

IL1117-x

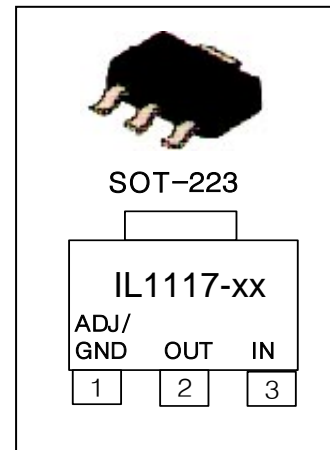
1.0A Low Dropout Positive Voltage Regulator

Features

- Adjustable and Fixed of 1.2, 1.25, 1.5, 1.8, 2.5, 2.85, 3.3, 5.0V
- Space saving SMD types of SOT-223
- 1.2V Drop-out Voltage
- 1.0A Output Current
- Line Regulation Typically at 0.2% max
- Current Limiting and Thermal Protection

General Description

The IL1117 is a series of low dropout voltage regulators which can provide up to 1A of output current. The IL1117 is available in seven fixed voltage, 1.2, 1.25, 1.5, 1.8, 2.5, 2.85, 3.3 and 5.0V. Additionally it is also available in adjustable version. On chip precision trimming adjusts the reference/output voltage to within $\pm 2\%$. Current limit is also trimmed to ensure specified output current and controlled short-circuit current. The IL1117 series is available in SOT-223 packages. A minimum of 10uF tantalum capacitor is required at the output to improve the transient response and stability.



Applications

- Post Regulator for switching DC/DC Converter
- High Efficiency Linear Regulator
- Battery Chargers
- PC Add on Card
- Motherboard clock supplies
- LCD Monitor
- Set-top Box

Absolute Maximum Ratings

- Maximum Input Voltage ~ 15.0V
- Operating Junction Temperature Range -25°C ~ 125°C
- Storage Temperature Range -50°C ~ 150°C

Electrical Characteristics

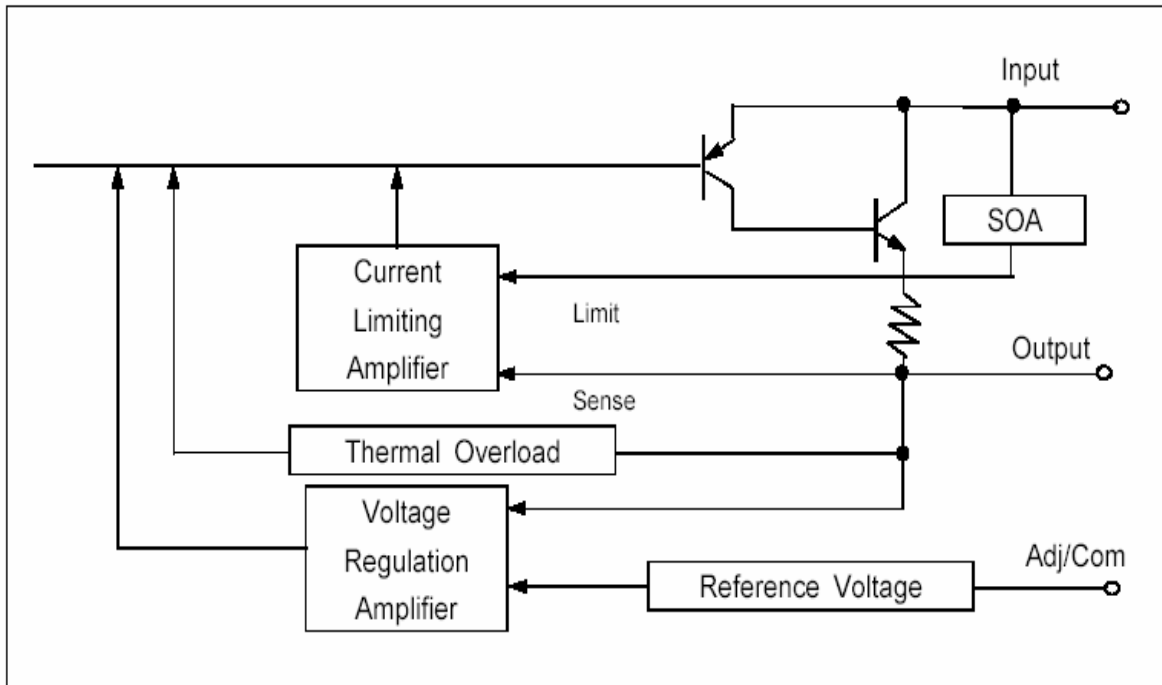
(Vin = 5V, Co = 10uF, Ta = 25°C, unless otherwise specified)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
OUTPUT VOLTAGE	Tj = -25°C to +125°C				
IL1117-1.2	Io=10mA to 1.0A, Vin=1.5 to 12.0V	1.176	1.200	1.224	V
IL1117-1.25 (Adjustable)	Io=10mA to 1.0A, Vin=1.5 to 12.0V	1.225	1.250	1.280	
IL1117-1.5	Io=10mA to 1.0A, Vin=3.0 to 12.0V	1.470	1.500	1.530	
IL1117-1.8	Io=10mA to 1.0A, Vin=3.3 to 12.0V	1.764	1.800	1.836	
IL1117-2.5	Io=10mA to 1.0A, Vin=4.0 to 12.0V	2.450	2.500	2.550	
IL1117-2.85	Io=10mA to 1.0A, Vin=4.4 to 12.0V	2.790	2.850	2.910	
IL1117-3.3	Io=10mA to 1.0A, Vin=4.8 to 12.0V	3.240	3.300	3.360	
IL1117-5.0	Io=10mA to 1.0A, Vin=6.5 to 15.0V	4.900	5.000	5.100	
LINE REGULATION					
IL1117-1.2	Io=10mA to 1.0A, Vin = 1.5 to 12.0V		0.1	0.2	%
IL1117-1.25 (Adjustable)	Io=10mA to 1.0A, Vin = 1.5 to 12.0V		2.0	7.0	mV
IL1117-1.5	Io=10mA to 1.0A, Vin = 3.0 to 12.0V		2.0	7.0	mV
IL1117-1.8	Io=10mA to 1.0A, Vin = 3.3 to 12.0V		2.0	7.0	mV
IL1117-2.5	Io=10mA to 1.0A, Vin = 4.0 to 12.0V		2.0	7.0	mV
IL1117-2.85	Io=10mA to 1.0A, Vin = 4.4 to 12.0V		2.0	7.0	mV
IL1117-3.3	Io=10mA to 1.0A, Vin = 4.8 to 12.0V		3.0	7.0	mV
IL1117-5.0	Io=10mA to 1.0A, Vin = 6.5 to 15.0V		4.0	10.0	mV
LOAD REGULATION					
IL1117-1.2	Io=10mA to 1.0A, Vin = 2.0V		0.2	0.4	%
IL1117-1.25 (Adjustable)	Io=10mA to 1.0A, Vin = 2.0V		3.0	10.0	mV
IL1117-1.5	Io=10mA to 1.0A, Vin = 3.5V		3.0	10.0	mV
IL1117-1.8	Io=10mA to 1.0A, Vin = 3.8V		3.0	10.0	mV
IL1117-2.5	Io=10mA to 1.0A, Vin = 4.5V		3.0	10.0	mV
IL1117-2.85	Io=10mA to 1.0A, Vin = 4.85V		3.0	10.0	mV
IL1117-3.3	Io=10mA to 1.0A, Vin = 5.3V		4.0	12.0	mV
IL1117-5.0	Io=10mA to 1.0A, Vin = 7.0V		5.0	15.0	mV
DROPOUT VOLTAGE (2)					
All Models	Io = 800mA		1.10	1.20	V
	Io=1A		1.20	1.30	
	Io=1A (Tj = -25°C to +125°C.)		1.20	1.55	
CURRENT LIMIT	Vin = 5V	1000	1250	1600	mA
MINIMUM LOAD CURRENT					
Adjustable Models	Vin = 13.75V			5	mA
QUIESCENT CURRENT	Vin = 5V		5.2	10	mA
Adjust Pin Current vs Load Current, IL1117	Io = 10mA, Vin = 1.4 to 10V		50	120	uA
	Io = 10mA to 1A, Vin = 1.4 to 10V		0.5	5	uA
TEMPERATURE DRIFT	Tj= -25°C to +125°C		0.5		%
RMS Output Noise	Bandwidth of 10Hz to 10kHz at 25°C		0.003		% Vo
Ripple Rejection Ratio	120Hz input Ripple(Cadj for ADJ)=25uF Vin -Vo = 5V, Io = 1.0A Tj= -25°C to +125°C	60	72		dB

NOTES: (1) IL1117-x adjustable versions require a minimum load current for ±3% regulation.

(2) Dropout voltage is the input voltage minus output voltage that produces a 1% decrease in output voltage.

Block Diagram



Application Information

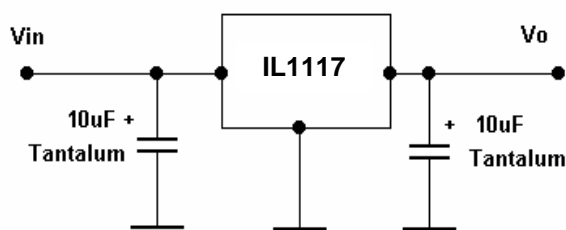


FIGURE 1. Fixed-Voltage Model
—Basic Connections.

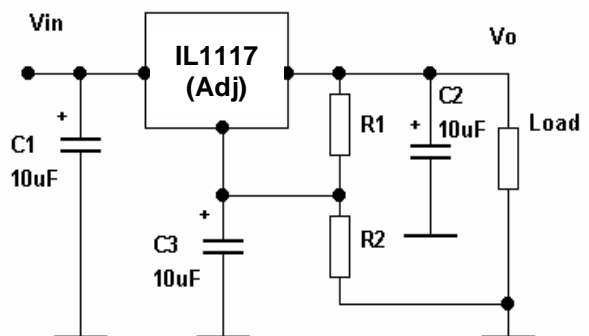
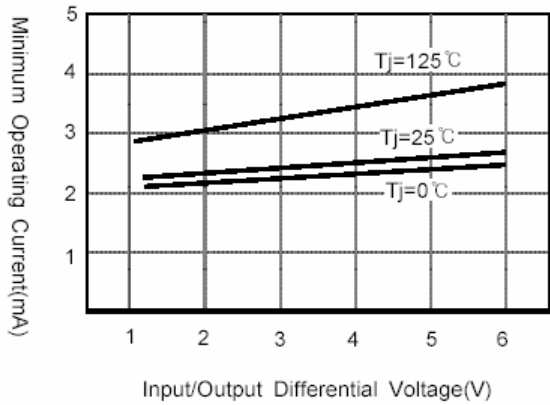


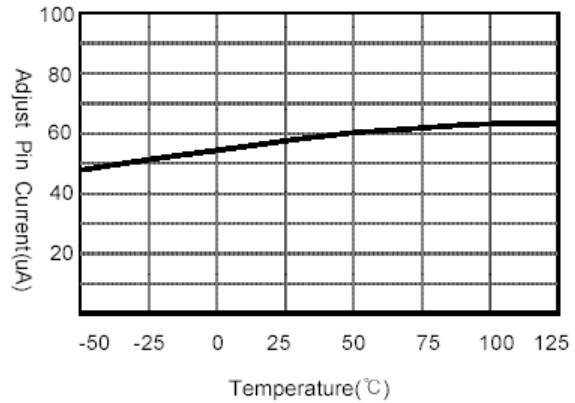
FIGURE 2. Adjustable-Voltage Model
--Basic Connections.

TYPICAL PERFORMANCE CHARACTERISTICS

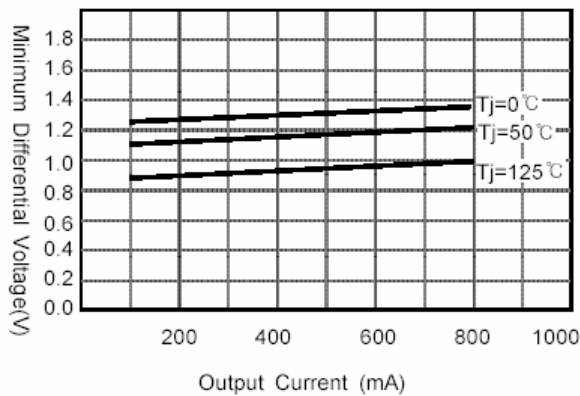
Minimum Load Current(Adjustable)



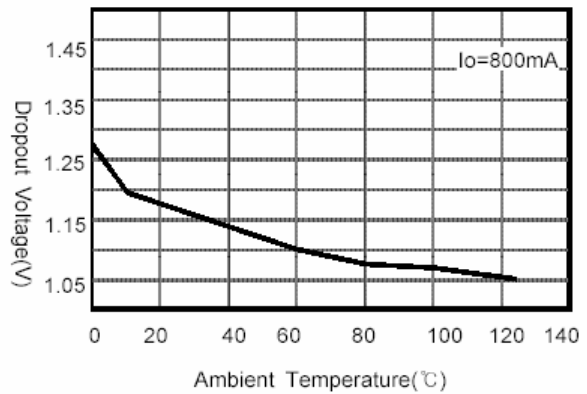
Adjust Pin Current



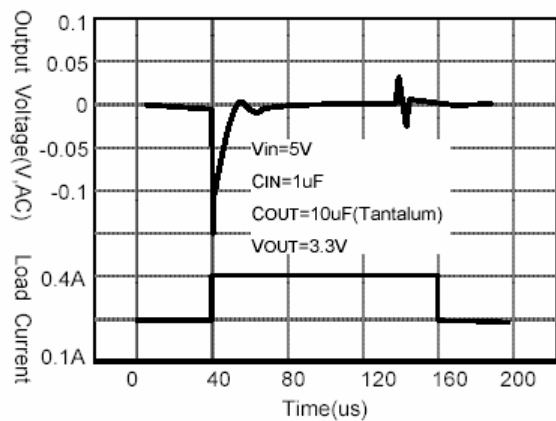
Dropout Voltage



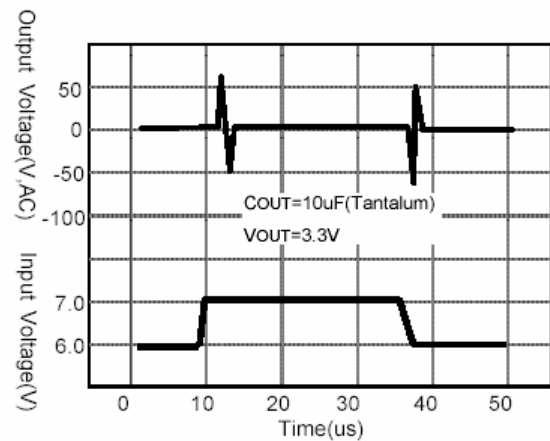
Dropout Voltage - Temperature



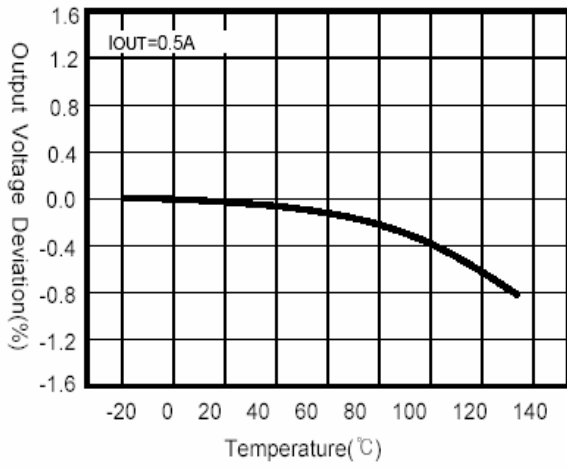
Load Transient Response



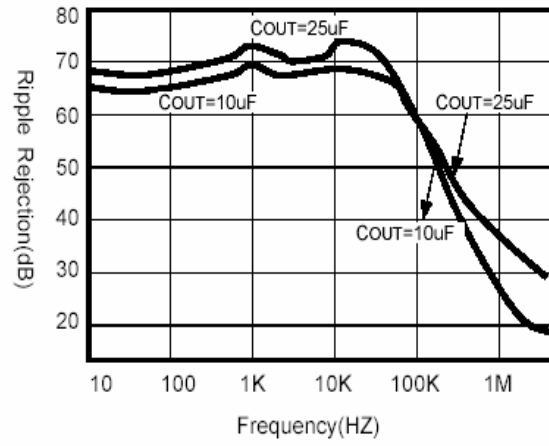
Line Transient Response



Temperature Stability



Ripple Rejection(with C_{adj} 25uF)



SOT-223

