

1.0A Adjustable Voltage High Speed LDO Regulators

General Description

Datasheet Brief

Features

PRELIMINARY DATASHEET

AMS1117 are highly accurate, low noise, LDO voltage regulators that are capable of providing an output current that is in excess of 1.0A with a maximum dropout voltage of 1.3V at 1.0A.

This series contains six fixed output voltages of 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, and 5.0V that have no minimum load requirement to maintain regulation.

Also included is an adjustable output version that can be programmed from 1.25V to 20.0V with two external resistors. On chip trimming adjustable the reference/output voltage to within $\pm 2.0\%$ accuracy.

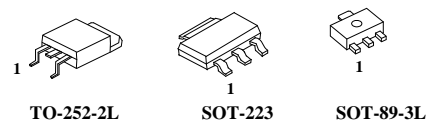
Internal protection features consist of output current limiting, safe operating area compensation, and thermal shutdown. The AMS1117 series can operate with up to 20.0V input.

AMS1117 is available in SOT223 TO252-2 and SOT-89-3L power package.

- Output Current in Excess of 1.0A
- Dropout Voltage: 1.07V@ $I_{OUT}=100\text{mA}$
- Range of operation input voltage: Max 20.0V
- Highly Accuracy: $\pm 2\%$ (typ.)
- Other than a fixed version and an adjustable version, output value can be customized on demand.
- Standby Current: 3.0mA (typ.)
- High Ripple Rejection: 60dB@1.0KHz (AMS1117A33)
- Line Regulation: 0.1%/V (typ.)
- Temperature Stability $\leq 0.5\%$
- Current Limit (1.30A)
- Environment Temperature: $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$
- Thermal Shutdown Protection (160°C)
- Compatible with tantalum capacitor, electrolytic capacitor and MLCC

Package

- 3-pin SOT-223 | TO252-2L | SOT89-3L



Typical Application Circuit

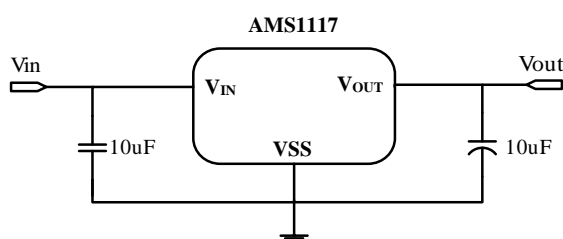


Figure 1. Application circuit of AMS1117 fixed version

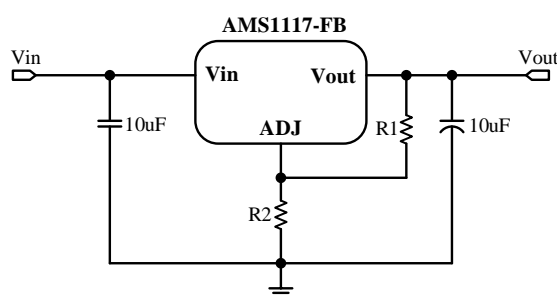
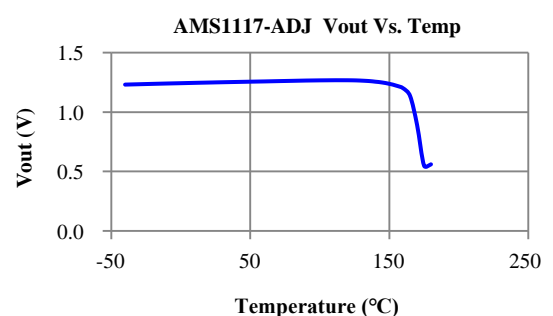


Figure 2. Application Circuit of AMS1117 Adjustable output

Typical Application

- Hard Drive Controllers
- BLD monitor and BLD TV
- ADSL modem
- PC motherboards
- Post regulators for switching supplies



■ Block Diagram

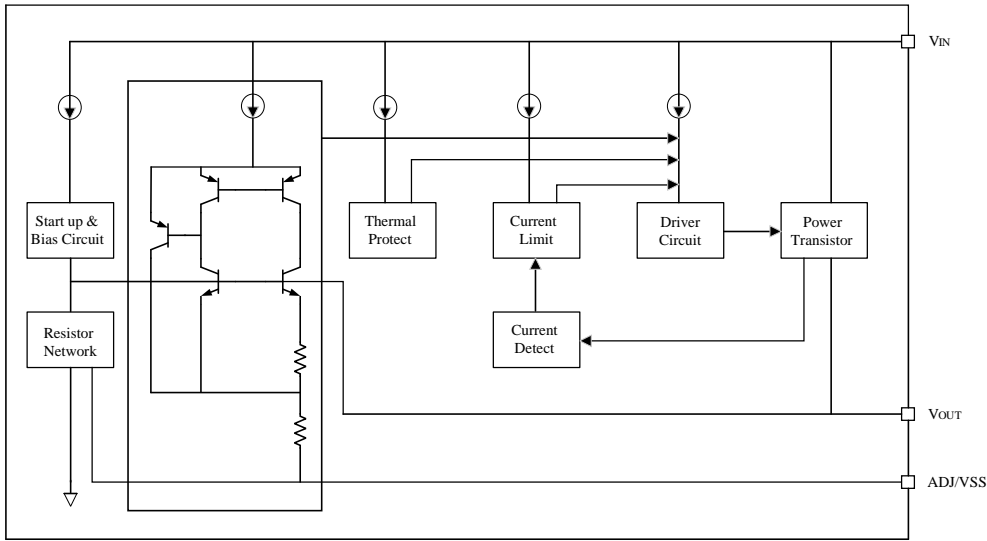
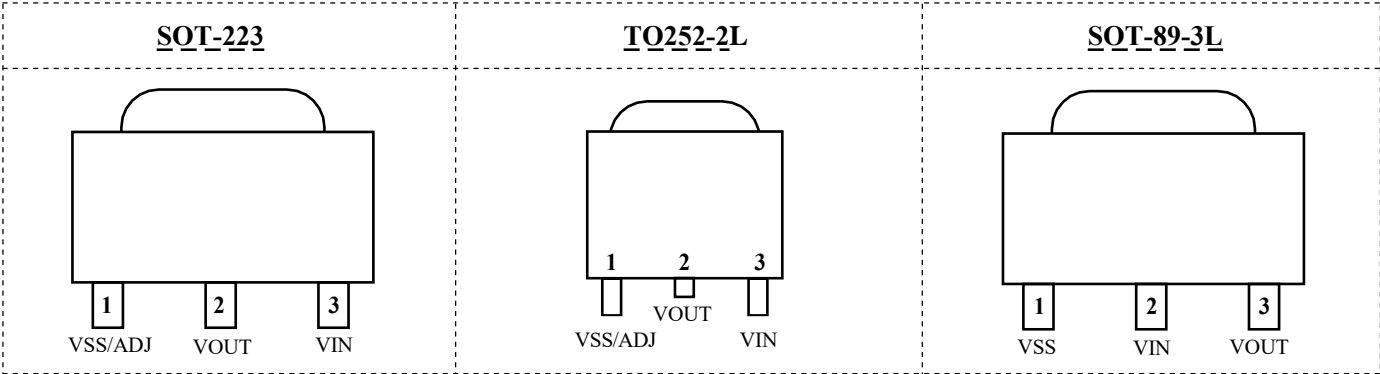


Figure 3. AMS1117 Block Diagram

■ Pin Configuration



■ Pin Assignment

● AMS1117A**

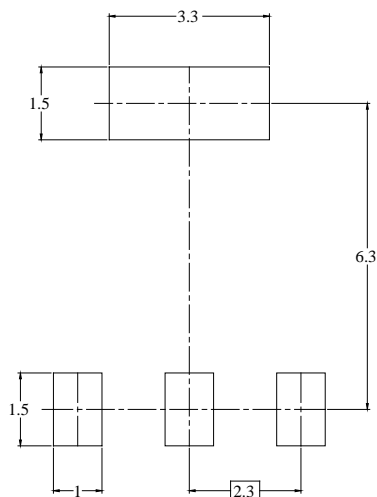
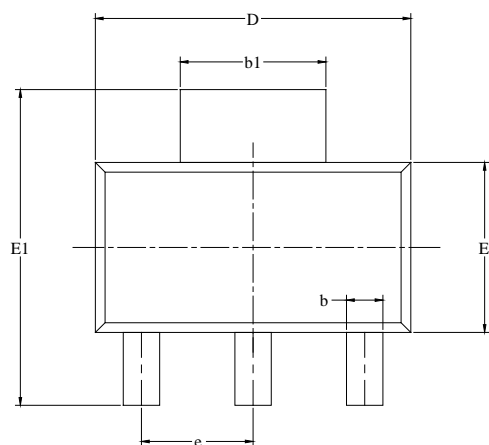
Pin Number			Pin Name	Functions
SOT-223 / TO252-2	SOT-89-3L			
1	1		VSS(GND)	Ground
2	3		VOUT	Output
3	2		VIN	Power Input

● AMS1117FB

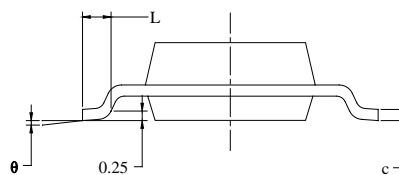
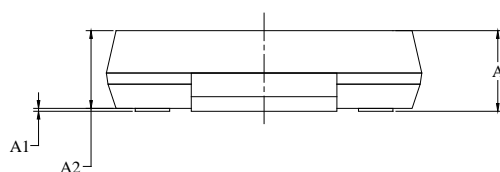
Pin Number	Pin Name	Functions
SOT223 / TO252-2		
1	VADJ	Adjustable Output
2	VOUT	Output
3	VIN	Power Input

■ Packaging Information

- Type: SOT-223



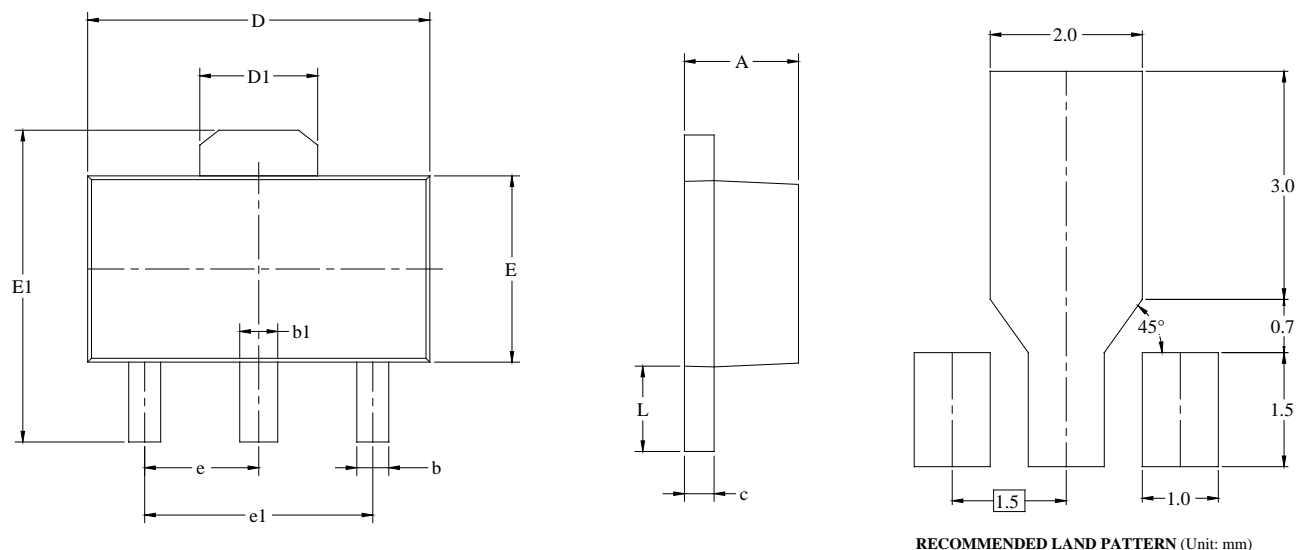
RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A		1.800		0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.2 30	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	3.300	3.700	0.130	0.146
E1	6.700	7.300	0.264	0.287
e	2.300 BSC		0.091 BSC	
L	0.750		0.030	
θ	0°	10°	0°	10°

■ Packaging Information

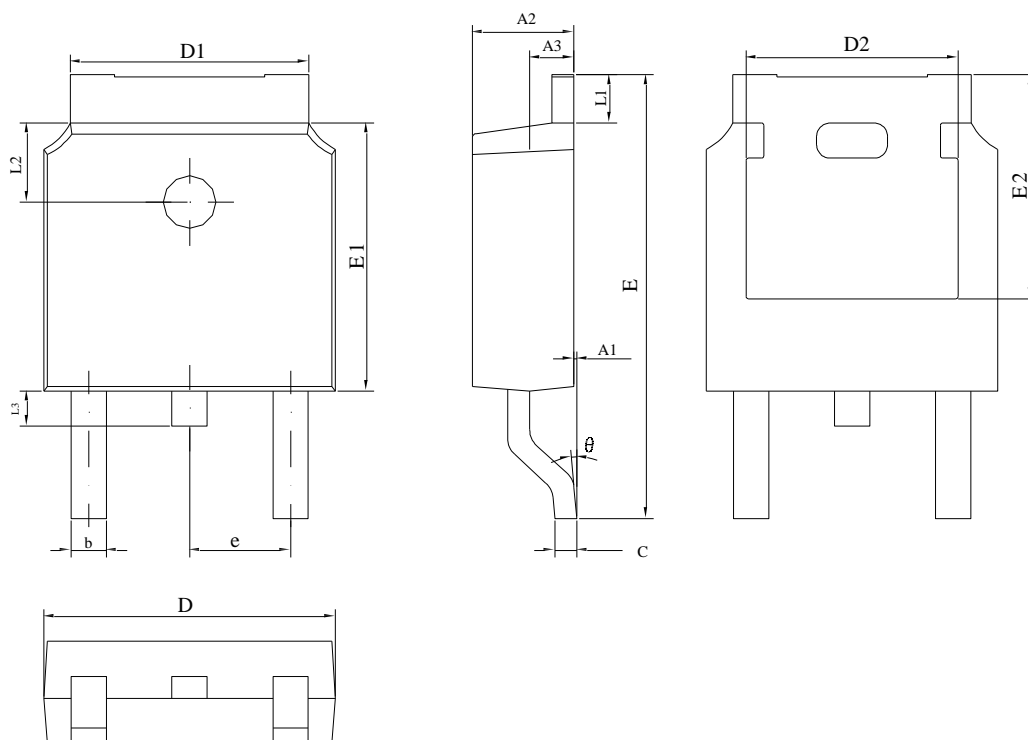
- Type: SOT-89-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
el	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047

■ Packaging Information

- Type: TO252-2



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A1	0	0.13	0	0.0051
A2	2.18	2.39	0.0858	0.0941
A3	0.9	1.1	0.0354	0.0433
b	0.65	0.85	0.0256	0.0335
c	0.46	0.61	0.0181	0.0240
D	6.35	6.73	0.2500	0.2650
D1	4.95	5.46	0.1949	0.2150
D2	4.7	4.9	0.1850	0.1929
E	9.4	10.41	0.3701	0.4098
E1	5.97	6.22	0.2350	0.2449
E2	5.21	5.4	0.2051	0.2126
e	2.286BSC		0.090BSC	
L1	0.89	1.27	0.0350	0.0500
L2	1.7	1.9	0.0669	0.0748
L3	0.6	1	0.0236	0.0394
θ	0	8°	0	8°

■ Ordering Information

Part Number	Input Voltage	Output Function	Operating Temperature	Package Type	Top Mark	SPQ
AMS1117A**B3	~ 18.0V	<ul style="list-style-type: none"> ** → Output voltage e.g., 15 = 1.5V 18 = 1.8V 33 = 3.3V 50 = 5.0V 	-40°C to +85°C	SOT-223 (Code: B3)	AMS1117 ** Y M L	2500EA/Reel
AMS1117A**K3	~ 18.0V	FB = Adjustable <ul style="list-style-type: none"> The selectable voltage values are: 	-40°C to +85°C	TO252-2L (Code: K3)	AMS1117 ** Y M L	1000EA/Reel
AMS1117A**P3	~ 18.0V	1.2V / 1.5V / 1.8V / 2.5V / 2.8V / 3.0V / 3.3V / 5.0V / Adjustable <ul style="list-style-type: none"> Reference Voltage: 1.25V 	-40°C to +85°C	SOT-89-3L (Code: P3)	AMS1117 ** Y M L	1000EA/Reel

Note:

- AMS1117A**B3 | AMS1117A**K3 | AMS1117A**P3 devices are Pb-free and RoHS compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.
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- FOCMCU Inc. reserves the right to amend and legally interpret the electrical parameters of this chip device. (<http://www.fordevices.com>)



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