AMS1117(M)

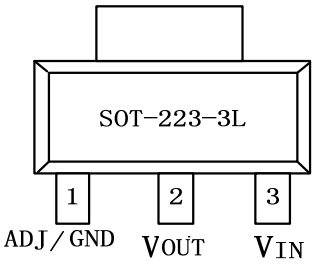
1A Adjustable / Fixed Low Dropout Linear Regulator

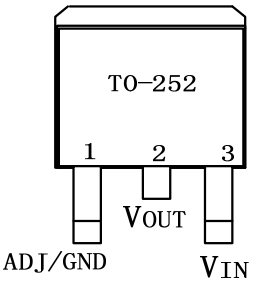
Features

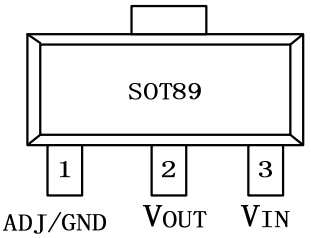
- Low Dropout Voltage.
- Load regulation: 0.5% Max.
- Optimized for Low Voltage
- On-chip thermal limiting.
- Maximum Input Voltage : 18V
- Adjustable Output Voltage or Fixed 1.2V,
- 1.5V, 1.8V, 2.5V, 3.3V,5V
- Standard SOT-223,TO-252 ,SOT89
- Packages

Applications

- Post Regulator for switching DC/DC
- Converter
- High Efficiency Linear Regulator
- Battery Chargers
- PC Add on Card
- Motherboard clock supplies
- LCD Monitor r
- Set-top Box







Absolute Maximum Ratings

Symbol	Description	Max	Units
VIN	Input Voltage	18	V
I_{OUT}	DC Output Current	PD/(V_{IN}-V_{OUT})	mA
TJ	Operating Junction Temperature Range	-40 to 125	℃
θ JA	Thermal Resistance (SOT-223)	150	℃/W
θ JA	Thermal Resistance (TO-252)	125	℃/W
θ JA	Thermal Resistance (SOT89)	225	℃/W
PD	Maximum Power Dissipation (SOT-223)	600	mW
PD	Maximum Power Dissipation (TO-252)	900	mW
PD	Maximum Power Dissipation (SOT89)	400	mW

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Electrical Characteristics (Vin =<7V, Tj= 25℃ unless otherwise Specified. The ~ denotes specifications which apply over the specified operating temperature range .)

Parameter	Conditions	Min.	Typ.	Max.	Units
Reference voltage	VIN=Vout+2V,10mA≤IOUT≤1A AMS1117-ADJ	1.225(-2%)	1.250	1.275(+2%)	V
Output voltage	10mA≤IOUT≤1A, VIN=Vout+2V				V
	AMS1117-1.2	1.176	1.20	1.224	
	AMS1117-1.5	1.470	1.50	1.530	
	AMS1117-1.8	1.764	1.80	1.836	
	AMS1117-2.5	2.450	2.50	2.550	
	AMS1117-3.3	3.234	3.30	3.366	
	AMS1117-5.0	4.90	5.0	5.10	
Line regulation1,2	(V_{OUT}+ 1.5V)≤V_{IN}≤12V, I_{OUT}= 10mA		0.15	0.30	%
Load regulation1,2	(V_{IN}-V_{OUT}) = 2V, 10mA≤ I_{OUT}≤1A		0.20	0.50	%
Dropout voltage	V_{REF}= 1%,I_{OUT}=1A		1.30	1.40	V
Current limit	(VIN-VOUT)=2V	1			A
Adjust pin current	AMS1117-ADJ 1.5V≤ (V_{IN}-V_{OUT})≤7V, 10mA≤I_{OUT}≤1A		50	120	uA
Minimum load current	1.5V≤(V_{IN}-V_{OUT})≤12V		3	10	mA
Quiescent current	V_{IN}= V_{OUT}+1.25V		3	10	mA
Ripple rejection	f = 120Hz, Cout= 22uF Tantalum , (VIN-VOUT) = 3V, Iout=1A	60	70		dB
Thermal regulation	TA= 25℃, 30ms pulse		0.008	0.04	%/W
Temperature stability			0.5		%
Long-term stability	TA= 125℃, 1000hrs.		0.3	1.0	%
RMS output noise (%of VOUT)	TA= 25℃, 10Hz≤ f ≤10kHz		0.003		%
Thermal resistance, junction to case	SOT-223		15		℃ /W
	TO-252		10		℃ /W
	SOT89		20		℃ /W
Thermal shutdown	Junction temperature		150		℃
Thermal shutdown hysteresis			10		℃

1、See thermal regulation specifications for changes in output voltage due to heating effects. Load and line regulation are measured at a constant junction temperature by low duty cycle pulse testing.

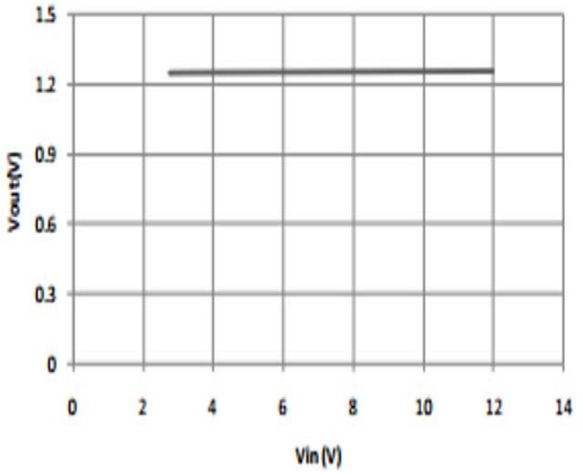
2、Line and load regulation are guaranteed up to the maximum power dissipation (1.2W). Power dissipation is determined by input/output differential and the output current. Guaranteed maximum output power will not be available over the full input/ output voltage range.

3、Output current must be limited to meet the absolute maximum ratings of the part.

RATING AND CHARACTERISTIC CURVES (AMS1117(M))

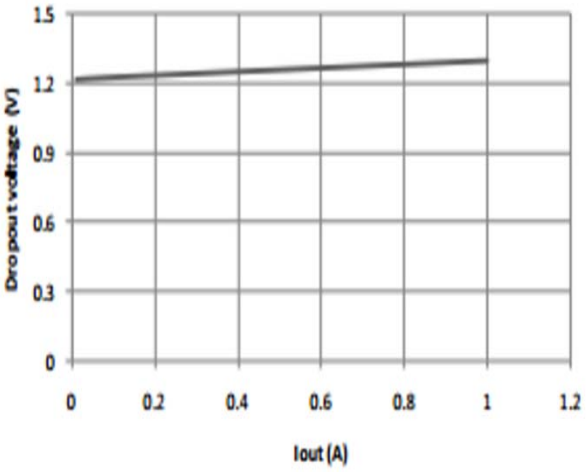
Line regulation

AMS1117-ADJ Vout Vs. Vin



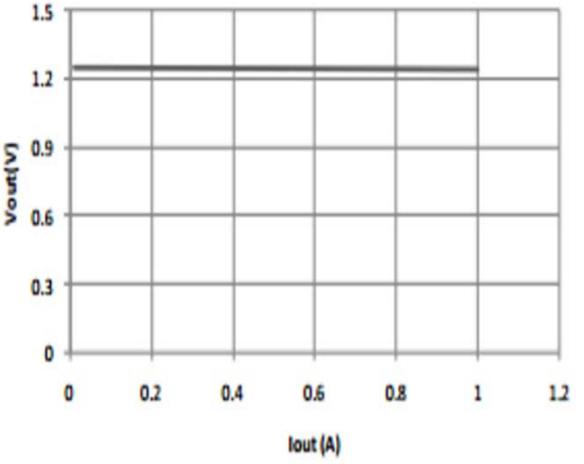
Dropout Voltage

AMS1117 Dropout Voltage



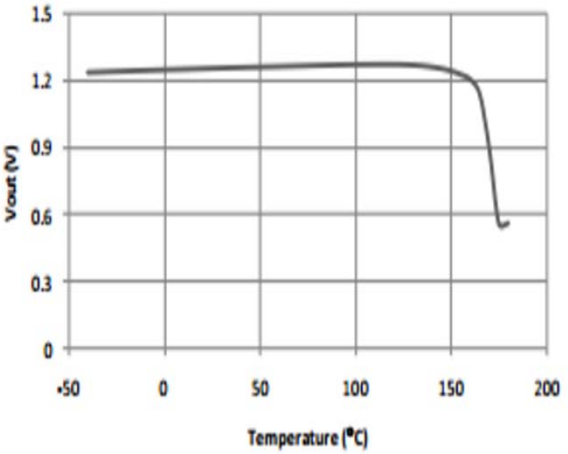
Load regulation

AMS1117-ADJ Vout Vs. Iout



Thermal performance with OTP

AMS1117 Thermal performance with OTP



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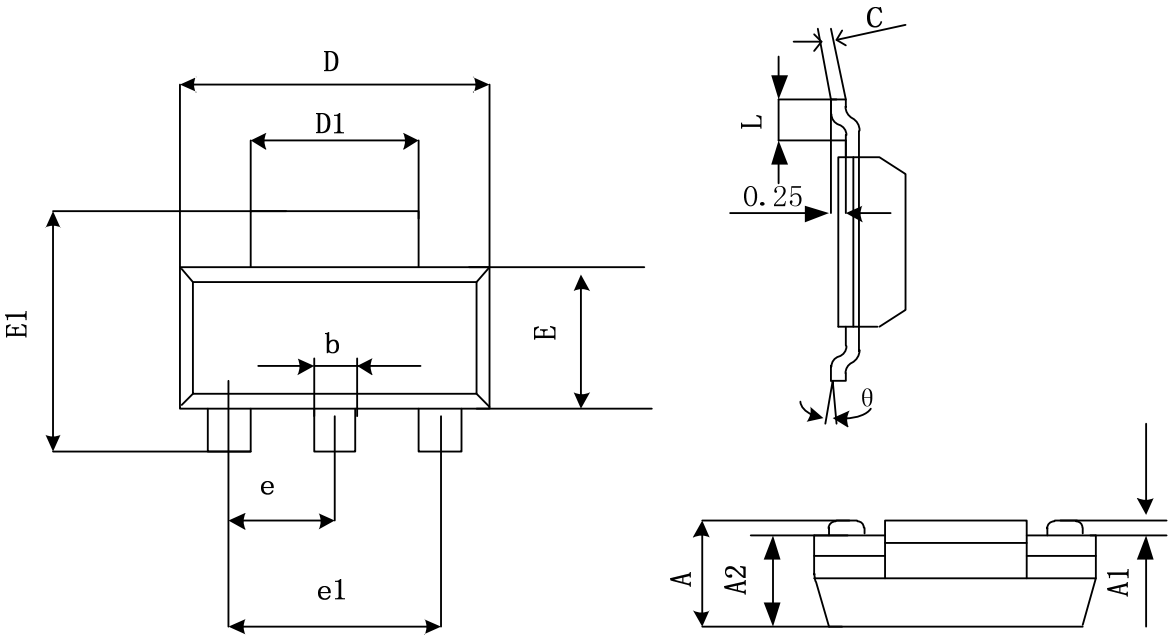
PACKAGE DESCRIPTION

SOT-223 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions ln Millimeters		Dimensions ln lnches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.020	0.130	0.001	0.005
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
c	0.230	0.350	0.009	0.014
D	6.450	6.850	0.254	0.270
D1	2.900	3.000	0.114	0.122
E	3.450	3.850	0.136	0.152
E1	6.830	7.070	0.269	0.278
e	2.300（BSC）		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10

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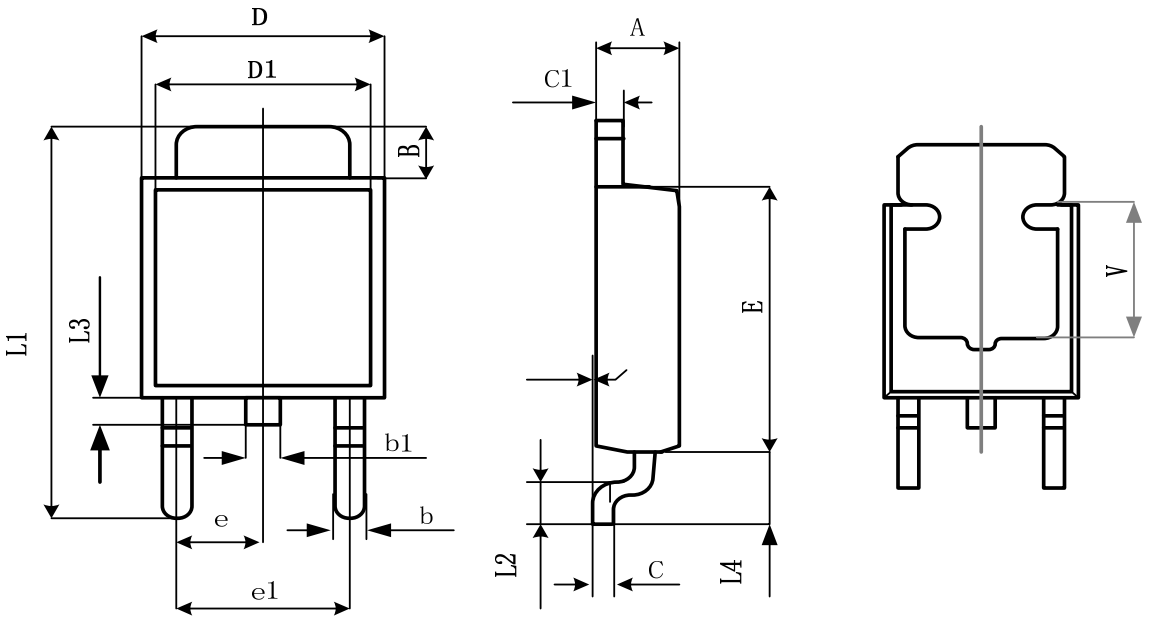
TO-252-2L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions ln Millimeters		Dimensions ln lnches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.200	1.650	0.047	0.065
b	0.500	0.810	0.020	0.032
b1	0.700	0.900	0.028	0.035
c	0.460	0.580	0.018	0.023
c1	0.430	0.580	0.014	0.023
D	6.350	6.700	0.250	0.264
D1	5.200	5.400	0.205	0.213
E	5.400	6.200	0.213	0.244
e	2.300TYP		0.0901TYP	
e1	4.500	4.700	0.177	0.185
L1	9.500	9.900	0.374	0.390
L2	0.950	1.600	0.037	0.063
L3	0.700	1.100	0.028	0.043
L4	2.550	2.900	0.100	0.114
V	3.80REF		0.150REF	

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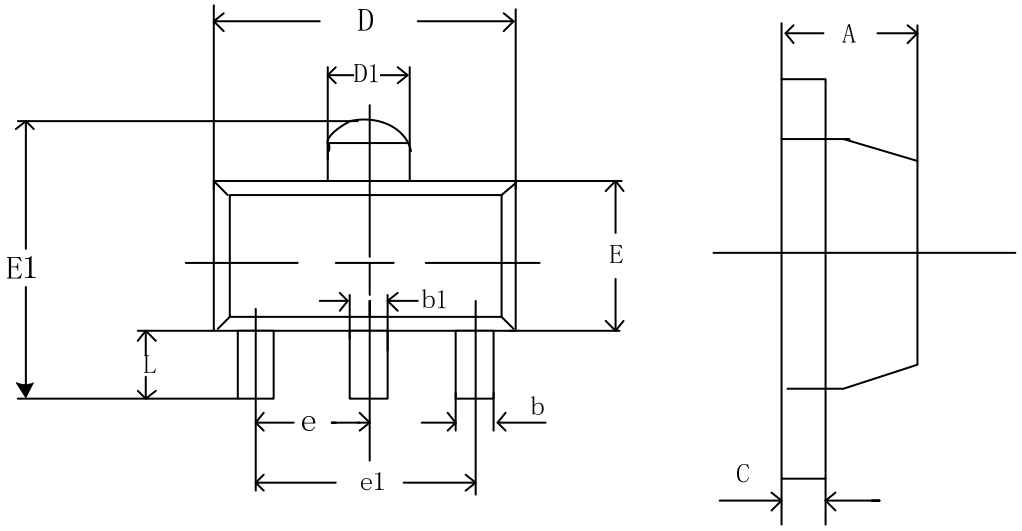
SOT89 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions ln Millimeters		Dimensions ln lnches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.450	0.014	0.018
D	4.400	4.600	0.173	0.181
D1	1.550	1.750	0.061	0.069
E	2.350	2.600	0.091	0.102
E1	3.720	4.530	0.146	0.178
e	1.500TYP		0.060TYP	
e1	3.000TYP		0.118TYP	
L	0.820	1.100	0.032	0.047

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