

AMS1117-3.3

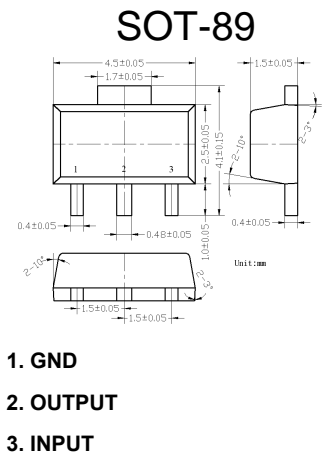
1A Low Dropout Linear Regulator

Features

- Low Dropout Voltage: 1.15V at 1A Output Current
- Trimmed Current Limit
- On-Chip Thermal Shutdown
- Three-Terminal Fixed 3.3V
- Operation junction Temperature: 0°C to 125°C

Application

- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD-Video player
- NIC/Switch
- Telecom Modem
- ADSL Modem
- Printer and other peripheral Equipment



Absolute Maximum Ratings ¹⁾

Parameter	Value	Unit
V _{IN}	20	V
Maximum Junction Temperature	150	°C
Storage Temperature Range	-65 to 150	°C
Lead Temperature (Soldering, 10sec.)	300	°C
ESD (Machine Model)	600	V

Note 1: Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

Recommended Operating Conditions

Parameter	Min	Max	Unit
V _{IN}		15	V
Operating Junction Temperature Range	0	125	°C

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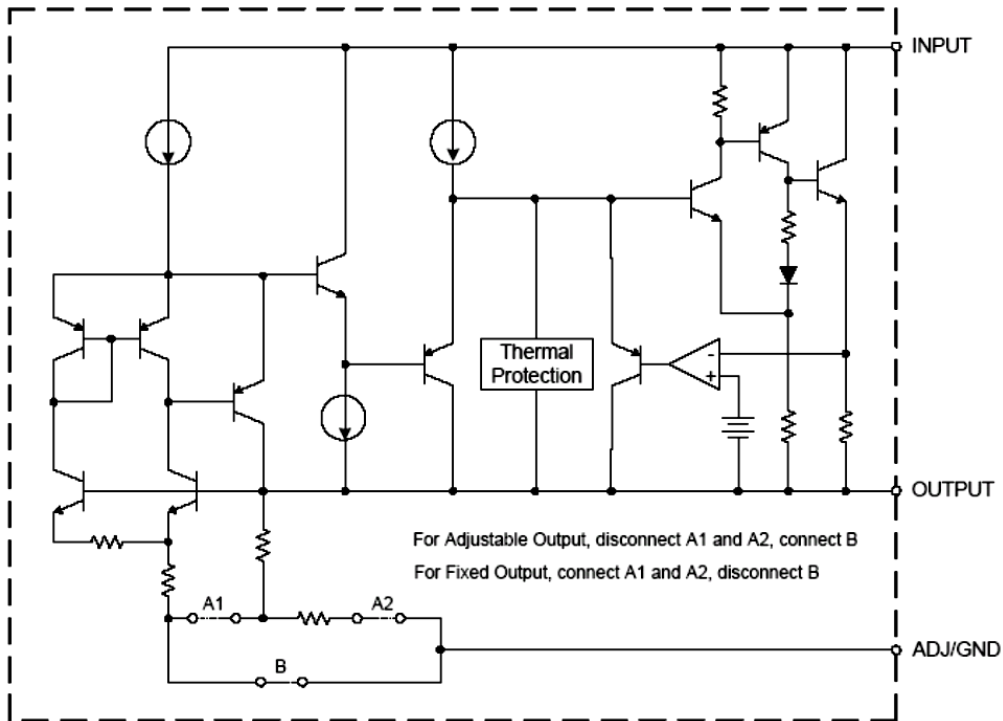
Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = 25^\circ C$ unless otherwise specified)

Parameter	Conditions	Min	Typ	Max	unit
Output Voltage	$I_{OUT} = 10mA$, $V_{IN} = 5.0V$	3.267	3.3	3.333	V
	$10mA \leq I_{OUT} \leq 1A$, $4.75V \leq V_{IN} \leq 10V$	3.235	3.3	3.365	
Line Regulation	$I_{OUT} = 10mA$, $1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	6	mV
Load Regulation	$V_{IN} - V_{OUT} = 2V$, $10mA \leq I_{OUT} \leq 1A$		1	10	mV
Dropout Voltage	$\Delta V_{REF} = 1\%$, $I_{OUT} = 0.1A$		1.00	1.10	V
	$\Delta V_{REF} = 1\%$, $I_{OUT} = 0.5A$		1.08	1.18	
	$\Delta V_{REF} = 1\%$, $I_{OUT} = 1.0A$		1.15	1.25	
Current Limit	$V_{IN} - V_{OUT} = 2V$	1.25	1.35		A
Adjust Pin Current			60	120	μA
Adjust Pin Current Change	$1.4V \leq V_{IN} - V_{OUT} \leq 10V$, $10mA \leq I_{OUT} \leq 1A$		0.2	5	μA
Quiescent Current	$V_{IN} = V_{OUT} + 1.25V$		5	10	mA
Ripple 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 V_{OUT})	$T_A = 25^\circ C$, $10Hz \leq f \leq 10KHz$		0.003		%
Thermal Resistance, Junction to Case *			25		$^\circ C/W$
Thermal Shutdown	Junction Temperature		150		$^\circ C$
Thermal Shutdown Hysteresis			25		$^\circ C$

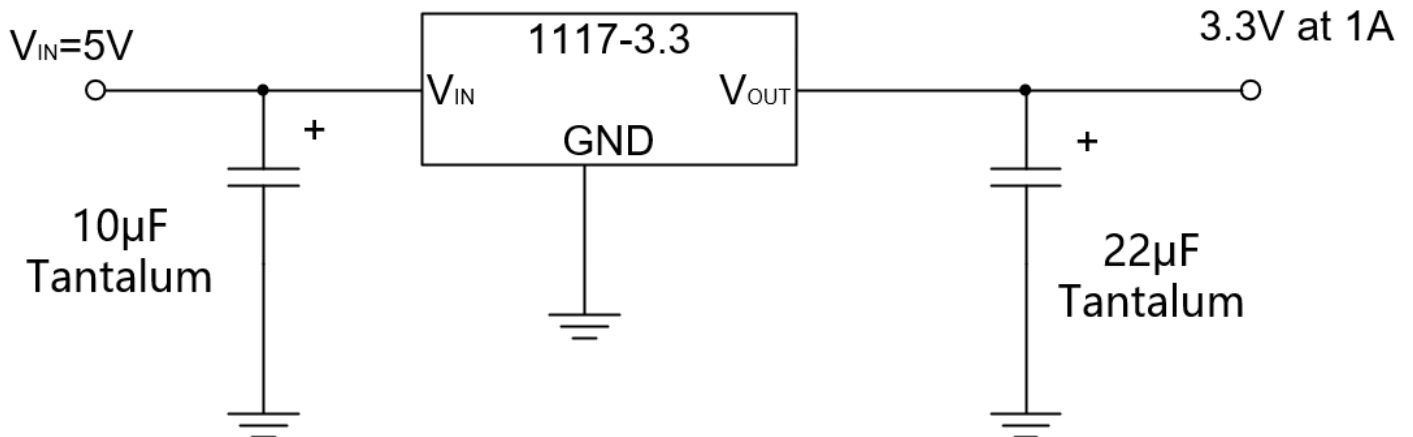
* With package soldering to copper area over backside ground plane or internal power plane RQJA can vary from $46^\circ C/W$ to $>90^\circ C/W$ depending on mounting technique and the size of the copper area.

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Functional Block Diagram



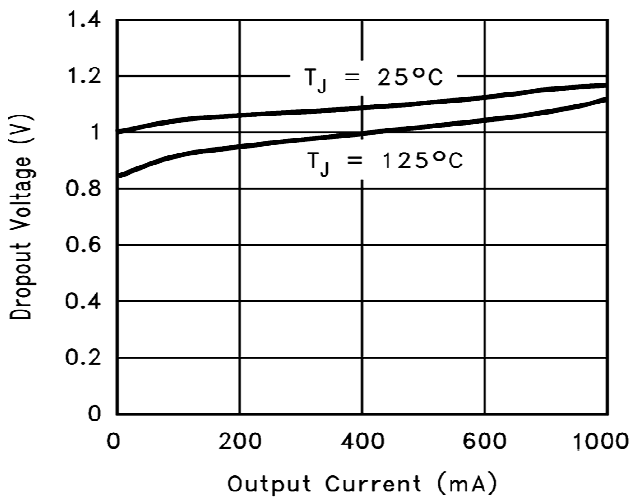
Typical Applications



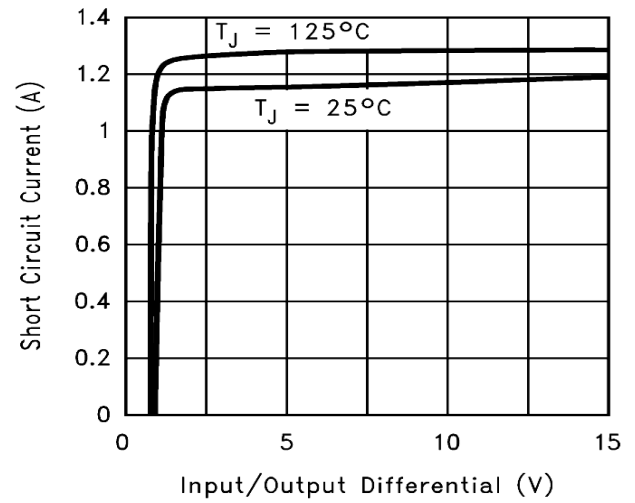
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Typical Characteristics

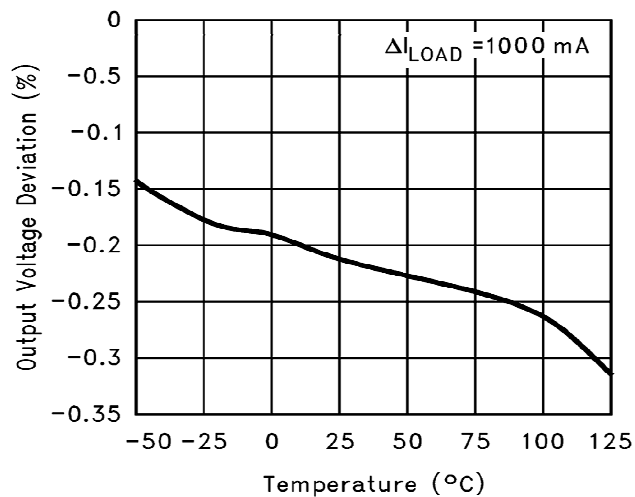
Dropout Voltage ($V_{IN}-V_{OUT}$)



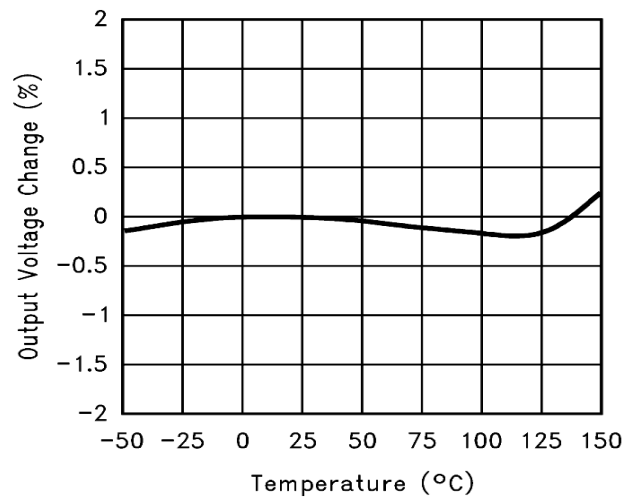
Short-Circuit Current



Load Regulation



Temperature Stability



Adjust Pin Current

