



0.8A Adjustable/Fixed Low Dropout Linear Regulator

General Description

The AMS1117-ADJ and AMS1117-1.2,-1.5,-1.8,-1.9,-2.5,-3.3 and-5.0 are low dropout three-terminal regulators with 0.8A output current capability. These devices have been optimized for low voltage where transient response and minimum input voltage are critical.

On-chip thermal limiting provides protection against any combination of overload and ambient temperatures that would create excessive junction temperatures.

The AMS1117 series regulators are available in the industry-standard SOT-89 packages.

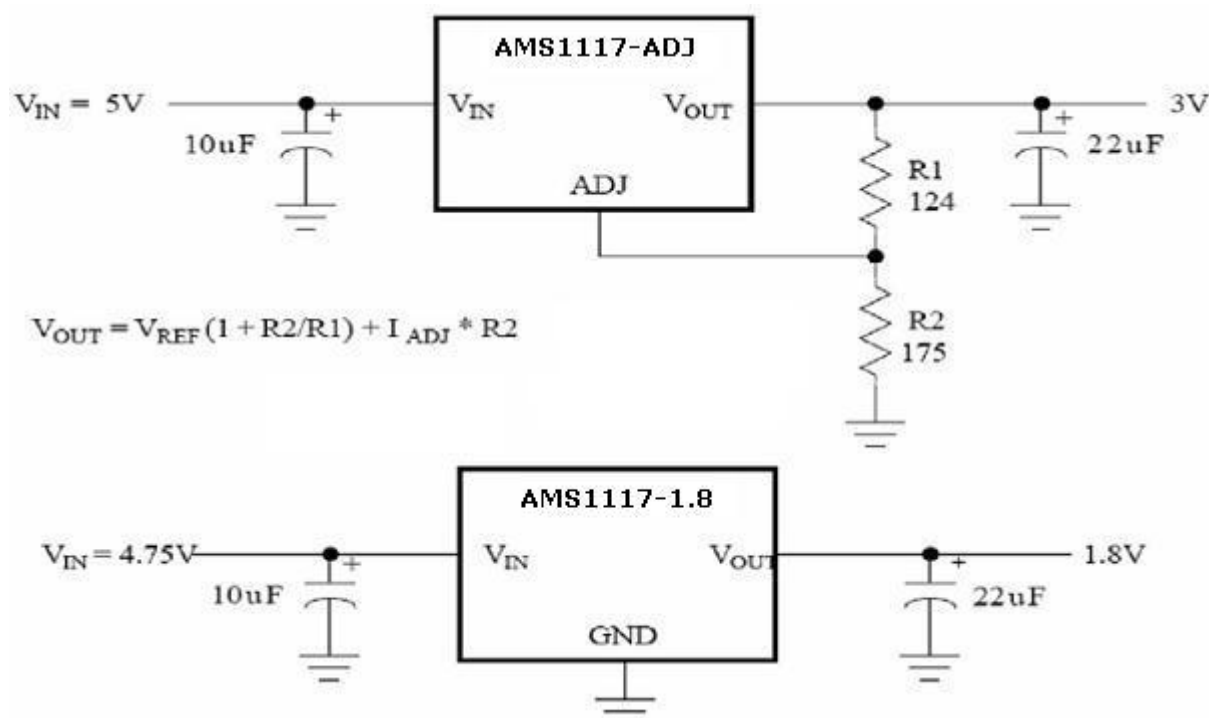
Key Features

- Low dropout voltage
- Load regulation: 0.2% typical
- Optimized for Low Voltage
- On-chip thermal limiting
- Standard SOT-89 packages
- Three-terminal adjustable or fixed low dropout 1.2V,1.5V,1.8V, 1.9V, 2.5V, 3.3V, 5V. Regulators

Applications

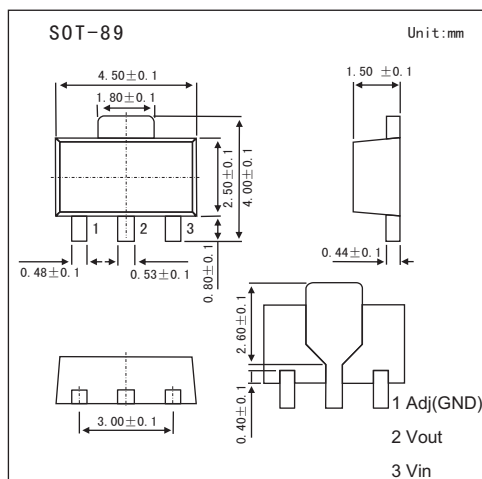
- High efficiency linear regulators
- Post regulators for switching supplies
- Battery chargers
- 12V to 5V linear regulators
- Motherboard clock supplies

Typical Application



Typical Applications of AMS1117

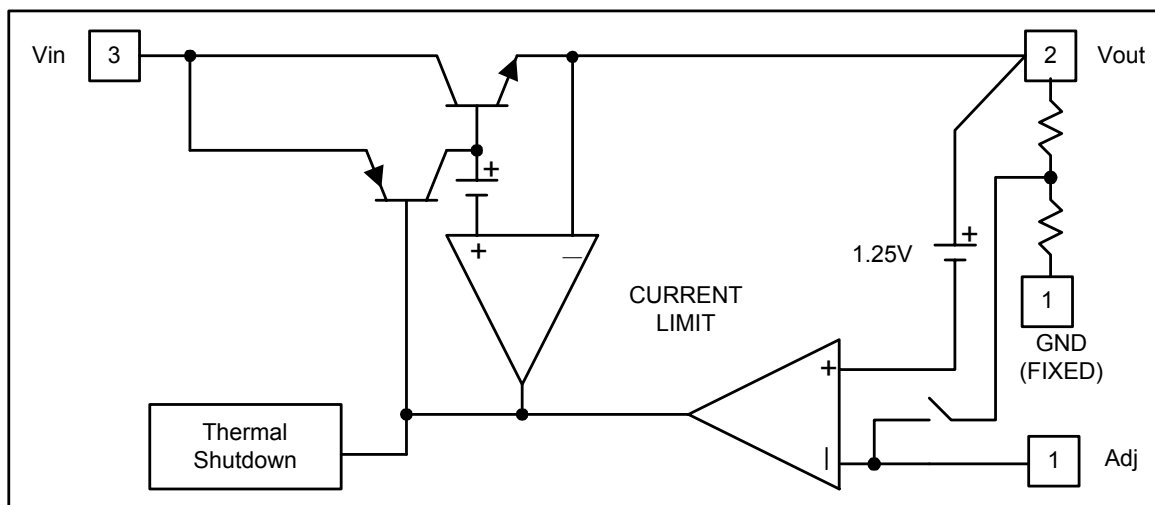
Notice: The distance between Vout pin and Capacitor should not exceed 4cm for excellent performance



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Maximum Input Voltage	V_{in}	18	V
Power Dissipation	P_D	Internally Limited	
Operating Junction Temperature Range	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{ST}	-65 to +150	$^\circ\text{C}$

■ Block Diagram





■ Electrical Characteristics Ta = 25°C

Parameter			Testconditions	Min	Typ	Max	Unit
Reference Voltage	Vref	AMS1117-ADJ	$10\text{mA} \leq I_{\text{out}} \leq 800\text{mA}$, $1.5\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	1.225	1.250	1.275	V
Output Voltage	Vout	AMS1117-1.2	$0 \leq I_{\text{out}} \leq 800\text{mA}$, $2.6\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	1.175	1.200	1.225	V
		AMS1117-1.5	$0 \leq I_{\text{out}} \leq 800\text{mA}$, $2.9\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	1.470	1.500	1.530	V
		AMS1117-1.8	$0 \leq I_{\text{out}} \leq 800\text{mA}$, $3.2\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	1.764	1.800	1.836	V
		AMS1117-1.9	$0 \leq I_{\text{out}} \leq 800\text{mA}$, $3.3\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	1.862	1.900	1.938	V
		AMS1117-2.5	$0 \leq I_{\text{out}} \leq 800\text{mA}$, $3.9\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	2.450	2.500	2.550	V
		AMS1117-3.3	$0 \leq I_{\text{out}} \leq 800\text{mA}$, $4.75\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	3.234	3.300	3.366	V
		AMS1117-5.0	$0 \leq I_{\text{out}} \leq 800\text{mA}$, $6.5\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$	4.900	5.000	5.100	V
Line Regulation	ΔV_{out}	AMS1117-ADJ	$I_{\text{out}} = 10\text{mA}$, $1.5\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 13.775\text{V}$		0.035	0.2	%
		AMS1117-1.2	$I_{\text{out}} = 10\text{mA}$, $2.6\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$		9	12	mV
		AMS1117-1.5	$I_{\text{out}} = 10\text{mA}$, $2.9\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$		9	12	mV
		AMS1117-1.8	$I_{\text{out}} = 10\text{mA}$, $3.2\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$		9	12	mV
		AMS1117-1.9	$I_{\text{out}} = 10\text{mA}$, $3.3\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$		9	12	mV
		AMS1117-2.5	$I_{\text{out}} = 10\text{mA}$, $3.9\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$		9	12	mV
		AMS1117-3.3	$I_{\text{out}} = 10\text{mA}$, $4.75\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$		9	12	mV
		AMS1117-5.0	$I_{\text{out}} = 10\text{mA}$, $6.5\text{V} \leq V_{\text{in}} - V_{\text{out}} \leq 12\text{V}$		9	12	mV
Load Regulation	ΔV_{out}	AMS1117-ADJ	$V_{\text{in}} - V_{\text{out}} = 3\text{V}$, $10\text{mA} \leq I_{\text{out}} \leq 800\text{mA}$		0.2	0.4	%
		AMS1117-1.2	$V_{\text{in}} = 2.6\text{V}$, $0 \leq I_{\text{out}} \leq 800\text{mA}$		3	10	mV
		AMS1117-1.5	$V_{\text{in}} = 2.9\text{V}$, $0 \leq I_{\text{out}} \leq 800\text{mA}$		3	10	mV
		AMS1117-1.8	$V_{\text{in}} = 3.2\text{V}$, $0 \leq I_{\text{out}} \leq 800\text{mA}$		3	10	mV
		AMS1117-1.9	$V_{\text{in}} = 3.3\text{V}$, $0 \leq I_{\text{out}} \leq 800\text{mA}$		3	10	mV
		AMS1117-2.5	$V_{\text{in}} = 3.9\text{V}$, $0 \leq I_{\text{out}} \leq 800\text{mA}$		3	10	mV
		AMS1117-3.3	$V_{\text{in}} = 4.75\text{V}$, $0 \leq I_{\text{out}} \leq 800\text{mA}$		3	10	mV
		AMS1117-5.0	$V_{\text{in}} = 6.5\text{V}$, $0 \leq I_{\text{out}} \leq 800\text{mA}$		3	10	mV
Dropout Voltage	Vin-Vout	AMS1117-XXX	$\Delta V_{\text{out}}, \Delta V_{\text{ref}} = 1\%$, $I_{\text{out}} = 100\text{mA}$		1.11	1.2	V
			$\Delta V_{\text{out}}, \Delta V_{\text{ref}} = 1\%$, $I_{\text{out}} = 500\text{mA}$		1.18	1.25	V
			$\Delta V_{\text{out}}, \Delta V_{\text{ref}} = 1\%$, $I_{\text{out}} = 800\text{mA}$		1.26	1.3	V
Current Limit	Ilimit	AMS1117-XXX	$V_{\text{in}} - V_{\text{out}} = 5\text{V}$, $T_j = 25^\circ\text{C}$	1.25	1.4	1.6	A
Minimum Load Current		AMS1117-XXX	AMS1117-ADJ		5	10	mA
Quiescent current	Iq	AMS1117-1.2	$V_{\text{in}} - V_{\text{out}} = 1.25\text{V}$		4	8	mA
		AMS1117-1.5	$V_{\text{in}} - V_{\text{out}} = 1.25\text{V}$		4	8	mA
		AMS1117-1.8	$V_{\text{in}} - V_{\text{out}} = 1.25\text{V}$		4	8	mA
		AMS1117-1.9	$V_{\text{in}} - V_{\text{out}} = 1.25\text{V}$		4	8	mA
		AMS1117-2.5	$V_{\text{in}} - V_{\text{out}} = 1.25\text{V}$		4	8	mA
		AMS1117-3.3	$V_{\text{in}} - V_{\text{out}} = 1.25\text{V}$		4	8	mA
		AMS1117-5.0	$V_{\text{in}} - V_{\text{out}} = 1.25\text{V}$		4	8	mA
Adjust Pin Current (Adjustable Version)	Iadj				55	120	μA
Adjust Pin Current Change	Ichange				0.2		μA

■ Typical Characteristics

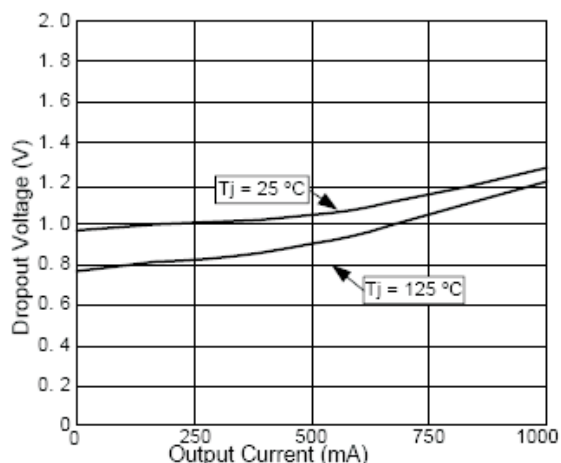


Fig.1 Dropout Voltage vs Output Current

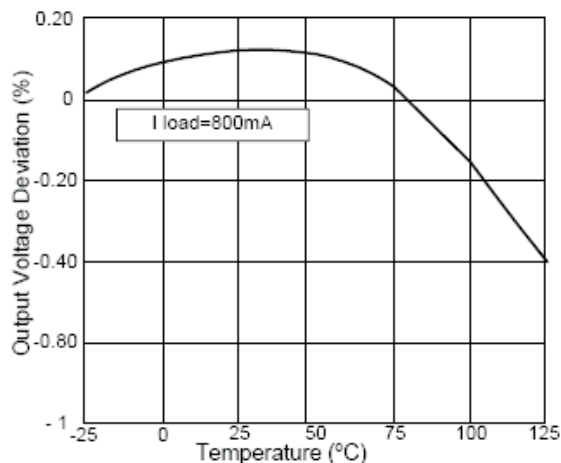


Fig.2 Load Regulation vs Temperature

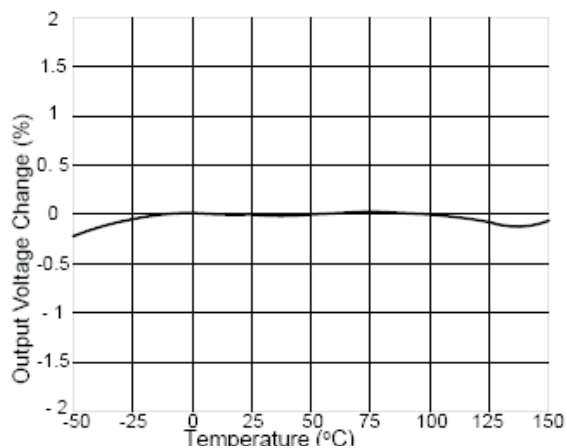


Fig.3 Percent Change in Output Voltage vs Temperature

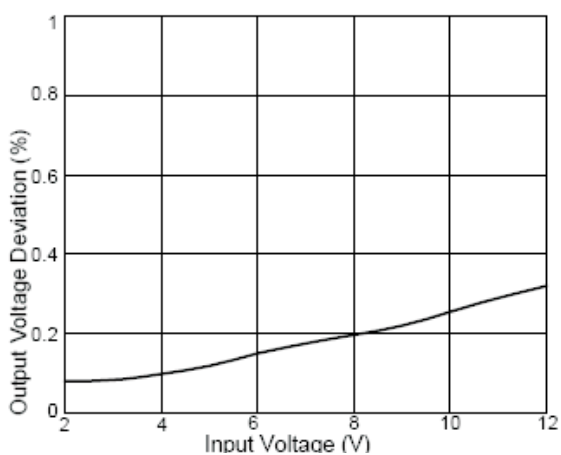


Fig.4 Line Regulation

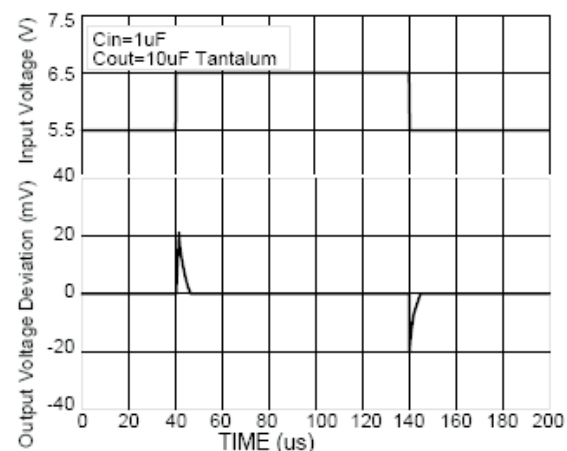


Fig.5 Line Transient Response

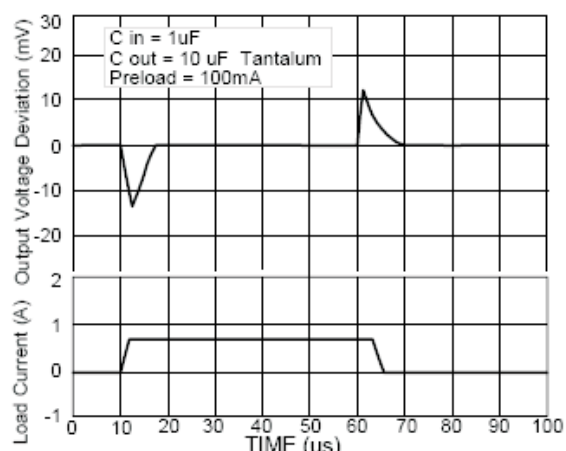


Fig.6 Load Transient Response



■ Ordering Information

Deviece	Packaging	Shipping
AMS1117-X.X	SOT-89	1000/Tape&Reel

■ Marking

Marking	1117-X.X
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