1A Low Dropout Positive Adjustable or Fixed-Mode 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

1 Adj(GND)
2 Vout
3 Vin

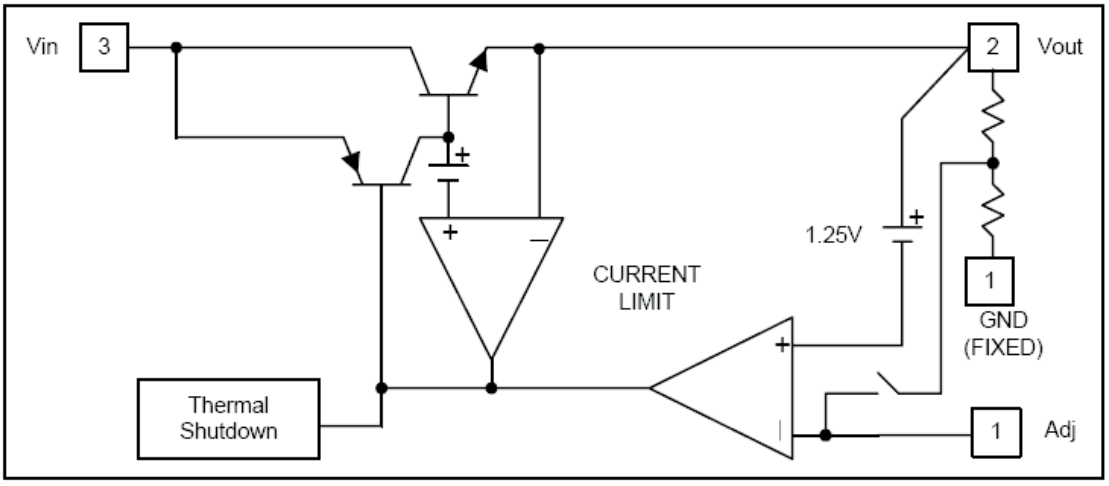
■ Simplified outline(SOT-223)

■ Absolute Maximum Ratings Ta = 25℃

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}	117	℃/W
Thermal Resistance Junction-to-Case *	θ_{JC}	15	℃/W
Operating Junction Temperature Range	T_{OP}	0 to +150	℃
Storage Temperature	T_{ST}	-65 to +150	℃

* Control Circuitry/Power Transistor

■ Block Diagram



■ Electrical Characteristics Ta = 25℃

Parameter		Testconditons	Min	Typ	Max	Unit
ReferenceVoltage	1117-ADJ	T_J=25℃,(V_{IN}-O_{UT})=1.5V,I_O=10mA	1.225	1.250	1.275	V
Output Voltage	1117-1.5	I_{OUT} = 10mA, T_J = 25℃, 3V≤V_{IN}≤12V	1.470	1.500	1.530	V
	1117-1.8	I_{OUT} = 10mA, T_J = 25℃, 3.3V≤V_{IN}≤12V	1.764	1.800	1.836	V
	1117-1.9	I_{OUT} = 10mA, T_J = 25℃, 3.3V≤V_{IN}≤12V	1.862	1.900	1.938	V
	1117-2.5	I_{OUT} = 10mA, T_J = 25℃, 4V≤V_{IN}≤12V	2.450	2.500	2.550	V
	1117-3.3	I_{OUT} = 10mA, T_J = 25℃, 4.8V≤V_{IN}≤12V	3.235	3.300	3.365	V
	1117-5.0	I_{OUT} = 10mA, T_J = 25℃, 6.5V≤V_{IN}≤12V	4.900	5.000	5.100	V
LineRegulation	1117-XXX	I_O=10mA,V_{OUT}+1.5V＜V_{IN}＜12V, T_J=25℃			0.2	%
Load Regulation	1117-ADJ	V_{IN}=3.3V,V_{adj}=0,0mA＜I_o＜1A,T_J=25℃			1	%
	1117-1.5	V_{IN}=3V,0mA＜I_o＜1A,T_J=25℃		12	15	mV
	1117-1.8	V_{IN}=3.3V,0mA＜I_o＜1A,T_J=25℃		15	18	mV
	1117-1.9	V_{IN}=3.3V,0mA＜I_o＜1A,T_J=25℃		16	19	mV
	1117-2.5	V_{IN}=4V,0mA＜I_o＜1A,T_J=25℃		20	25	mV
	1117-3.3	V_{IN}=5V,0mA≤I_o≤1A,T_J=25℃		26	33	mV
	1117-5.0	V_{IN}=8V,0mA≤I_o≤1A,T_J=25℃		40	50	mV
Dropout Voltage (V_{IN}-V_{OUT})	1117-XXX	I_{OUT} = 1A ,△V_{OUT}=0.1%V_{OUT}		1.3	1.4	V
CurrentLimit	1117-XXX	(V_{IN}-V_{OUT}) = 5V	1. 1			A
MinimumLoadCurrent	1117-XXX	0℃≤Tj≤125℃		5	10	mA
Thermal Regulation		T_A=25℃, 30ms pulse		0.008	0.04	%/W
Ripple Rejection	F=120Hz,C_{OUT}=25uF Tantalum, I_{OUT}=1A					
	1117-XXX V	$_{IN}$=V_{OUT}+3V		60	70	dB
Temperature Stability		I_O=10mA		0.5		%

■ Typical Characteristics

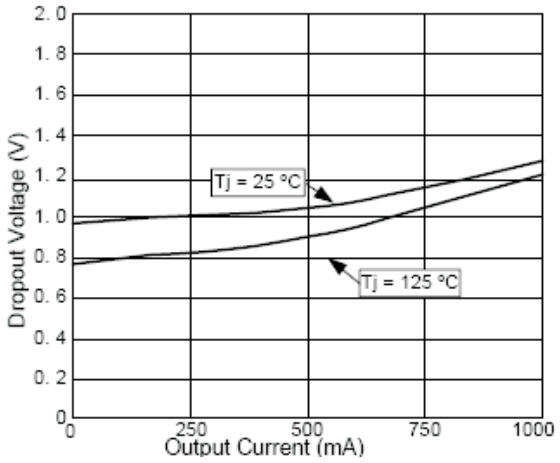


Fig.1 Dropout Voltage vs Output Current

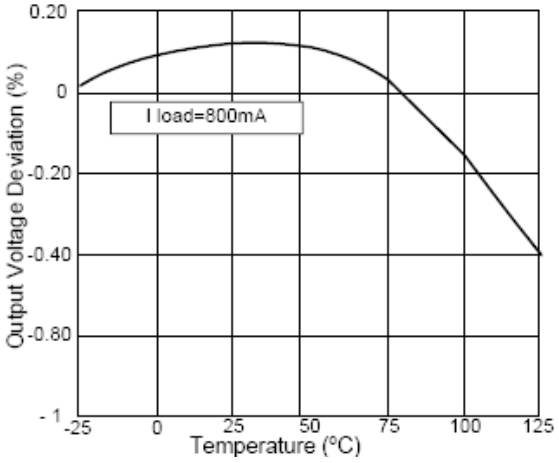


Fig.2 Load Regulation vs Temperature

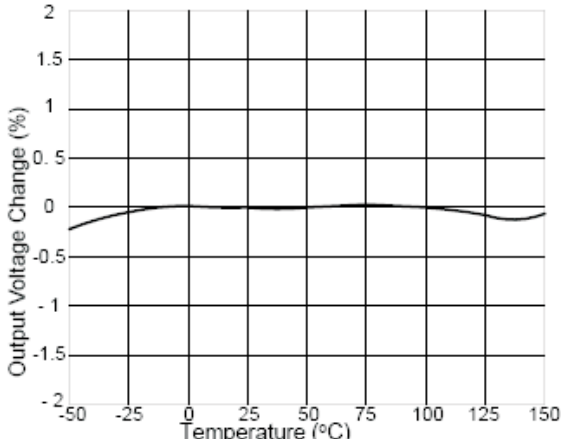


Fig.3 Percent Change in Output Voltage vs Temperature

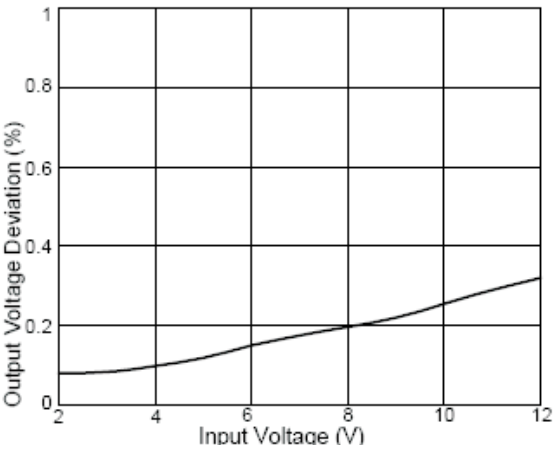


Fig.4 Line Regulation

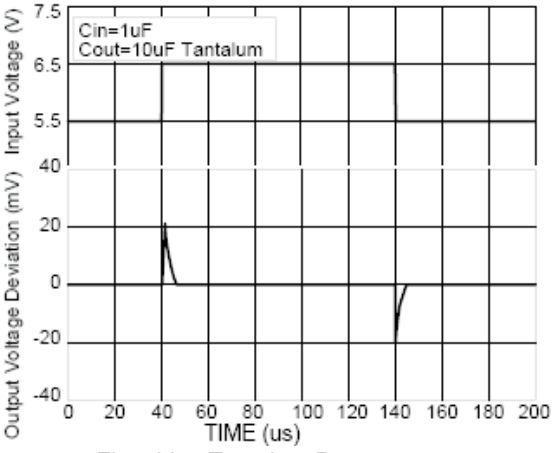


Fig.5 Line Transient Response

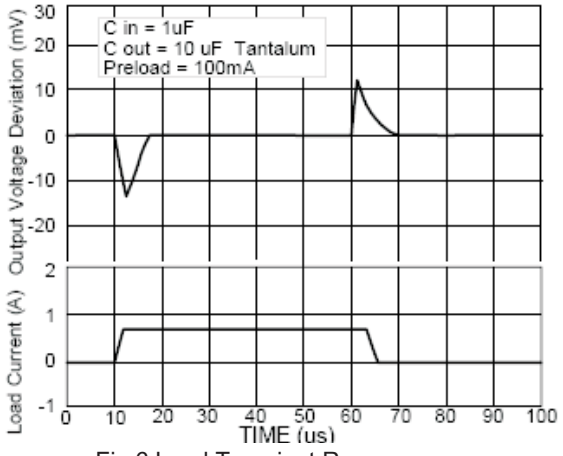
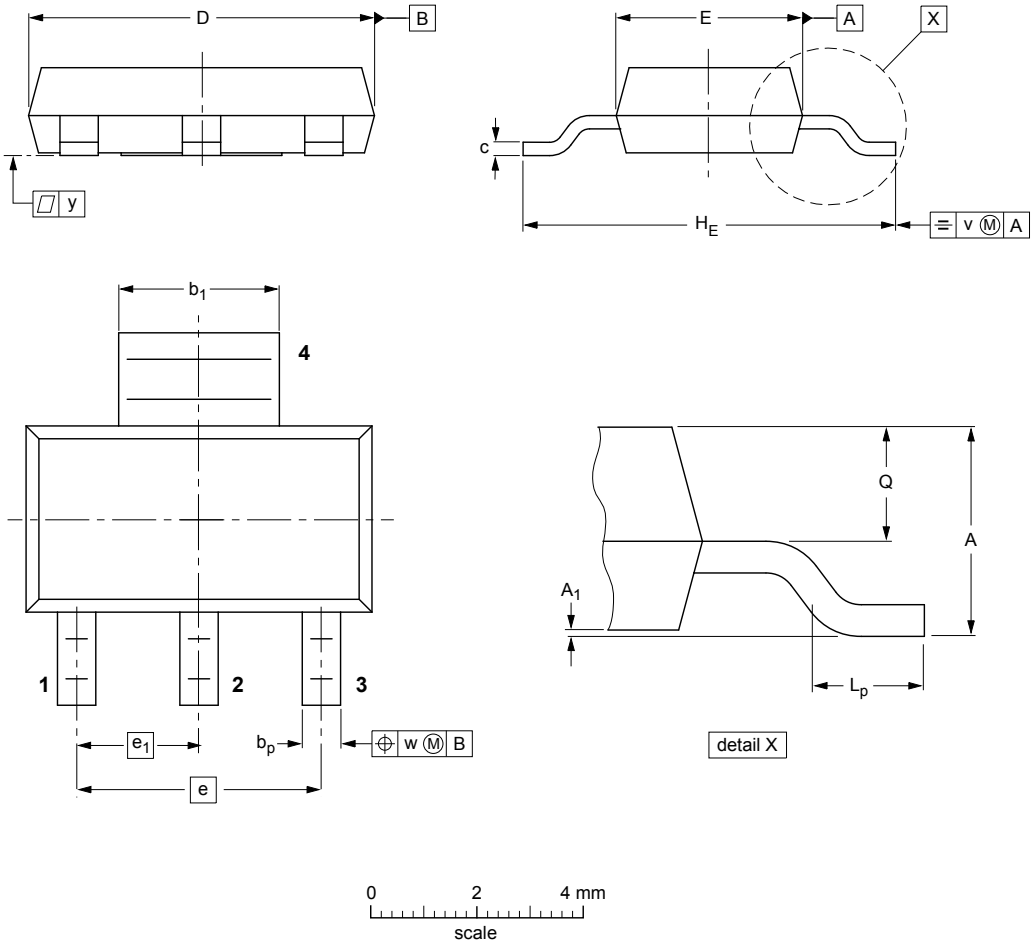


Fig.6 Load Transient Response

■ SOT-223



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1	b_p	b_1	c	D	E	e	e_1	H_E	L_p	Q	v	w	y
mm	1.8 1.5	0.10 0.01	0.80 0.60	3.1 2.9	0.32 0.22	6.7 6.3	3.7 3.3	4.6	2.3	7.3 6.7	1.1 0.7	0.95 0.85	0.2	0.1	0.1