

Features

The voltage drop of 1A output current is 1.2V
Current limiting function
Overheat protection
Fixed output voltage 1.2V, 1.8V, 2.5V, 3.3V,
5.0V and adjustable output voltage version
The voltage accuracy is 2% with a fixed output voltage
of 1.2V
Fixed output voltage 1.8V, 2.5V, 3.3V, 5.0V
And adjustable output voltage accuracy is 1.5%
Temperature range: -40 ° C to +125 ° C



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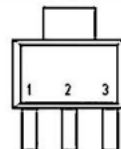
CODE

Applications

Palm pilots and laptops
Battery chargers
SCSI- ii Active terminal
mobile telephone
Battery supply system
Switching power supply rear voltage regulator

SOT-223
TOP VIEW

1: ADJ (GND)
2: VOUT (TAB)
3: VIN



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	Vin	18	V
Pin temperature (welding 5 seconds)	Tlead	260	°C
Working junction temperature range	Tj	150	°C
ESD capability (minimum)	ESD	2000	V
Power Dissipation	PD	Note1	mW
Operating Junction Temperature Range	TOPR	-40~+125	°C
Storage Temperature Range	TSTG	-65~+150	°C

Note1: Maximum permissible power consumption is a function of the maximum operating junction temperature Tj(Max), pair air thermal resistance and ambient temperature. Maximum permissible power consumption At a given ambient temperature, exceeding the maximum allowable power consumption will cause the chip temperature to be too high, and the regulator will therefore enter overheat protection State. The pair air thermal resistance of different packaging types is different, depending on the packaging technology.

Electrical Characteristics

(Tamb=25°C, normal junction temperature range -40~+125°C unless otherwise specified)

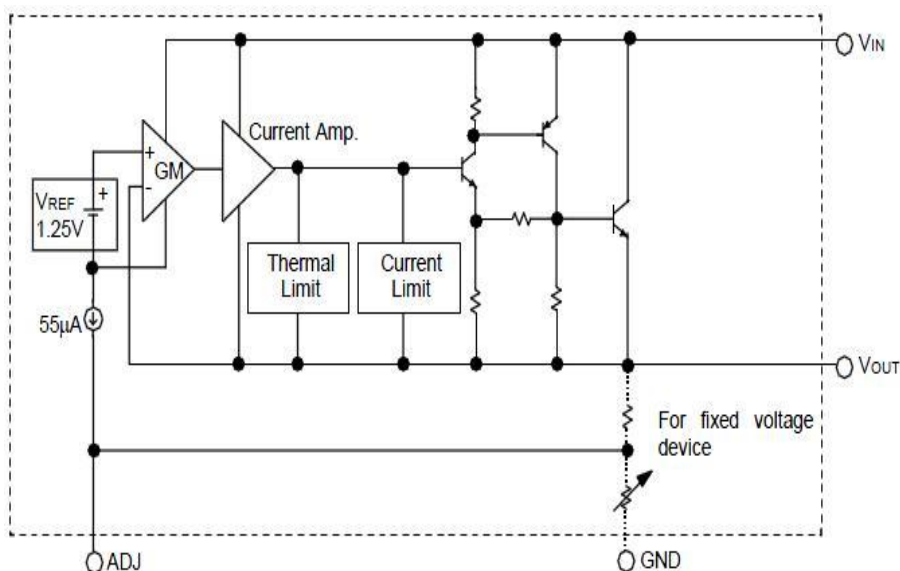
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
reference voltage	Vref	AMS1117-ADJ, IOUT=10mA, VIN-VOUT=2V, TJ=25°C 10mA≤IOUT≤1A, 1.4V≤VIN-VOUT≤10V	1.231 1.225	1.250 1.250	1.268 1.275	V
Output Voltage	VOUT	AMS1117-1.2, IOUT=10mA, VIN=3.2V, TJ=25°C 10mA≤ IOUT≤1A, 3.0V≤VIN≤10V	1.176 1.152	1.200 1.200	1.224 1.248	V
		AMS1117-1.5, IOUT=10mA, VIN=3.5V, TJ=25°C 10mA≤ IOUT≤1A, 3.0V≤VIN≤10V	1.477 1.470	1.500 1.500	1.522 1.530	V
		AMS1117-1.8, IOUT=10mA, VIN=3.8V, TJ=25°C, 0≤IOUT≤1A, 3.2V≤VIN≤10V	1.773 1.746	1.800 1.800	1.827 1.854	V
		AMS1117-2.5, IOUT=10mA, VIN=4.5V, TJ=25°C, 0≤IOUT≤1A, 3.9V≤VIN≤ 10V	2.462 2.450	2.500 2.500	2.538 2.550	V
		AMS1117-3.3, IOUT=10mA, VIN=5V, TJ=25°C, 0≤IOUT≤ 1A, 4.75V≤VIN≤10V	3.250 3.235	3.300 3.300	3.349 3.365	V
		AMS1117-5.0, IOUT=10mA, VIN=7V, TJ=25°C, 0≤ IOUT≤1A, 6.5V≤VIN≤12V	4.925 4.900	5.000 5.000	5.075 5.100	V
Temperature stability of output voltage	TSout			0.3		%
linearity control	Rline	VINMIN ≤VIN≤ 12V, VOUT=Fixed/Adj, Iout=10mA		6	15	mV
load regulation	Rload	10mA≤IOUT≤1A, VOUT=Fixed/Adj		6	18	mV
differential pressure	Vdrop	IOUT=100mA		1.00	1.20	V
		IOUT=500mA		1.05	1.25	
		IOUT=1A		1.20	1.30	

Electrical Characteristics

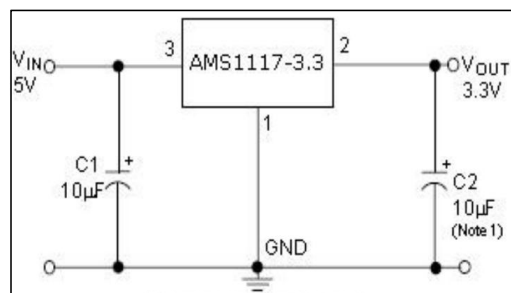
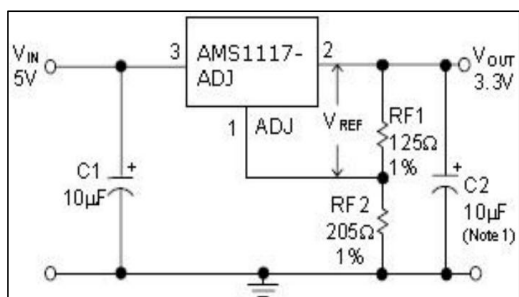
($T_{amb}=25^{\circ}\text{C}$, normal junction temperature range $-40\sim+125^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
quiescent current	I_q	$4.25\text{V} \leq V_{IN} \leq 6.5\text{V}$		5	10	mA
Ripple rejection ratio	PSRR	f _{RIIPPLE} =120Hz, (V _{IN} -V _{OUT})=3V, V _{RIIPPLE} =1VPP	50	60		dB
Adjustable current	I_{adj}			60	120	uA
Adjustable pin current change		$0 \leq I_{OUT} \leq 800\text{mA}$, $1.4\text{V} \leq V_{IN}-V_{OUT} \leq 10\text{V}$		0.2	5	uA
Temperature protection	TSD			150		$^{\circ}\text{C}$
current-limiting protection	I_{limit}		1.4	1.6	1.8	A
temperature stability				0.5		%
RMS output noise		% of V _{OUT} , $10\text{Hz} \leq f \leq 10\text{kHz}$		0.005		%
Thermal resistance coefficient (No heat sink)		SOT-223-3L		120		$^{\circ}\text{C/W}$
		TO-252-2L		100		

The internal block diagram



Typical application circuit

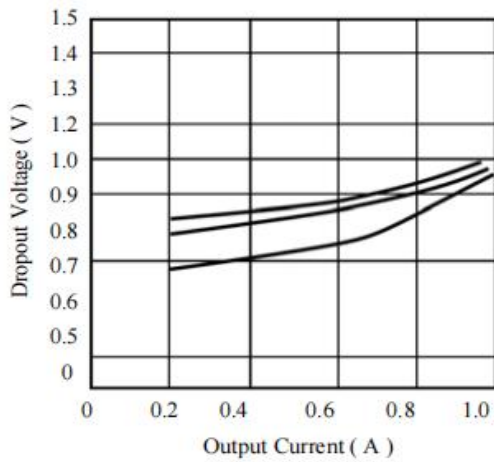


$$V_{ref} = V_{out} - V_{adj} = 1.25V \text{ (typical value)}$$

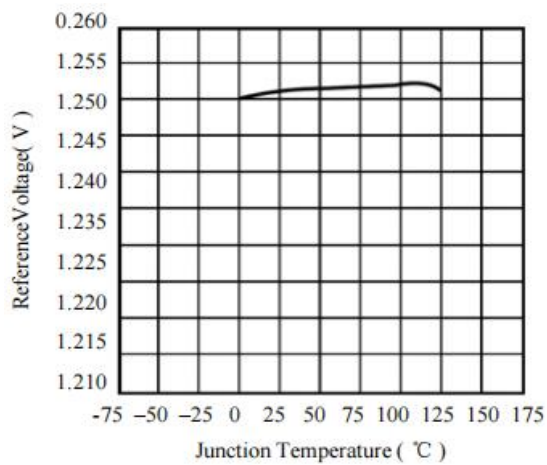
$$V_{out} = V_{ref} * (1 + R_{F2}/R_{F1}) + I_{adj} * R_{F2}$$

$$I_{adj} = 55\mu A \text{ (typical value)}$$

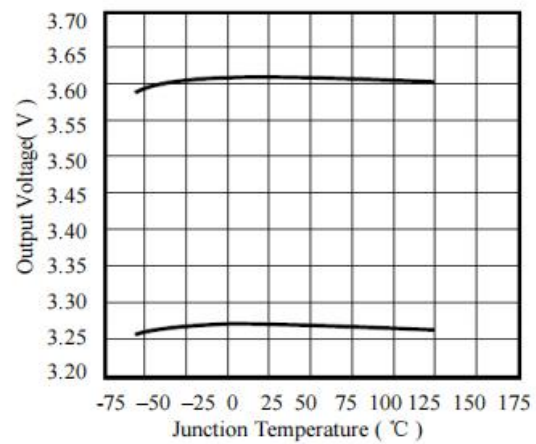
RATING AND CHARACTERISTIC CURVES



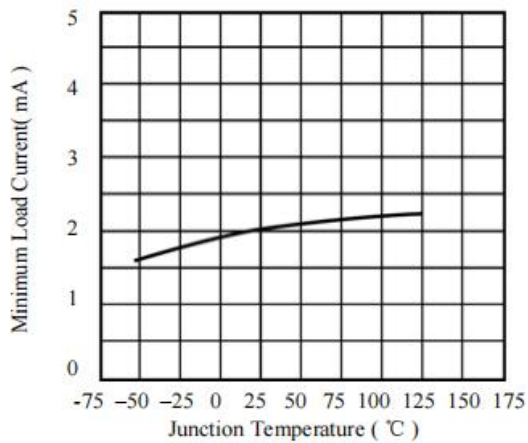
Dropout Voltage VS. Output Current



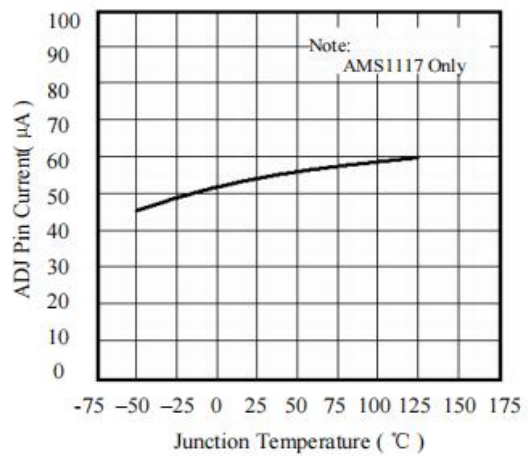
Reference Voltage VS. Temperature



Output Voltage VS. Temperature



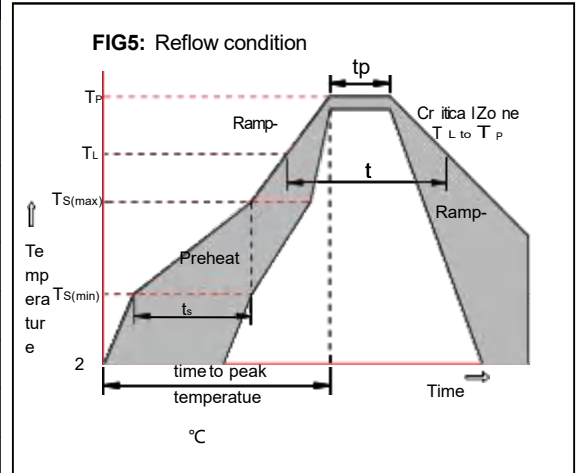
Minimum Load Current VS. Temperature



ADJ Pin Current VS. Temperature

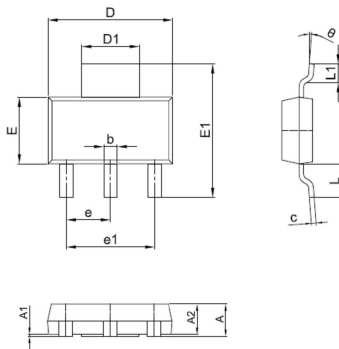
Soldering parameters

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

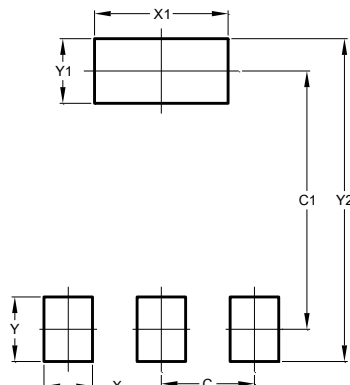


Package Dimensions & Suggested Pad Layout

SOT-223

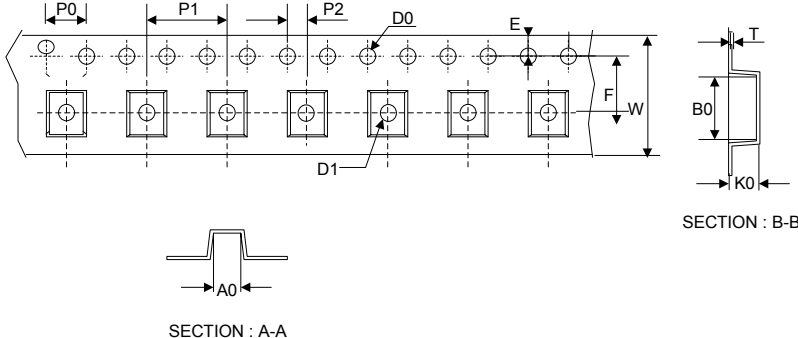
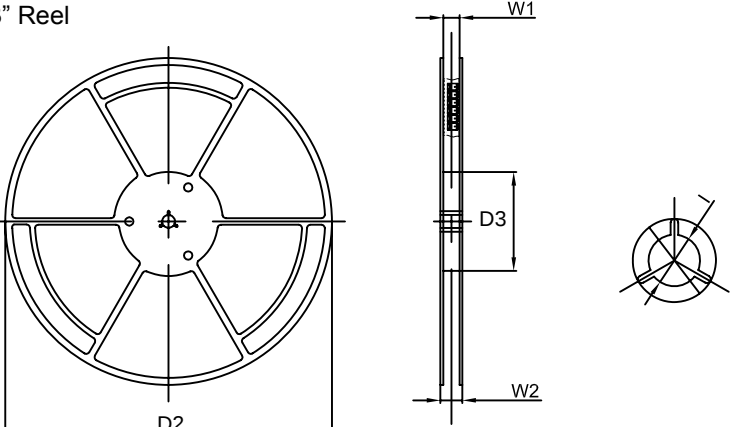


Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.80	0.059	0.071
A1	0.00	0.10	0.000	0.004
A2	1.50	1.70	0.059	0.067
b	0.65	0.75	0.026	0.030
c	0.20	0.30	0.008	0.012
D	6.40	6.60	0.252	0.260
D1	2.90	3.10	0.114	0.122
E	3.30	3.70	0.130	0.146
E1	6.85	7.15	0.270	0.281
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	1.65	1.85	0.065	0.073
L1	0.90	1.15	0.035	0.045



Dimensions	Value (in mm)
C	2.30
C1	6.00
X	1.20
X1	3.60
Y	1.70
Y1	1.70
Y2	7.70

Tape & reel specification

Tape		Symbol	Dimension (mm)
		P0	4.00±0.20
		P1	8.00±0.20
		P2	2.00±0.20
		D0	1.55±0.20
		D1	1.55±0.20
		E	1.75±0.20
		F	5.50±0.20
		W	12.00±0.20
		A0	7.40±0.20
		B0	7.50±0.20
		K0	2.10±0.20
		T	0.20±0.20
		D2	330.0±5.0
		D3	100.0±4.0
		W1	18.0±5.0
13" Reel		W2	22.0±5.0
		I	13.0±2.0
		Quantity: 2500PCS	