

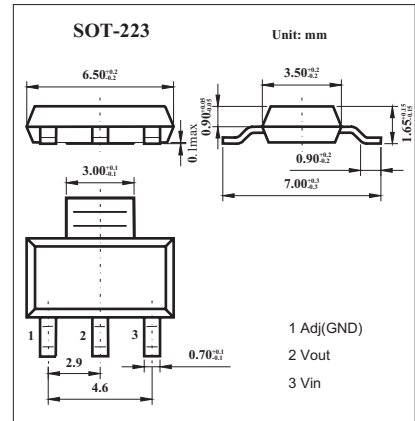


SOT-223 Encapsulate Three Terminal Voltage Regulator

1A Low Dropout Positive Adjustable or Fixed-Mode Regulator AMS1117

■ Features

- 1.4V maximum dropout at full load current
- Fast transient response
- Output current limiting
- Built-in thermal shutdown
- Good noise rejection
- 3-Terminal Adjustable or Fixed 1.5V, 1.8V, 1.9V, 2.5V, 3.3V, 5.0V

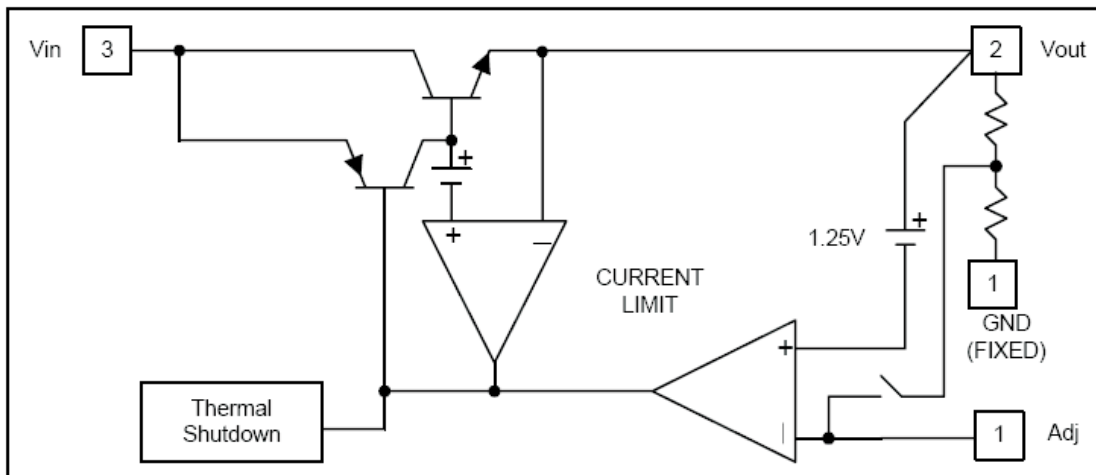


■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Maximum Input Voltage	V_{in}	18	V
Power Dissipation	P_D	Internally Limited	
Thermal Resistance Junction-to-Ambient	θ_{JA}	117	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction-to-Case *	θ_{JC}	15	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_{OP}	0 to +150	$^\circ\text{C}$
Storage Temperature	T_{ST}	-65 to +150	$^\circ\text{C}$

* Control Circuitry/Power Transistor

■ Block Diagram



AMS1117

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■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Testconditions	Min	Typ	Max	Unit
Reference Voltage	AMS1117-ADJ $T_J=25^\circ\text{C}, (V_{IN}-V_{OUT})=1.5\text{V}, I_o=10\text{mA}$	1.225	1.250	1.275	V
Output Voltage	AMS1117-1.5 $I_{OUT} = 10\text{mA}, T_J = 25^\circ\text{C}, 3\text{V} \leq V_{IN} \leq 12\text{V}$	1.470	1.500	1.530	V
	AMS1117-1.8 $I_{OUT} = 10\text{mA}, T_J = 25^\circ\text{C}, 3.3\text{V} \leq V_{IN} \leq 12\text{V}$	1.764	1.800	1.836	V
	AMS1117-1.9 $I_{OUT} = 10\text{mA}, T_J = 25^\circ\text{C}, 3.3\text{V} \leq V_{IN} \leq 12\text{V}$	1.862	1.900	1.938	V
	AMS1117-2.5 $I_{OUT} = 10\text{mA}, T_J = 25^\circ\text{C}, 4\text{V} \leq V_{IN} \leq 12\text{V}$	2.450	2.500	2.550	V
	AMS1117-3.3 $I_{OUT} = 10\text{mA}, T_J = 25^\circ\text{C}, 4.8\text{V} \leq V_{IN} \leq 12\text{V}$	3.235	3.300	3.365	V
	AMS1117-5.0 $I_{OUT} = 10\text{mA}, T_J = 25^\circ\text{C}, 6.5\text{V} \leq V_{IN} \leq 12\text{V}$	4.900	5.000	5.100	V
Line Regulation	AMS1117-XXX $I_o=10\text{mA}, V_{OUT}+1.5\text{V} < V_{IN} < 12\text{V}, T_J=25^\circ\text{C}$			0.2	%
Load Regulation	AMS1117-ADJ $V_{IN}=3.3\text{V}, V_{adj}=0, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$			1	%
	AMS1117-1.5 $V_{IN}=3\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		12	15	mV
	AMS1117-1.8 $V_{IN}=3.3\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		15	18	mV
	AMS1117-1.9 $V_{IN}=3.3\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		16	19	mV
	AMS1117-2.5 $V_{IN}=4\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		20	25	mV
	AMS1117-3.3 $V_{IN}=5\text{V}, 0\text{mA} \leq I_o \leq 1\text{A}, T_J=25^\circ\text{C}$		26	33	mV
	AMS1117-5.0 $V_{IN}=8\text{V}, 0\text{mA} \leq I_o \leq 1\text{A}, T_J=25^\circ\text{C}$		40	50	mV
Dropout Voltage ($V_{IN}-V_{OUT}$)	AMS1117-XXX $I_{OUT} = 1\text{A}, \Delta V_{OUT}=0.1\%V_{OUT}$		1.3	1.4	V
Current Limit	AMS1117-XXX $(V_{IN}-V_{OUT}) = 5\text{V}$	1.1			A
Minimum Load Current	AMS1117-XXX $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$		5	10	mA
Thermal Regulation	$T_A=25^\circ\text{C}, 30\text{ms pulse}$		0.008	0.04	%/W
Ripple Rejection	$F=120\text{Hz}, C_{OUT}=25\mu\text{F Tantalum}, I_{OUT}=1\text{A}$				
	AMS1117-XXX $V_{IN}=V_{OUT}+3\text{V}$		60	70	dB
Temperature Stability	$I_o=10\text{mA}$		0.5		%

Typical Applications

