

Features

- Output Current of 1A Maximum
- Three-Terminal Adjustable or Fixed Outputs
- Maximum Input Voltage: 18V
- Fast Transient Response
- Current Limit, Safe Operating and Thermal Shutdown Protection
- Line Regulation: 0.2%
- Load Regulation: 0.4%
- Environment Temperature: -50°C~+140°C
- Available in SOT223-3

Application

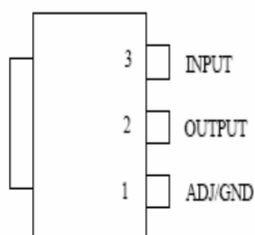
- High Efficiency Linear Regulators
- Post Regulator for Switching DC/DC Converter
- Power Management for M/B and Graphic Card
- 2.85V Model for SCSI-2 Active Termination
- Battery Charger
- LCD Monitor and LCD TV
- DVD Decode Board
- ADSL Modem

Ordering Information

LM1117S-5.0

Output voltage: 1.2=1.2V
1.5=1.5V
1.8=1.8V
2.5=2.5V
3.3=3.3V
5.0=5.0V
ADJ=fixed output

Package and Pin Configuration



Absolute Maximum Ratings

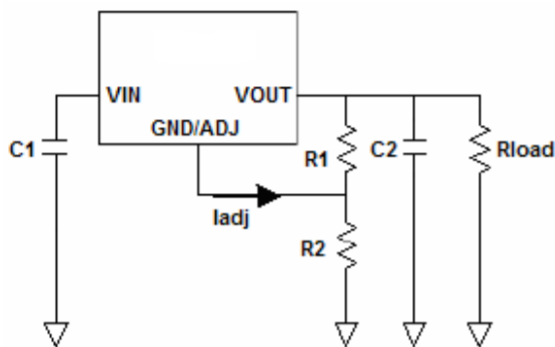
Maximum Input Voltage	18V
Operating Junction Temperature (T _J)	150 °C
Environment Temperature (T _A)	140 °C
Storage Temperature Range (T _S)	-65 °C to 150 °C
Lead Temperature (soldering, 10 seconds)	260 °C

Electrical Characteristics

V_{IN} = V_{OUT} + 2V, I_O = 10mA, and T_J = 25 °C, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V _{REF}	Reference Voltage	I _{OUT} = 10mA, V _{IN} - V _{OUT} = 2V	1.238	1.250	1.262	V
		10mA ≤ I _{OUT} ≤ 1A, 1.5V ≤ V _{IN} - V _{OUT} ≤ 12V	1.225	1.250	1.275	
V _{OUT}	Output Voltage	1.8V I _{OUT} = 10mA, V _{IN} = 3.8V, T _J = 25°C	1.782	1.80	1.818	V
		0 ≤ I _{OUT} ≤ 1A, 3.2V ≤ V _{IN} ≤ 12V	1.764	1.80	1.836	
		2.5V I _{OUT} = 10mA, V _{IN} = 4.5V, T _J = 25°C	2.475	2.50	2.525	
		0 ≤ I _{OUT} ≤ 1A, 3.9V ≤ V _{IN} ≤ 12V	2.450	2.50	2.550	
		3.3V I _{OUT} = 10mA, V _{IN} = 5V, T _J = 25°C	3.267	3.30	3.333	
		0 ≤ I _{OUT} ≤ 1A, 4.75V ≤ V _{IN} ≤ 12V	3.234	3.30	3.366	
ΔV _{OUT}	Line Regulation	5.0V I _{OUT} = 10mA, V _{IN} = 7V, T _J = 25°C	4.95	5.00	5.05	V
		0 ≤ I _{OUT} ≤ 1A, 6.5V ≤ V _{IN} ≤ 12V	4.90	5.00	5.10	
ΔV _{OUT}	Line Regulation	ADJ I _{OUT} = 10mA, 1.5V ≤ V _{IN} - V _{OUT} ≤ 13.775V		0.035	0.2	%
		Fixed I _{OUT} = 10mA, V _{OUT} + 1.5V ≤ V _{IN} ≤ 15V		9	12	mV
ΔV _{OUT}	Load Regulation	ADJ V _{IN} - V _{OUT} = 3V, 10mA ≤ I _{OUT} ≤ 1A		0.2	0.4	%
		Fixed V _{IN} = V _{OUT} + 1.5V, 10mA ≤ I _{OUT} ≤ 1A		3	10	mV
V _{IN} - V _{OUT}	Dropout Voltage	ΔV _{OUT} , ΔV _{REF} = 1%, I _{OUT} = 100mA		1.11	1.20	V
		ΔV _{OUT} , ΔV _{REF} = 1%, I _{OUT} = 500mA		1.18	1.25	V
		ΔV _{OUT} , ΔV _{REF} = 1%, I _{OUT} = 1A		1.26	1.30	V
I _{CL}	Current Limit	V _{IN} - V _{OUT} = 2V, T _J = 25°C	1.25	1.4	1.6	A
Minimum Load Current (Note 1)		Adjustable Version		5	10	mA
I _q	Quiescent Current	Fixed V _{IN} - V _{OUT} = 1.25V		4	8	mA
I _{ADJ}	ADJ Pin Current			55	120	uA
Temperature Stability					0.5	%
θ _{JC}	Thermal Resistor	SOT-223		20		°C/

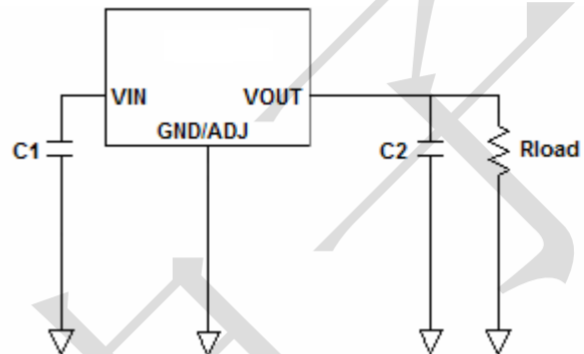
Typical Application



TP1117 adjustable output voltage

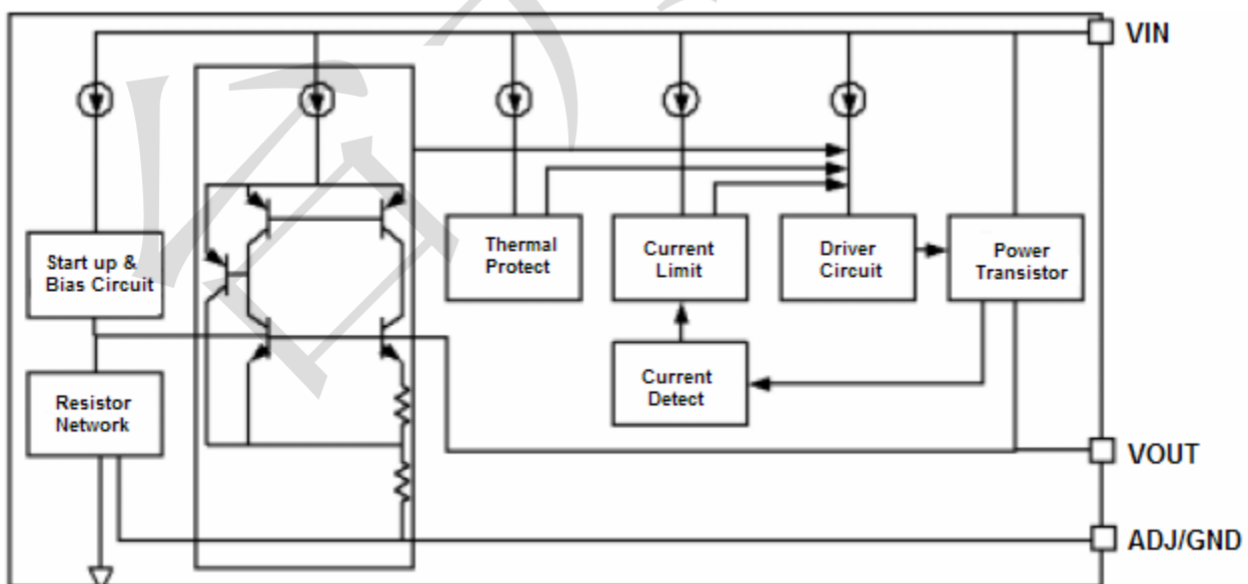
$$V_{OUT} = 1.25V(1 + R2/R1)$$

The TP1117 adjustable regulator provide 1.25V reference voltage. Any output voltage between 1.25V~13.8V can be available by choosing two external resistors.



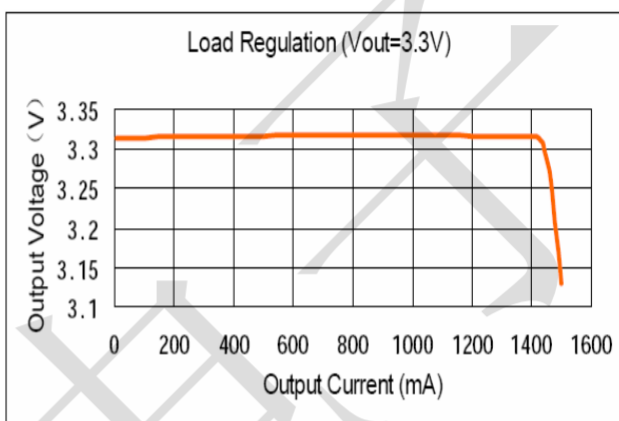
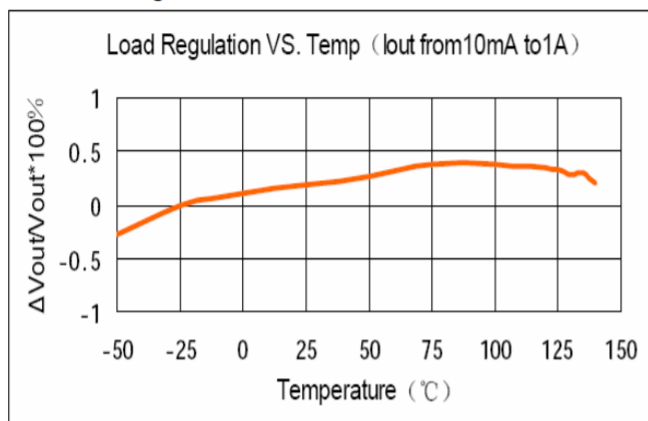
TP1117 fixed output

Block Diagram

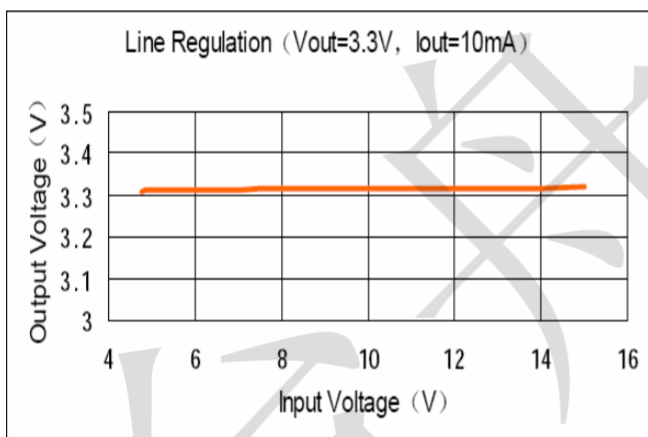


Typical Characteristics

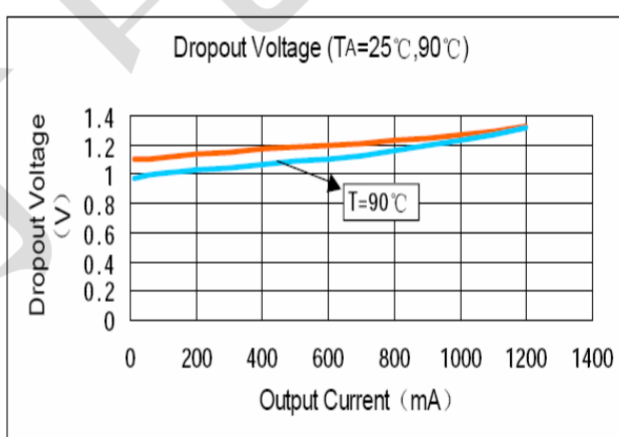
1. Load Regulation



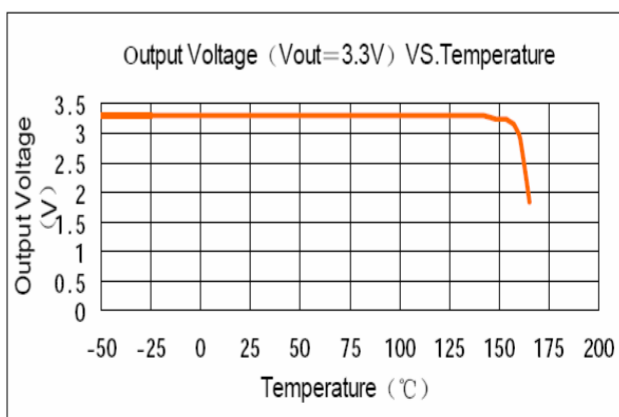
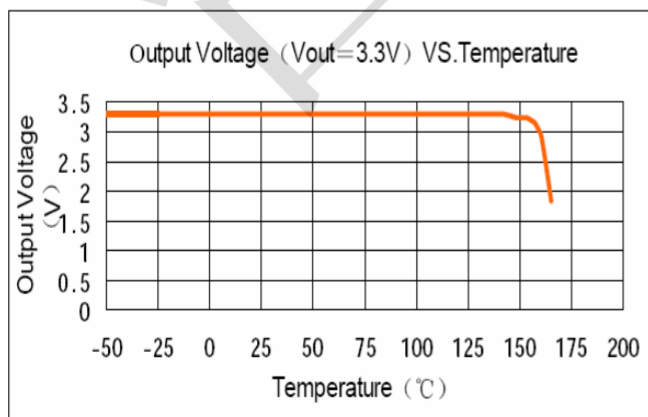
2. Line Regulation



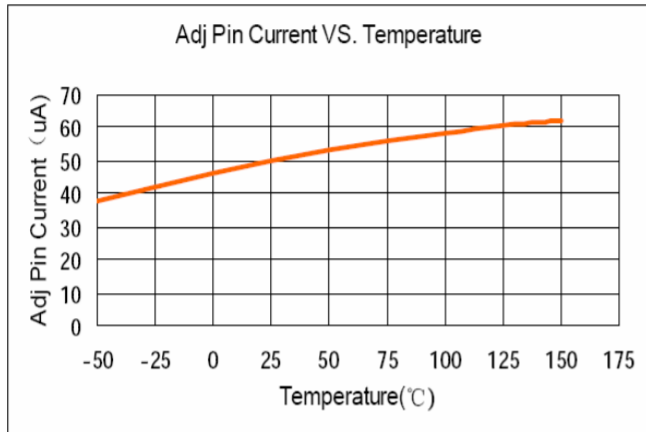
3. Dropout Voltage



4. Temperature Stability

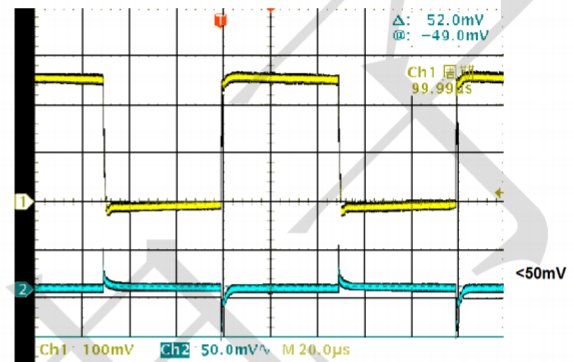


5. ADJ Pin Current vs. Temperature

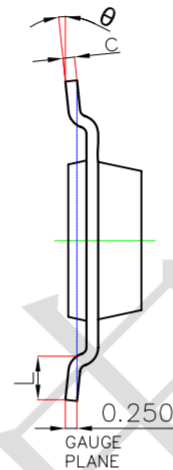
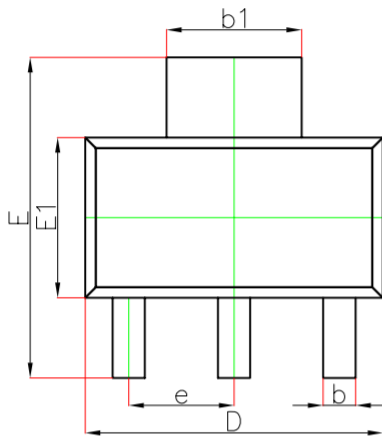


6. Load Transient Response

Load Current Change from 2mA to 500mA



SOT223 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	—	1.800	—	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	—	0.030	—
θ	0°	10°	0°	10°