

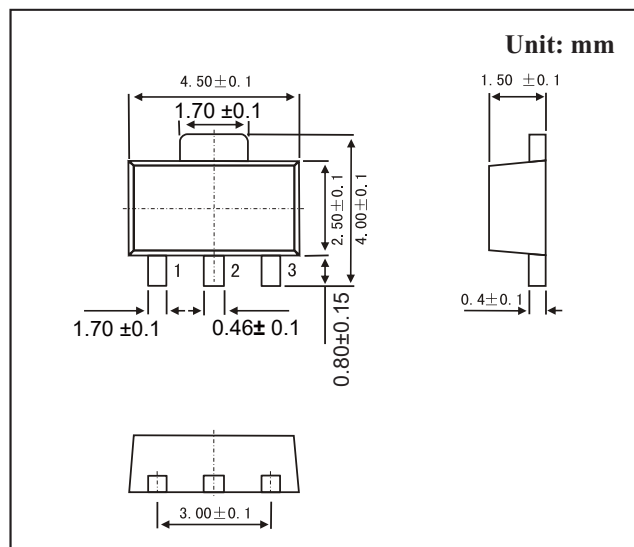
SOT-89 Three-terminal positive voltage regulator

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

MECHANICAL DATA

- Case: SOT-89 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
DC Supply Voltage	V_{in}	-0.3 to 12	V
Power Dissipation	P_D	Internally Limited	
Thermal Resistance Junction-to-Ambient	θ_{JA}	300	°C/W
Thermal Resistance Junction-to-Case *	θ_{JC}	100	°C/W
Operating Junction Temperature Range	T_{OP}	0 to +150	°C
Storage Temperature	T_{ST}	-65 to +150	°C

* Control Circuitry/Power Transistor

Electrical Specification ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Testconditions	Min	Typ	Max	Unit
Reference Voltage	A1117-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	A1117-1.5 $I_{out} = 10\text{mA}, T_J = 25^\circ\text{C}, 3\text{V} \leq V_{in} \leq 12\text{V}$	1.470	1.500	1.530	V
	A1117-1.8 $I_{out} = 10\text{mA}, T_J = 25^\circ\text{C}, 3.3\text{V} \leq V_{in} \leq 12\text{V}$	1.764	1.800	1.836	V
	A1117-1.9 $I_{out} = 10\text{mA}, T_J = 25^\circ\text{C}, 3.3\text{V} \leq V_{in} \leq 12\text{V}$	1.862	1.900	1.938	V
	A1117-2.5 $I_{out} = 10\text{mA}, T_J = 25^\circ\text{C}, 4\text{V} \leq V_{in} \leq 12\text{V}$	2.450	2.500	2.550	V
	A1117-3.3 $I_{out} = 10\text{mA}, T_J = 25^\circ\text{C}, 4.8\text{V} \leq V_{in} \leq 12\text{V}$	3.235	3.300	3.365	V
	A1117-5.0 $I_{out} = 10\text{mA}, T_J = 25^\circ\text{C}, 6.5\text{V} \leq V_{in} \leq 12\text{V}$	4.900	5.000	5.100	V
Line Regulation	A1117-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	A1117-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	%
	A1117-1.5 $V_{in}=3\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		12	15	mV
	A1117-1.8 $V_{in}=3.3\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		15	18	mV
	A1117-1.9 $V_{in}=3.3\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		16	19	mV
	A1117-2.5 $V_{in}=4\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		20	25	mV
	A1117-3.3 $V_{in}=5\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		26	33	mV
	A1117-5.0 $V_{in}=8\text{V}, 0\text{mA} < I_o < 1\text{A}, T_J=25^\circ\text{C}$		40	50	mV
Dropout Voltage ($V_{in}-V_{out}$)	A1117-XXX $I_{out} = 1\text{A}, \Delta V_{out}=0.1\% V_{out}$		1.3	1.4	V
Current Limit	A1117-XXX $(V_{in}-V_{out}) = 5\text{V}$	1.1			A
Minimum Load Current	A1117-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	$F=120\text{Hz}, C_{out}=25\mu\text{F Tantalum}, I_{out}=1\text{A}$				
	A1117-XXX $V_{in}=V_{out}+3\text{V}$		60	70	dB
Temperature Stability	$I_o=10\text{mA}$		0.5		%

RATINGS AND CHARACTERISTIC CURVES

■ Typical Characteristics

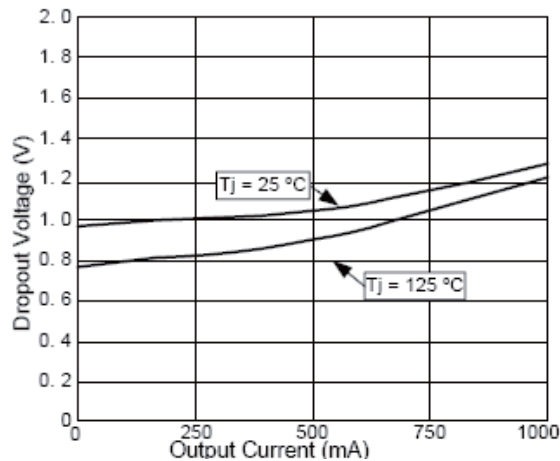


Fig.1 Dropout Voltage vs Output Current

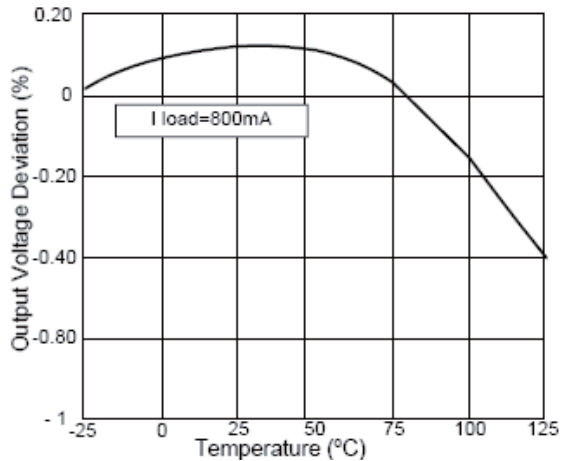


Fig.2 Load Regulation vs Temperature

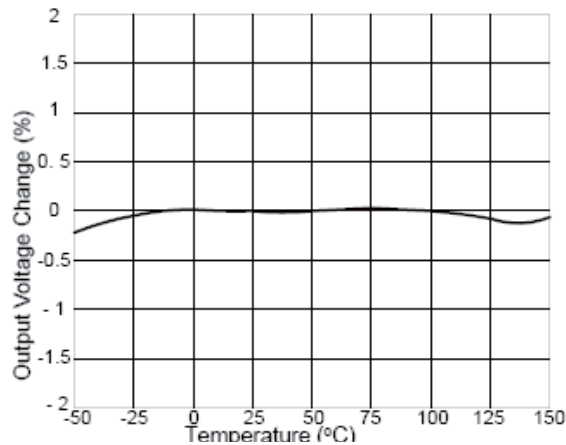


Fig.3 Percent Change in Output Voltage vs Temperature

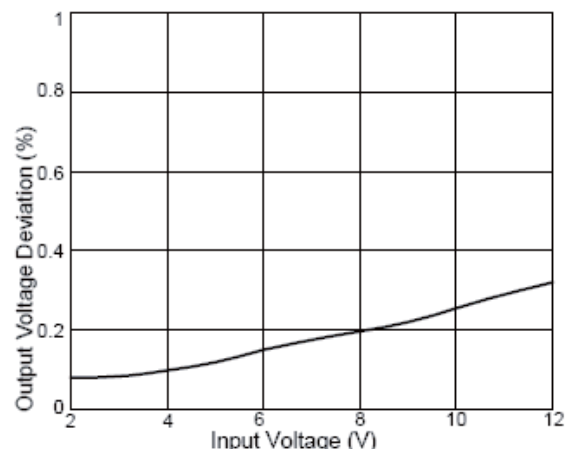


Fig.4 Line Regulation

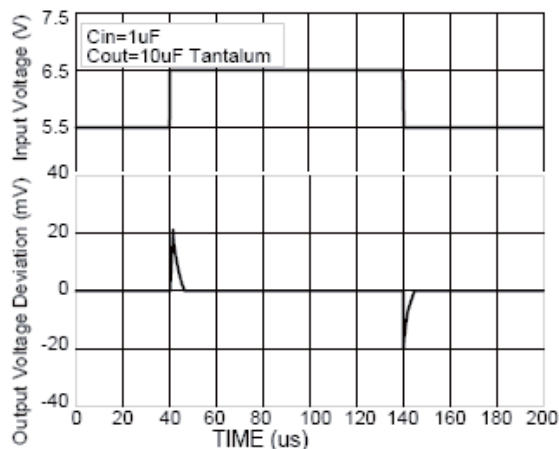


Fig.5 Line Transient Response

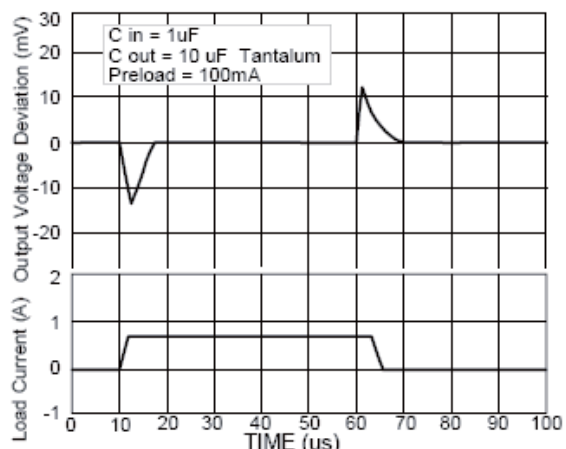


Fig.6 Load Transient Response