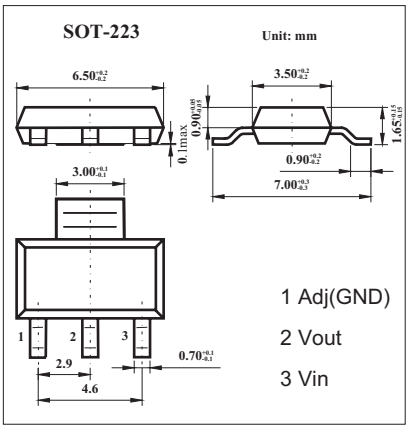
1A Low Dropout Positive Adjustable or Fixed-Mode Regulator

KMT1117(LMT1117)

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

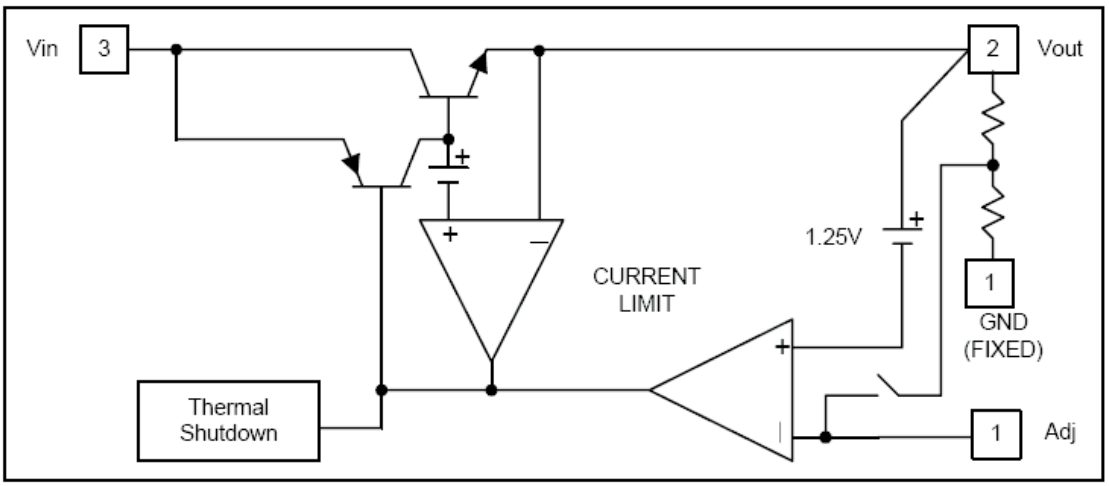


Absolute Maximum Ratings Ta = 25℃

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



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■ Electrical Characteristics Ta = 25℃

Parameter		Testconditons	Min	Typ	Max	Unit
Reference Voltage	KMT1117-ADJ	T_J=25℃,(V_{IN}-V_{OUT})=1.5V,I_O=10mA	1.225	1.250	1.275	V
Output Voltage	KMT1117-1.5	I_{OUT} = 10mA, T_J = 25℃, 3V≤V_{IN}≤12V	1.470	1.500	1.530	V
	KMT1117-1.8	I_{OUT} = 10mA, T_J = 25℃, 3.3V≤V_{IN}≤12V	1.764	1.800	1.836	V
	KMT1117-1.9	I_{OUT} = 10mA, T_J = 25℃, 3.3V≤V_{IN}≤12V	1.862	1.900	1.938	V
	KMT1117-2.5	I_{OUT} = 10mA, T_J = 25℃, 4V≤V_{IN}≤12V	2.450	2.500	2.550	V
	KMT1117-3.3	I_{OUT} = 10mA, T_J = 25℃, 4.8V≤V_{IN}≤12V	3.235	3.300	3.365	V
	KMT1117-5.0	I_{OUT} = 10mA, T_J = 25℃, 6.5V≤V_{IN}≤12V	4.900	5.000	5.100	V
Line Regulation	KMT1117-XXX	I_O=10mA,V_{OUT}+1.5V＜V_{IN}＜12V, T_J=25℃			0.2	%
Load Regulation	KMT1117-ADJ	V_{IN}=3.3V,V_{adj}=0,0mA＜I_o＜1A,T_J=25℃			1	%
	KMT1117-1.5	V_{IN}=3V,0mA＜I_o＜1A,T_J=25℃		12	15	mV
	KMT1117-1.8	V_{IN}=3.3V,0mA＜I_o＜1A,T_J=25℃		15	18	mV
	KMT1117-1.9	V_{IN}=3.3V,0mA＜I_o＜1A,T_J=25℃		16	19	mV
	KMT1117-2.5	V_{IN}=4V,0mA＜I_o＜1A,T_J=25℃		20	25	mV
	KMT1117-3.3	V_{IN}=5V,0mA≤I_o≤1A,T_J=25℃		26	33	mV
	KMT1117-5.0	V_{IN}=8V,0mA≤I_o≤1A,T_J=25℃		40	50	mV
Dropout Voltage (V_{IN}-V_{OUT})	KMT1117-XXX	I_{OUT} = 1A ,△V_{OUT}=0.1%V_{OUT}		1.3	1.4	V
Current Limit	KMT1117-XXX	(V_{IN}-V_{OUT}) = 5V	1. 1			A
Minimum Load Current	KMT1117-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					
	KMT1117-XXX	V_{IN}=V_{OUT}+3V		60	70	dB
Temperature Stability		I_O=10mA		0.5		%

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■ Typical Characteristics

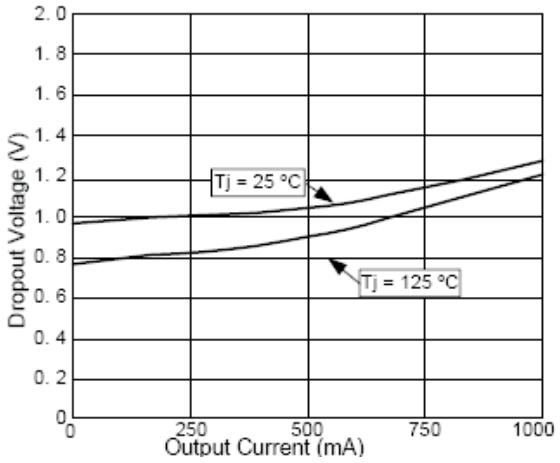

Fig.1 Dropout Voltage vs Output Current

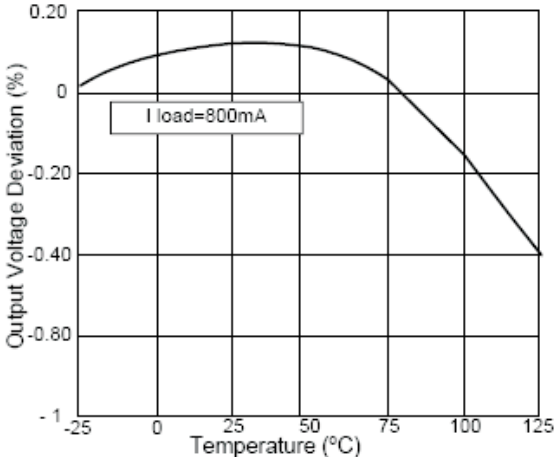

Fig.2 Load Regulation vs Temperature

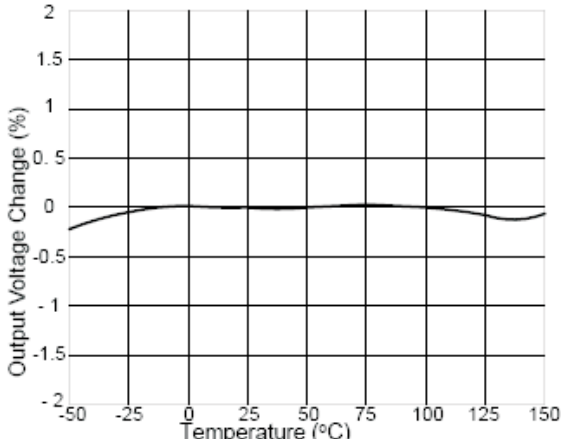

Fig.3 Percent Change in Output Voltage vs Temperature

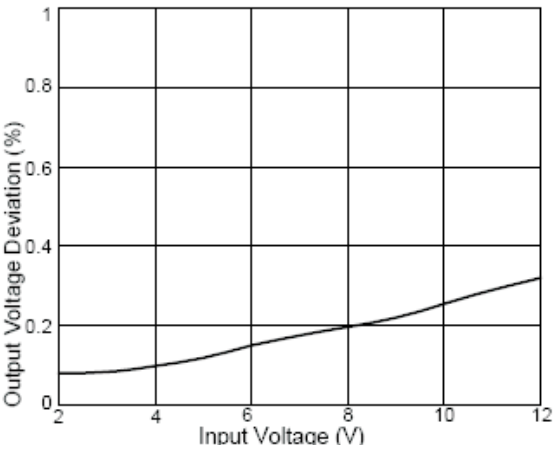

Fig.4 Line Regulation

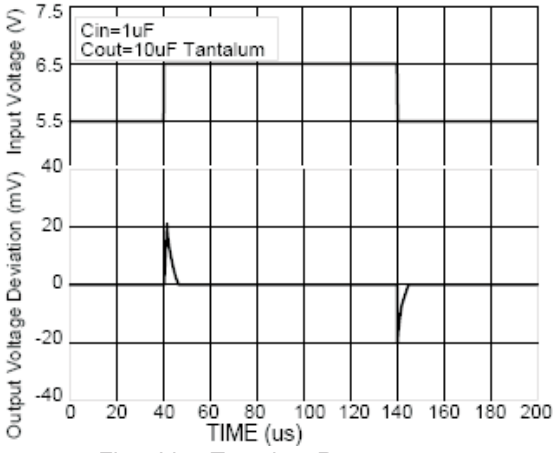

Fig.5 Line Transient Response

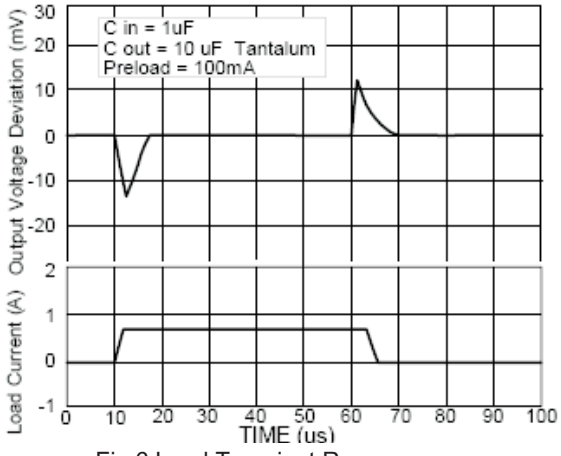

Fig.6 Load Transient Response