	-2	+2	%
Line Regulation (Note 1)	All	I _{LOAD} =10mA, (V _{OUT} +1.5V) ≤ V ≤ 7V	*	0.04	0.2	%
Load Regulation (Note 1)	All	V _{IN} =V _{OUT} +1.5V, I _{LOAD} =10mA to 1A	*	0.2	0.4	
Minimum Load Current	Adj Version	V _{IN} =5V, V _{ADJ} =0V	*	3	7	mA
Ground Pin Current	All fixed version	V _{IN} =V _{OUT} +1.5V, I _{LOAD} =10mA to 1A	*	7	13	mA
Adjust Pin Current	Adj Version	V _{IN} =2.65V to 7V, I _{LOAD} =10mA	*	55	90	µA

Current Limit	All	$(V_{IN}-V_{OUT})=1.5V$	*	1			A
Ripple Rejection (Note 2)	All	$V_{IN}=V_{OUT}+1.5V, I_{LOAD}=1A$		60	72		dB
Dropout Voltage (Note 1,3)	All	$V_{IN} \geq 2.65V, I_{LOAD}=1A$	*		1.15	1.3	V
Temperature Coefficient	All	$V_{IN}=V_{OUT}=1.5V, I_{LOAD}=10mA$	*		0.005		%/°C

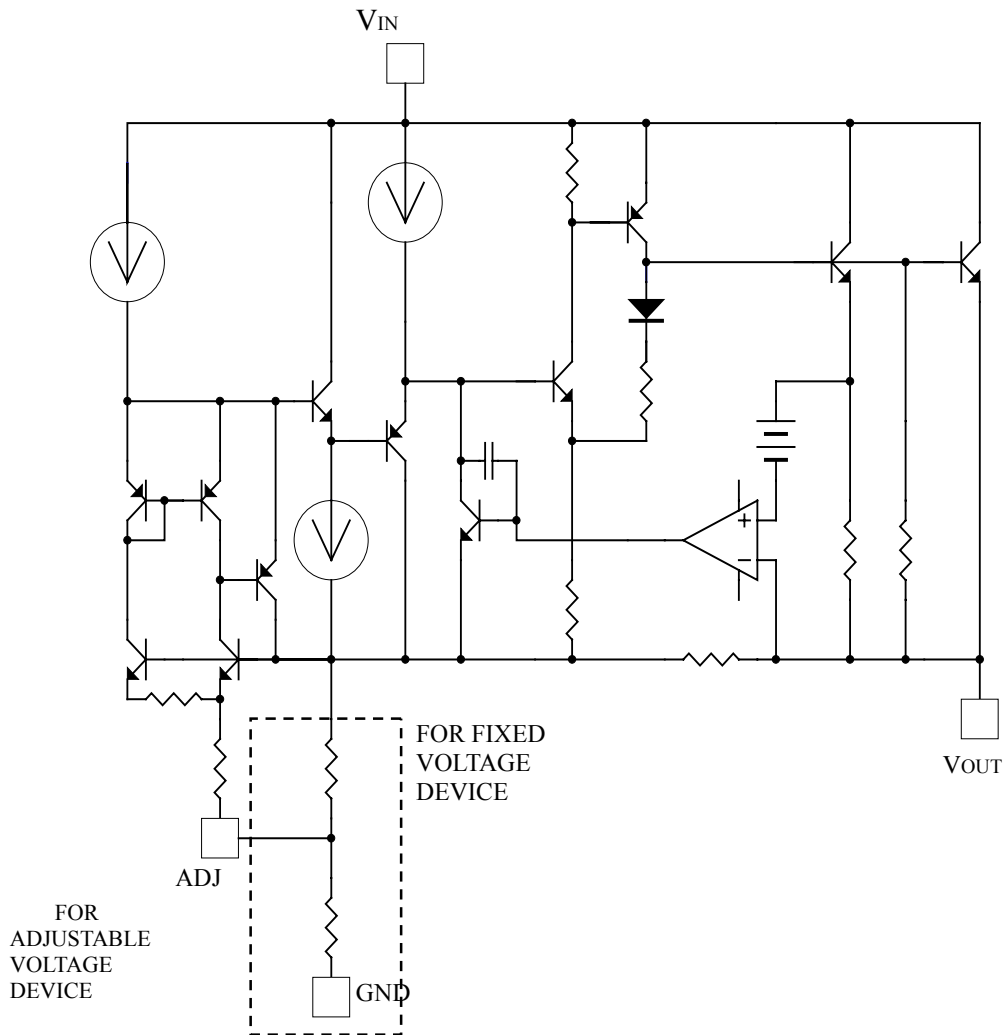
The * denotes the specifications which apply over the full temperature range.

Note 1: Low duty pulse testing with Kelvin connections required.

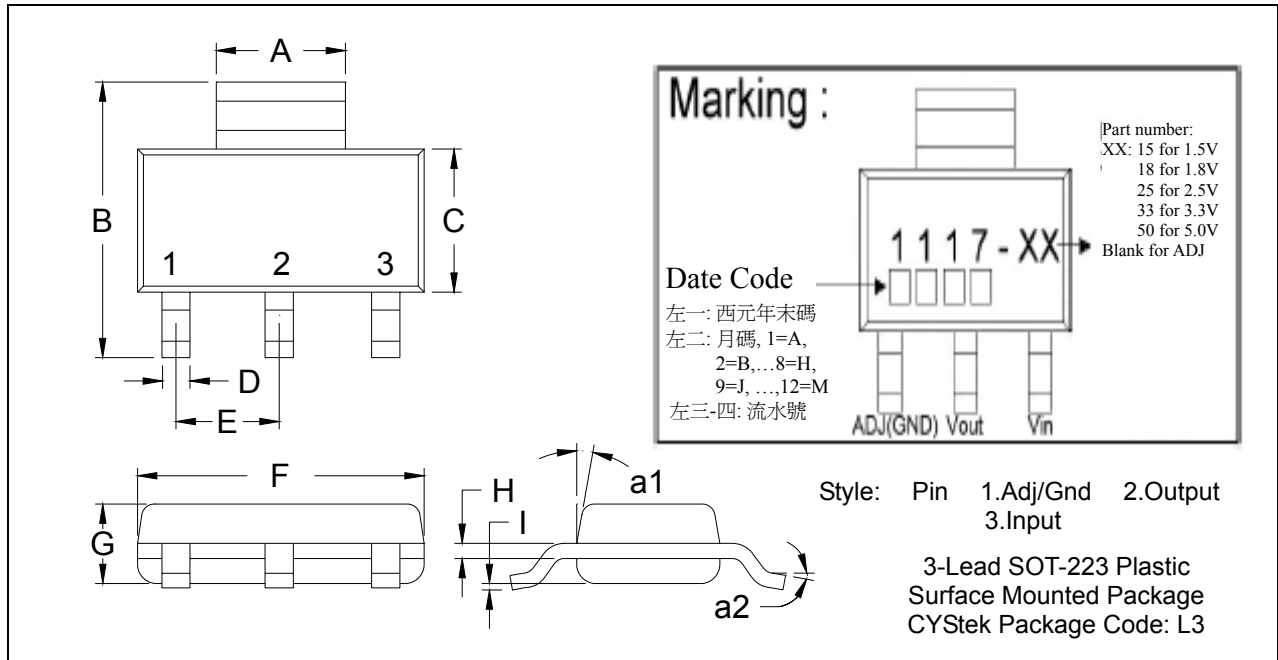
Note 2: 120Hz input ripple (CADJ for ADJ=25 μF)

Note 3: $\Delta V_{OUT}, \Delta V_{REF}=1\%$.

Representative Circuit Diagram



SOT-223 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1142	0.1220	2.90	3.10	G	0.0551	0.0709	1.40	1.80
B	0.2638	0.2874	6.70	7.30	H	0.0098	0.0138	0.25	0.35
C	0.1299	0.1457	3.30	3.70	I	0.0008	0.0039	0.02	0.10
D	0.0236	0.0315	0.60	0.80	a1	*13°	-	*13°	-
E	*0.0906	-	*2.30	-	a2	0°	10°	0°	10°
F	0.2480	0.2638	6.30	6.70					

- Notes: 1.Controlling dimension: millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.