Features

Low Dropout Voltage.

Load regulation: 0.5% Max.

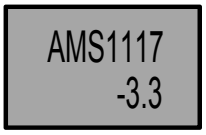
Optimized for Low Voltage

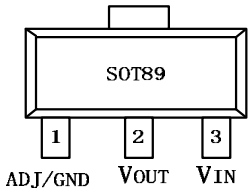
On-chip thermal limiting.

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

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Symbol	Description	Max	Units
VIN	Input Voltage	18	V
I_{OUT}	DC Output Current	PD/(VIN-VOUT)	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

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	(VOUT+ 1.5V)≤VIN≤12V, IOUT= 10mA		0.15	0.30	%
Load regulation1,2	(VIN-VOUT) = 2V, 10mA≤ IOUT≤1A		0.20	0.50	%
Dropout voltage	VREF= 1%,IOUT=1A		1.30	1.40	V
Current limit	(VIN-VOUT)=2V	1			A
Adjust pin current	AMS1117-ADJ 1.5V≤ (VIN-VOUT)≤7V, 10mA≤IOUT≤1A		50	120	uA
Minimum load current	1.5V≤(VIN-VOUT)≤12V		3	10	mA
Quiescent current	VIN= VOUT+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.

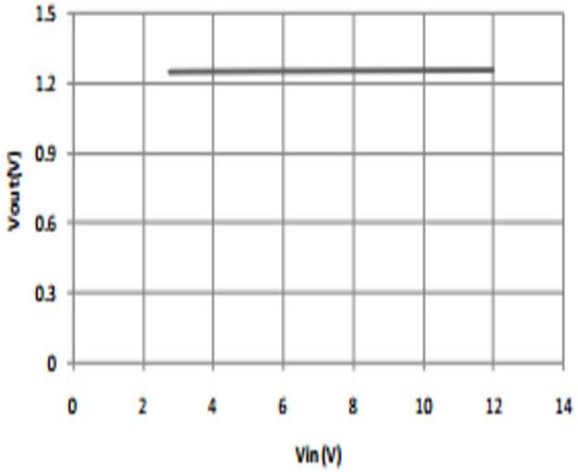
2、Line and load regulation are guaranteed up to the maximum power dissipation (1.2W). Power dissipation is determined by input/output differential and the output current. Guaranteed maximum output power will not be available over the full input/ output voltage range.

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

RATING AND CHARACTERISTIC CURVES

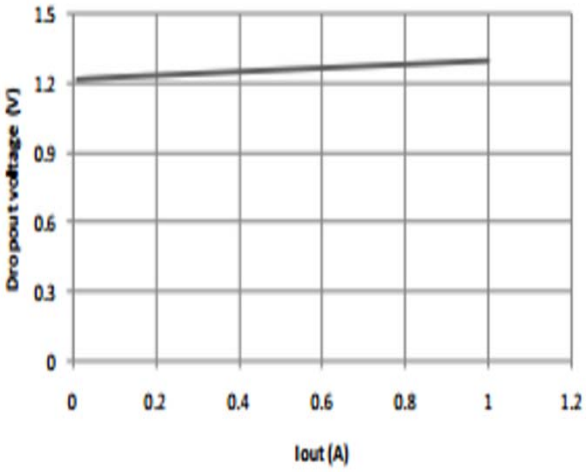
Line regulation

AMS1117-ADJ Vout Vs. Vin



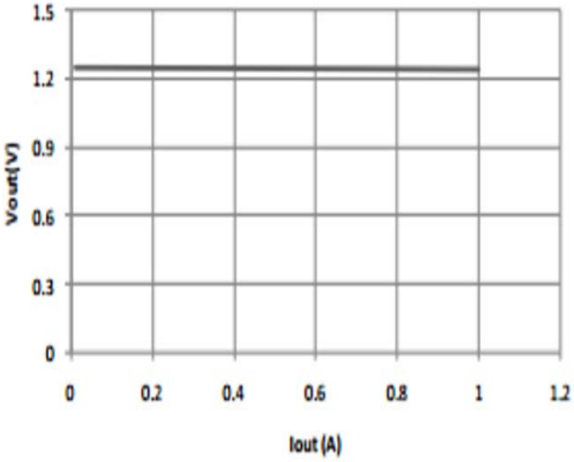
Dropout Voltage

AMS1117 Dropout Voltage



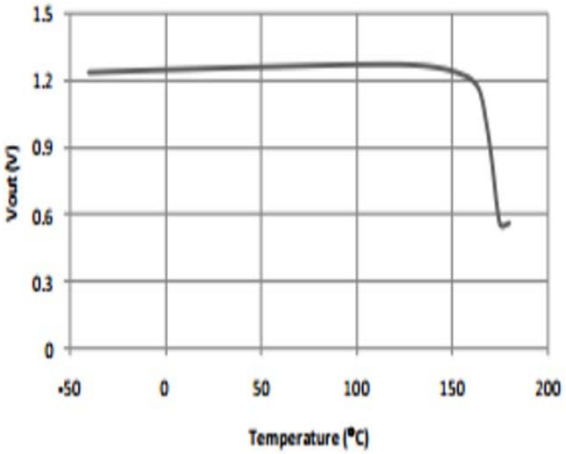
Load regulation

AMS1117-ADJ Vout Vs. Iout



Thermal performance with OTP

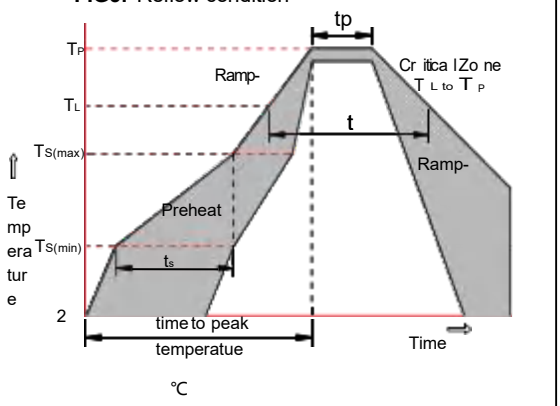
AMS1117 Thermal performance with OTP



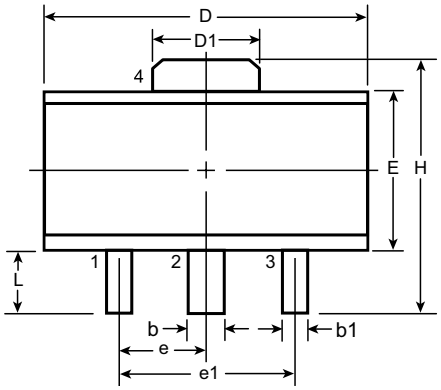
Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition

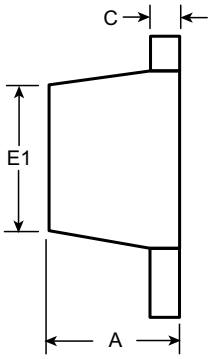


Package Dimensions & Suggested Pad Layout

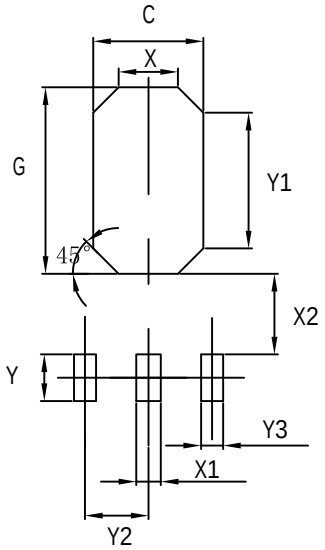


Top View

SOT89



Side View

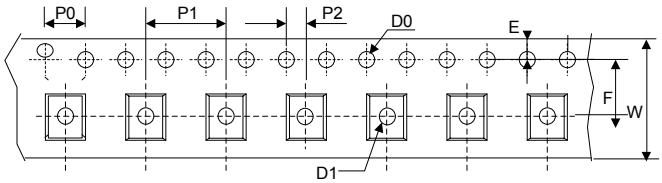


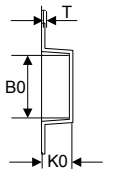
Symbol		A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.3	4.40	1.50	2.29	2.00†	1.50 BSC	3.00 BSC	3.94	0.89
	NOM	-	-	-	-	-	-	-	-			-	-
	MAX	1.60	0.56	0.48	0.5	4.60	1.75	2.60	2.29			4.25	1.20

Dimensions	Value (in mm)
C	2.50
G	3.60
X	1.40
X1	0.90
X2	0.90
Y	1.40
Y1	2.60
Y2	1.50
Y3	0.90

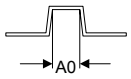
Tape & rell specification

Tape



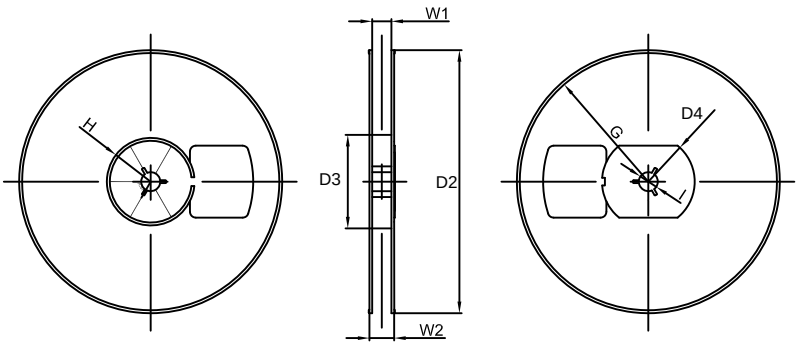


SECTION : B-B



SECTION : A-A

13” Reel



Symbol	Dimension (mm)
P0	4.00±0.20
P1	8.00±0.20
P2	2.00±0.20
D0	1.60±0.20
D1	1.60±0.20
E	1.75±0.20
F	7.50±0.15
W	16.00±0.20
A0	6.30±0.20
B0	8.25±0.20
K0	2.60±0.20
T	0.23±0.10
D2	180.0±5.0
D3	60Min.
D4	R32.0±2.0
G	R86.5±2.0
H	R30.0±2.0
I	13.0±2.0
W1	13.20±2.0
W2	16.50±2.0

Quantity: 1000PCS