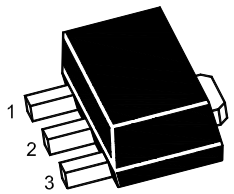
FEATURES

- Low Dropout Voltage: 1.15V at 1A Output Current
- Trimmed Current Limit
- On-Chip Thermal Shutdown
- Three-Terminal Adjustable or Fixed 1.8V, 2.5V, 3.3V, 5V
- Operation Junction Temperature: -25 ℃ to 125℃



1. ADJ/GND 2. OUTPUT 3.IN

SOT-89 Plastic Package

GENERAL DESCRIPTION

The AMS1117-XXX is a series of low dropout three-terminal regulators with a dropout of 1.15V at 1A output current.

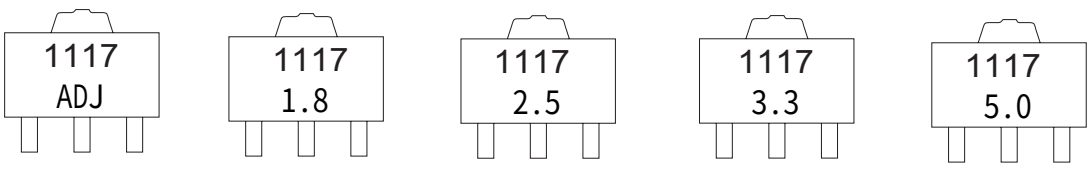
AMS1117-XXX series provides current limiting and thermal shutdown. Its circuit includes a trimmed bandage. reference to assure output voltage accuracy to be within 1.5%. Current limit is trimmed to ensure specified. output current and controlled short-circuit current. On-chip thermal shutdown provides protection against any combination of overload and ambient temperature that would create excessive junction temperature.

The AMS1117-XXX has an adjustable version, that can provide the output voltage from 1.25V to 5 V with only 2 external resistors.

APPLICATIONS

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

Marking:



ORDERING INFORMATION

Package	Operating Junction Temperature Range	Part NO.
SOT-89	-25 to 125℃	AMS1117-ADJ
		AMS1117-1.8
		AMS1117-2.5
		AMS1117-3.3
		AMS1117-5.0

ABOSLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Input Voltage	V_i	20	V
Maximum Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55~+150	℃
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	250	℃/W
Lead Temperature (Soldering, 10sec.)	T_L	260	℃
ESD Voltage (Machine Model)	V_{ESD}	400	V

Note: 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

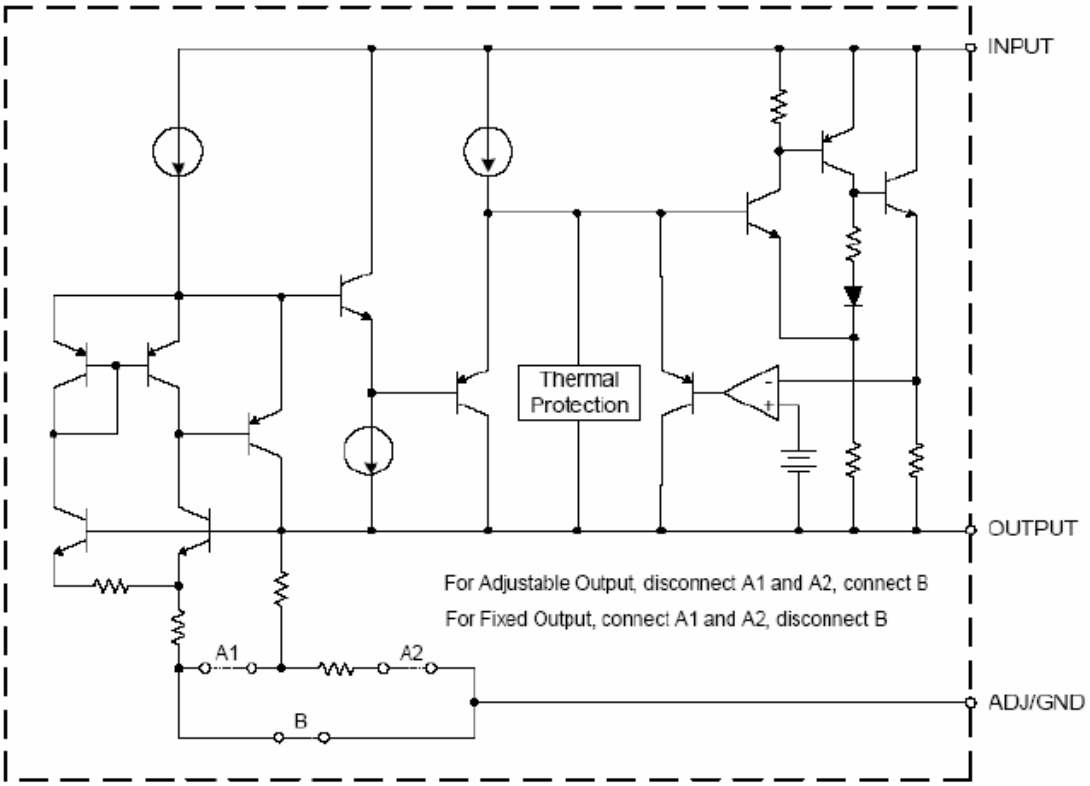
Parameter	Symbol	Value	Unit
Input Voltage	V_i	15	V
Operating Junction Temperature	T_j	-25~+125	℃

ELECTRICAL CHARACTERISTICS (V_{IN}≤10V, T_J=25℃ unless otherwise specified.)

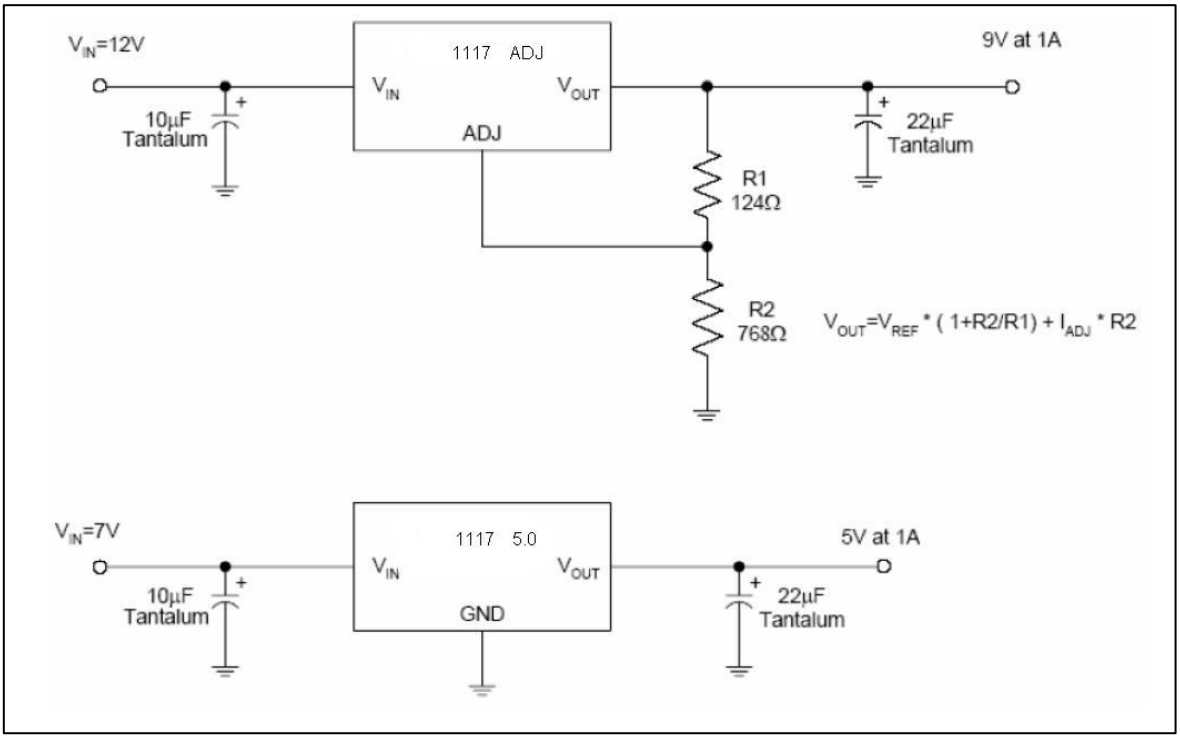
Parameter	Symbol	Part NO.	Test conditions	Min	Typ	Max	Unit
Reference Voltage	V_{IROC}	AMS1117-**ADJ**	I_{OUT}=10mA, V_{IN} -V_{OUT} =3.23	1.231	1.250	1.269	V
			10mA≤I_{OUT}≤1A, 2.75V≤V_{IN} -V_{OUT} ≤13.25V	1.225	1.250	1.275	
Output Voltage	V_O	AMS1117-**1.8**	I_{OUT}=10mA, V_{IN}=3.8V	1.773	1.8	1.827	V
			10mA≤I_{OUT}≤1A, 3.3V≤V_{IN} ≤12V	1.764	1.8	1.836	
		AMS1117-**2.5**	I_{OUT}=10mA, V_{IN}=4.5V	2.463	2.5	2.538	V
			10mA≤I_{OUT}≤1A, 4V≤V_{IN} ≤12V	2.450	2.5	2.550	
		AMS1117-**3.3**	I_{OUT}=10mA, V_{IN}=5.3V	3.251	3.3	3.350	V
			10mA≤I_{OUT}≤1A, 4.8V≤V_{IN} ≤12V	3.234	3.3	3.366	
		AMS1117-**5.0**	I_{OUT}=10mA, V_{IN}=7.0V	4.925	5.0	5.075	V
			10mA≤I_{OUT}≤1A, 6.5V≤V_{IN} ≤12V	4.9	5.0	5.1	
Line Regulation	LNR	AMS1117-**ADJ**	I_{OUT}=10mA, 1.5V≤V_{IN} -V_{OUT} ≤12V		0.035	0.2	%
		AMS1117-**1.8**	I_{OUT}=10mA, 1.5V≤V_{IN} -V_{OUT} ≤10.2V		1	7	mV
		AMS1117-**2.5**	I_{OUT}=10mA, 1.5V≤V_{IN} -V_{OUT} ≤9.5V		1	7	
		AMS1117-**3.3**	I_{OUT}=10mA, 1.5V≤V_{IN} -V_{OUT} ≤8.7V		1	7	
		AMS1117-**5.0**	I_{OUT}=10mA, 1.5V≤V_{IN} -V_{OUT} ≤7V		1	10	
Load Regulation	LDR	AMS1117-**ADJ**	VI_N-V_{OUT}=1.5V, 10mA≤I_{OUT} ≤1A		0.2	0.4	%
		AMS1117-**1.8**				7.2	mV
		AMS1117-**2.5**				10	
		AMS1117-**3.3**				13.2	
		AMS1117-**5.0**				20	
Dropout Voltage	**V_D**		ΔV_{REF}=1%, I_{OUT}=1.0A			1.3	V
Current Limit	**I_{limit}**		V_{IN}-V_{OUT}=2V	1			A
Adjust Pin Current					60	120	μA
Minimum Load Current	I_L		1.5V≤V_{IN} -V_{OUT} ≤12V (ADJ only)		1.7	5	μA
Quiescent Current	I_q		V_{IN}= V_{OUT}+1.25V(ADJ except)		5	10	mA
Ripple Rejection	RR		f=120Hz,C_{OUT}=22μFTantalum, V_{IN}-V_{OUT}=3V, I_{OUT}=1A	60	75		dB
Temperature Stability					0.5		%
Long-Term Stability			T_A=125℃, 1000hrs		0.3		%
RMS Output Noise (% of VOUT)			T_A=25℃, 10Hz≤f ≤10kHz		0.003		%
Thermal Shutdown Hysteresis					25		℃

* With package soldering to copper area over backside ground plane or internal power plane $R_{\theta JA}$ can vary from 46 ℃/W to >90℃/W depending on mounting technique and the size of the copper area

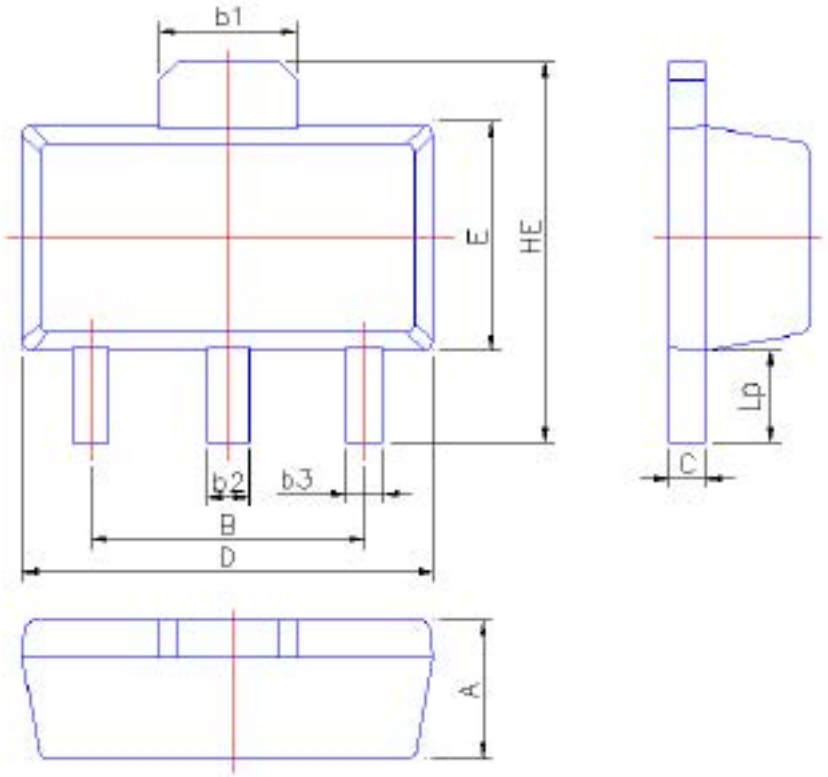
FUNCTIONAL BLOCK DIAGRAM



TYPICAL APPLICATION CIRCUIT



SOT-89 PACKAGE OUTLINE



Symbol	Dimension in Millimeters	
	Min	Max
A	1.40	1.60
B	2.95	3.05
b1	1.45	1.70
b2	0.45	0.56
b3	0.35	0.50
C	0.35	0.50
D	4.40	4.60
E	2.35	2.55
HE	3.90	4.40
Lp	0.90	1.10