

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

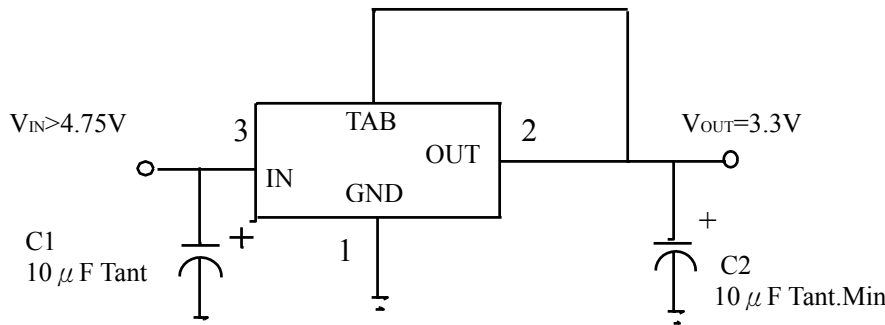
The LM1117 series of positive adjustable and fixed regulators are designed to provide 1A with high efficiency. All internal circuitry is designed to operate down to 1.3V input to output differential. On-chip trimming adjusts the reference voltage to 1%.

Applications

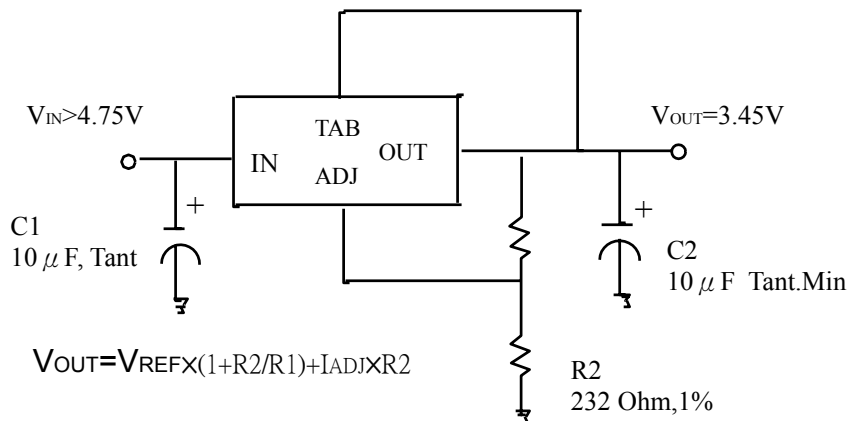
- High Efficiency Linear Regulators
- Post Regulators for Switching Supplies
- Adjustable Power Supply

Typical Application Data

Fixed Voltage Regulator



Adjustable Voltage Regulator

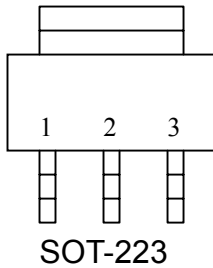


$$V_{OUT} = V_{REF} \times (1 + R_2/R_1) + I_{ADJ} \times R_2$$

Notes:

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

Package Information



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 Power Transistor	0 to 125 0 to 150	°C
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	1.275	
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	$(V_{IN}-V_{OUT}) \geq 1.5V$	*	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

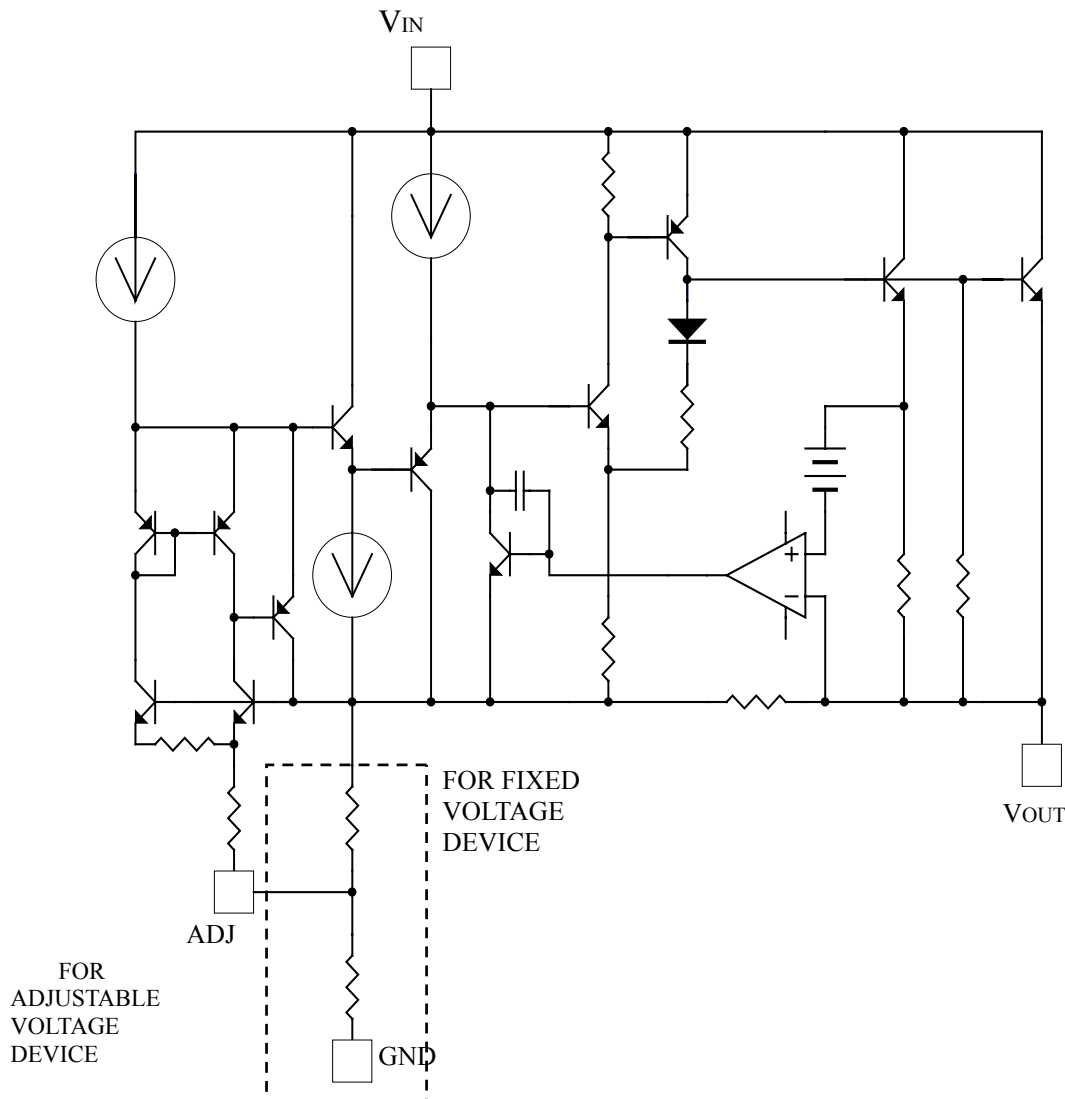
The * denotes the specifications which apply over the full temperature range.

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

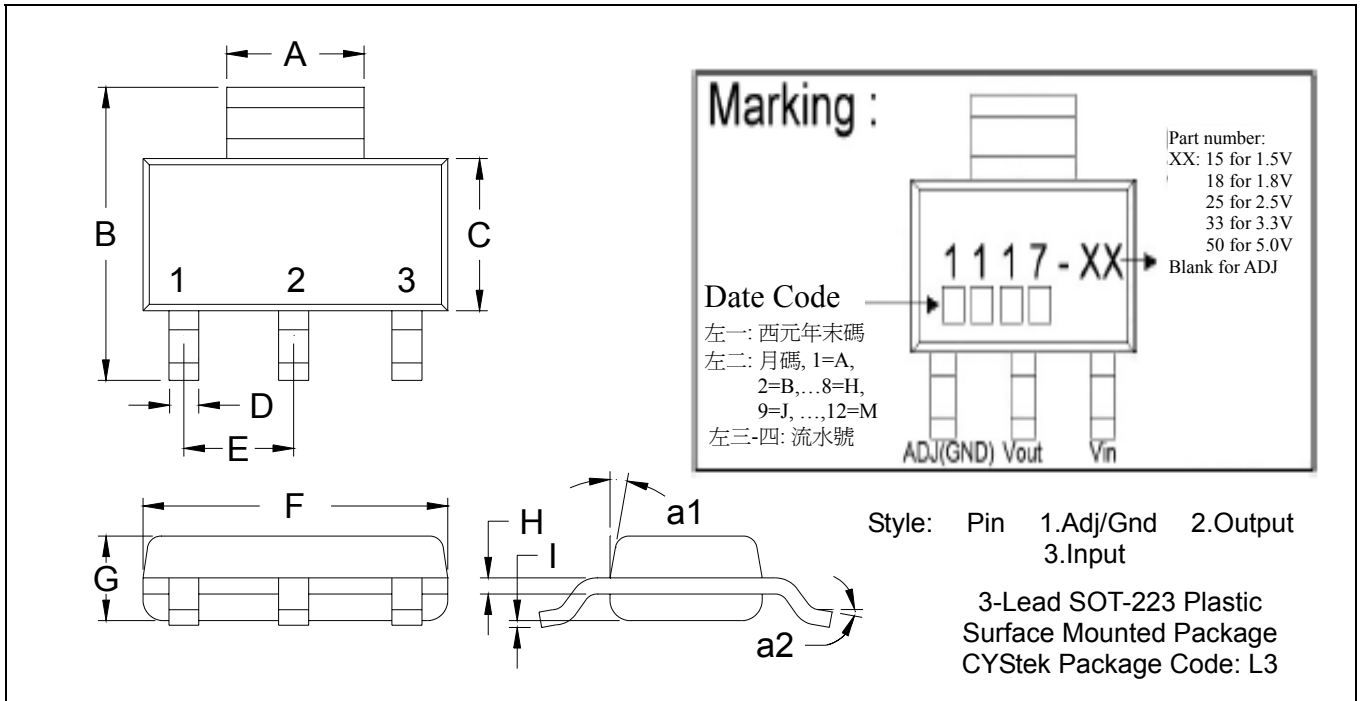
Note 2: 120Hz input ripple (CADJ for ADJ=25 μF)

Note 3: ΔVOUT, ΔVREF=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

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