



# 1A Low Dropout Linear Regulator

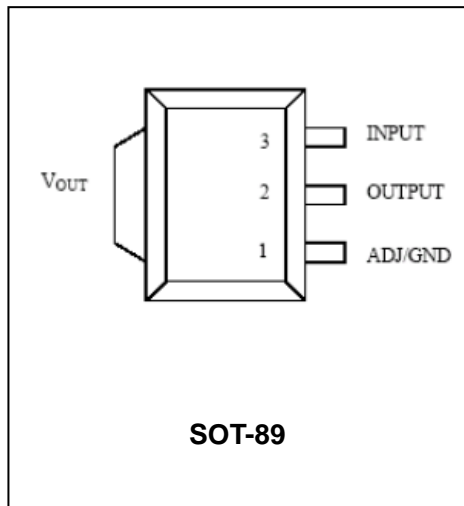
# A1117

## FEATURES

- Low Dropout Voltage: 1.15V at 1A Output Current.
- Trimmed Current Limit.
- On-Chip Thermal Shutdown.
- Three-Terminal Adjustable or Fixed 1.5V, 1.8V, 2.5V, 3.3V, 5V.
- Operation junction Temperature: 0 °C to 125°C.



Lead-free



## APPLICATIONS

- PC Motherboard/Telecom modem.
- LCD monitor.
- Graphic card/ADSL Modem.
- DVD-Video player.
- NIC/Switch/Printer and other peripheral equipment.

## ORDERING INFORMATION

Type No.	Marking	Package Code
A1117-ADJ	A1117-ADJ	SOT-89
A1117-1.5	A1117-1.5	SOT-89
A1117-1.8	A1117-1.8	SOT-89
A1117-2.5	A1117-2.5	SOT-89
A1117-3.3	A1117-3.3	SOT-89
A1117-5.0	A1117-5.0	SOT-89

## MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V <sub>IN</sub>	Input voltage	20	V
T <sub>J</sub>	Maximum Junction Temperature	150	°C
P <sub>D</sub>	Power dissipation	500	mW
T <sub>L</sub>	Lead temperature(Soldering,10sec)	300	°C
ESD	Machine model	600	V
T <sub>stg</sub>	Storage temperature range	-65 to +150	°C



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## RECOMMENDED OPERATING CONDITIONS

Parameter	Min	Max	Unit
$V_{IN}$		15	V
Operating junction Temperature	0	125	°C

NOTE: A1117-XX(Fixed output voltage) ADJ:Adjustable output.

## ELECTRICAL CHARACTERISTICS ( $V_{IN} \leq 10V, T_j = 25^\circ C$ unless otherwise specified)

Parameter	Test conditions	MIN	TYP	MAX	UNIT
Reference voltage	A1117-ADJ $I_{OUT} = 10mA, V_{IN} - V_{OUT} = 2V$	1.238	1.250	1.262	V
	$10mA \leq I_{OUT} \leq 1A, 1.4V \leq V_{IN} - V_{OUT} \leq 8V$ $P \leq$ Maximum power dissipation	1.225	1.250	1.270	
Output voltage	A1117-1.5 $I_{OUT} = 10mA, V_{IN} = 3.5V$	1.485	1.5	1.515	V
	$10mA \leq I_{OUT} \leq 1A, 3.0V \leq V_{IN} \leq 10V$	1.470	1.5	1.530	
	A1117-1.8 $I_{OUT} = 10mA, V_{IN} = 3.8V$	1.782	1.8	1.818	V
	$10mA \leq I_{OUT} \leq 1A, 3.2V \leq V_{IN} \leq 10V$	1.746	1.8	1.854	
	A1117-2.5 $I_{OUT} = 10mA, V_{IN} = 4.5V$	2.475	2.5	2.525	V
$10mA \leq I_{OUT} \leq 1A, 3.9V \leq V_{IN} \leq 10V$	2.450	2.5	2.550		
Line regulation	A1117-ADJ $I_{OUT} = 10mA, 1.5V \leq V_{IN} - V_{OUT} \leq 10V$		0.035	0.2	%
	A1117-ADJ $I_{OUT} = 10mA, 1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	6	mV
Line regulation	A1117-1.5 $I_{OUT} = 10mA, 1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	6	mV
	A1117-1.8 $I_{OUT} = 10mA, 1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	6	mV
	A1117-2.5 $I_{OUT} = 10mA, 1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	6	mV
	A1117-3.3 $I_{OUT} = 10mA, 1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	6	mV
	A1117-5.0 $I_{OUT} = 10mA, 1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	10	mV



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Parameter	Test conditions	MIN	TYP	MAX	UNIT
Line regulation	A1117-ADJ $V_{IN}-V_{OUT}=2V, 10mA \leq I_{OUT} \leq 1A$		0.2	0.4	%
	A1117-1.5 $V_{IN}-V_{OUT}=2V, 10mA \leq I_{OUT} \leq 1A$		1	10	mV
	A1117-1.8 $V_{IN}-V_{OUT}=2V, 10mA \leq I_{OUT} \leq 1A$		1	10	mV
	A1117-2.5 $V_{IN}-V_{OUT}=2V, 10mA \leq I_{OUT} \leq 1A$		1	10	mV
	A1117-3.3 $V_{IN}-V_{OUT}=2V, 10mA \leq I_{OUT} \leq 1A$		1	10	mV
	A1117-5.0 $V_{IN}-V_{OUT}=2V, 10mA \leq I_{OUT} \leq 1A$		1	15	mV
Dropout voltage	$\Delta V_{REF}=1\%, I_{OUT}=0.1A$		1.00	1.1	V
	$\Delta V_{REF}=1\%, I_{OUT}=0.5A$		1.08	1.18	V
	$\Delta V_{REF}=1\%, I_{OUT}=0.1A$		1.15	1.25	V
Current limit	$V_{IN}-V_{OUT}=2V$	1.25	1.35		A
Adjust pin current			60	120	$\mu A$
Adjust pin current chang	$1.4V \leq V_{IN}-V_{OUT} \leq 10V, 10mA \leq I_{OUT} \leq 1A$		0.2	5	$\mu A$
Minmum Load current(ADJ)	$1.5V \leq V_{IN}-V_{OUT} \leq 10V$ (ADJ only)		1.7	5	mA
Quiescent rejection	$f=120Hz, C_{OUT}=22\mu F$ Tantalum $V_{IN}-V_{OUT}=3V, I_{OUT}=1A$	60	75		dB
Temperature stability			0.5		%
Long-term stability	$T_A=125^\circ C, 1000hrs$		0.3		%
RMS output noise (%of VOUT)	$T_A=25^\circ C, 10Hz \leq f \leq 10KHz$		0.003		%
Thermal shutdown	Junction temperature		150		$^\circ C$
Thermal shutdown hysteresis			25		$^\circ C$

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TYPICAL CHARACTERISTICS @  $T_a=25^\circ\text{C}$  unless otherwise specified

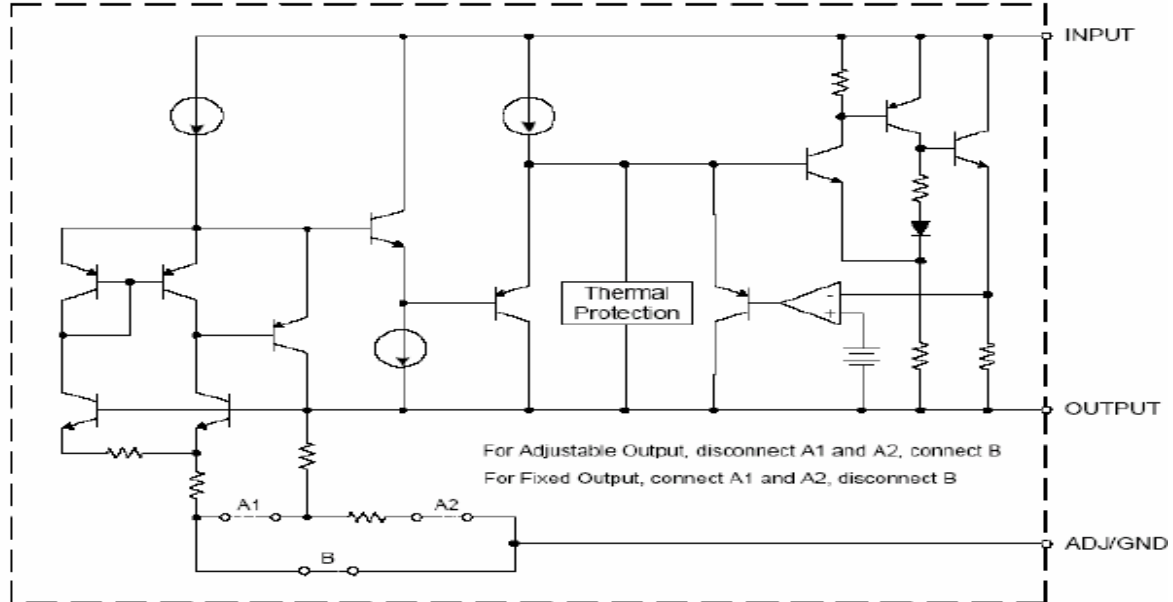


Figure 1. Functional Block Diagram of A1117

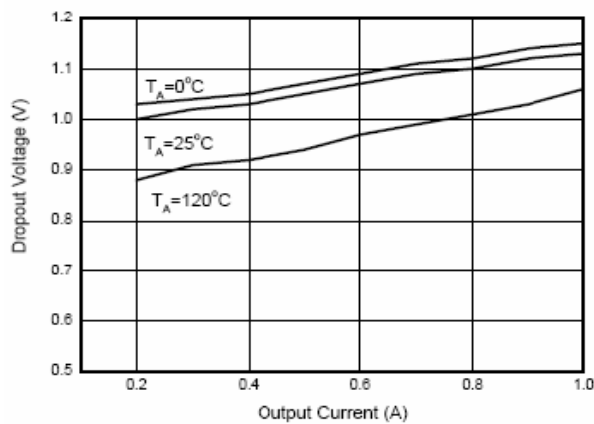


Figure 2. Dropout Voltage vs. Output Current

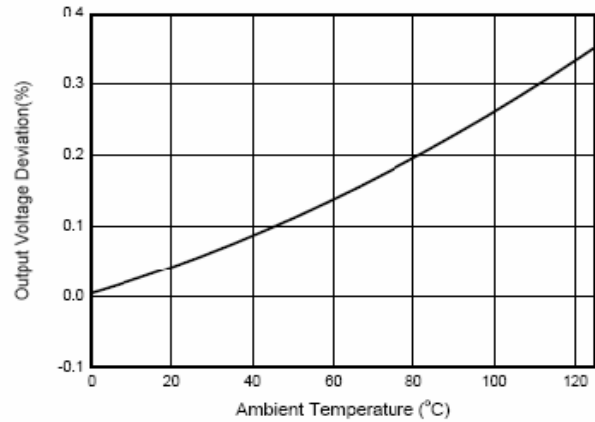


Figure 3. Load Regulation vs. Temperature

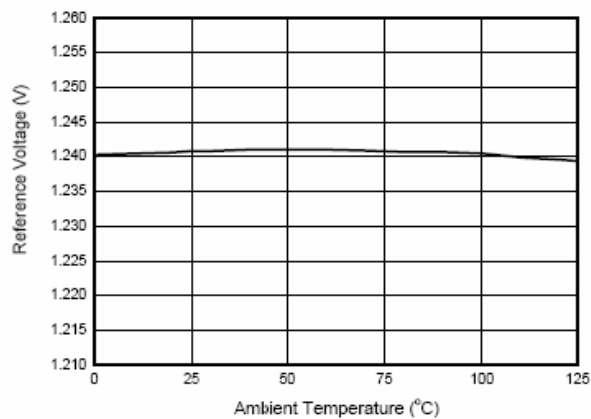


Figure 4. Reference Voltage vs. Temperature

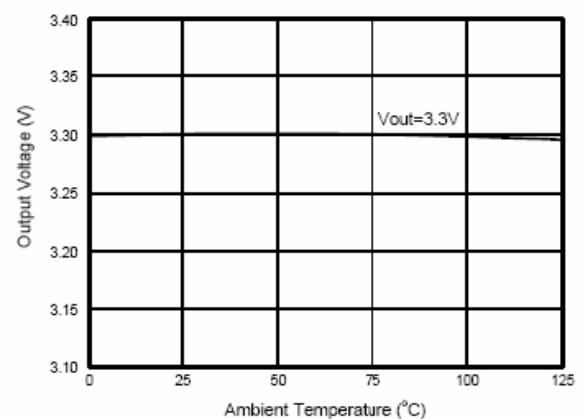


Figure 5. Output Voltage vs. Temperature

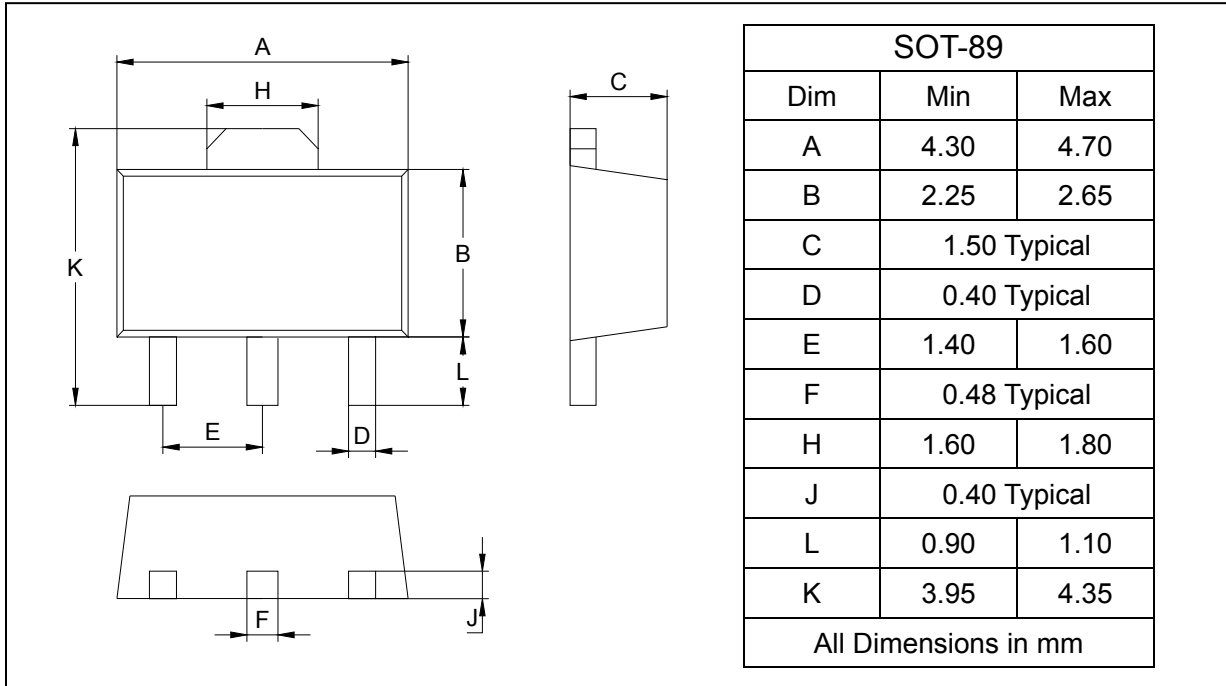
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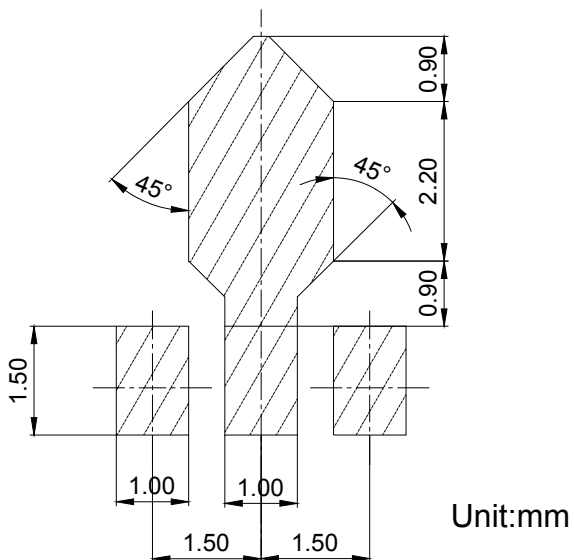
## PACKAGE OUTLINE

Plastic surface mounted package

SOT-89



## SOLDERING FOOTPRINT



## PACKAGE INFORMATION

Device	Package	Shipping
A1117-XX	SOT-89	1000/Tape&Reel