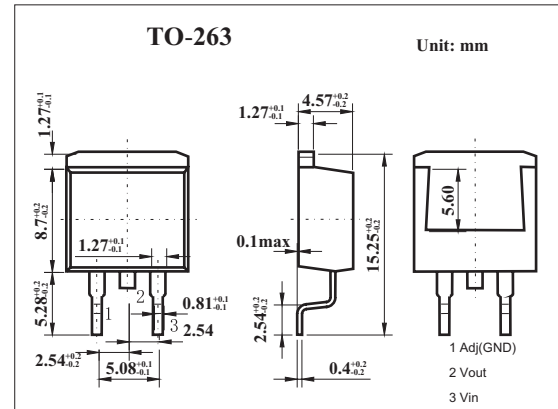


## 1A Low Dropout Positive Adjustable or Fixed-Mode Regulator KMB1117(LMB1117)

### ■ 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

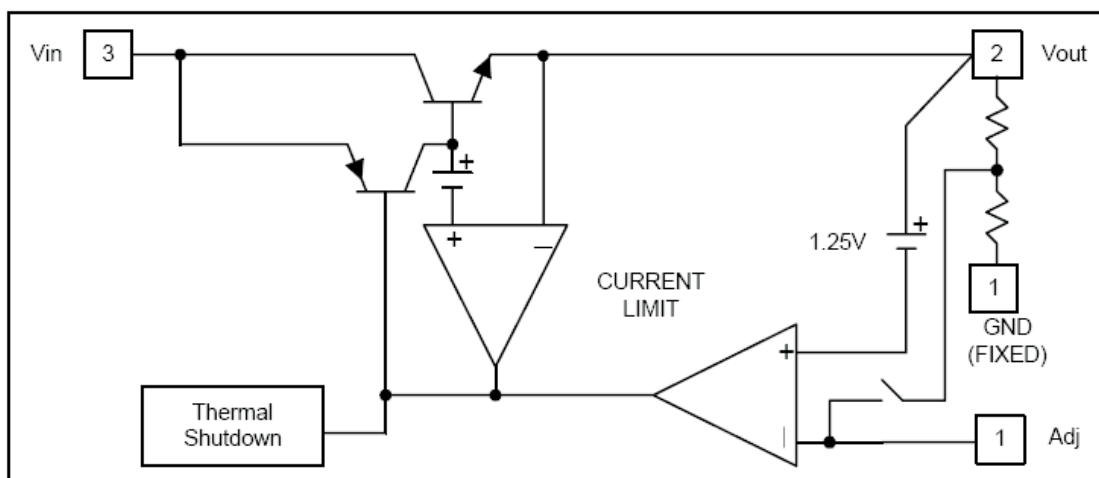


### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
DC Supply Voltage	$V_{in}$	-0.3 to 12	V
Power Dissipation	$P_D$	Internally Limited	
Thermal Resistance Junction-to-Ambient	$\theta_{JA}$	85	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction-to-Case *	$\theta_{JC}$	0.65/2.7	$^\circ\text{C}/\text{W}$
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



**KMB1117(LMB1117)**

## ■ Electrical Characteristics Ta = 25°C

Parameter		Testconditions	Min	Typ	Max	Unit
Reference Voltage	KMB1117-ADJ	T <sub>J</sub> =25°C, (V <sub>IN</sub> -V <sub>OUT</sub> )=1.5V, I <sub>o</sub> =10mA	1.225	1.250	1.275	V
Output Voltage	KMB1117-1.5	I <sub>OUT</sub> = 10mA, T <sub>J</sub> = 25°C, 3V ≤ V <sub>IN</sub> ≤ 12V	1.470	1.500	1.530	V
	KMB1117-1.8	I <sub>OUT</sub> = 10mA, T <sub>J</sub> = 25°C, 3.3V ≤ V <sub>IN</sub> ≤ 12V	1.764	1.800	1.836	V
	KMB1117-1.9	I <sub>OUT</sub> = 10mA, T <sub>J</sub> = 25°C, 3.3V ≤ V <sub>IN</sub> ≤ 12V	1.862	1.900	1.938	V
	KMB1117-2.5	I <sub>OUT</sub> = 10mA, T <sub>J</sub> = 25°C, 4V ≤ V <sub>IN</sub> ≤ 12V	2.450	2.500	2.550	V
	KMB1117-3.3	I <sub>OUT</sub> = 10mA, T <sub>J</sub> = 25°C, 4.8V ≤ V <sub>IN</sub> ≤ 12V	3.235	3.300	3.365	V
	KMB1117-5.0	I <sub>OUT</sub> = 10mA, T <sub>J</sub> = 25°C, 6.5V ≤ V <sub>IN</sub> ≤ 12V	4.900	5.000	5.100	V
Line Regulation	KMB1117-XXX	I <sub>o</sub> =10mA, V <sub>OUT</sub> +1.5V < V <sub>IN</sub> < 12V, T <sub>J</sub> =25°C			0.2	%
Load Regulation	KMB1117-ADJ	V <sub>IN</sub> =3.3V, V <sub>adj</sub> =0, 0mA < I <sub>o</sub> < 1A, T <sub>J</sub> =25°C			1	%
	KMB1117-1.5	V <sub>IN</sub> =3V, 0mA < I <sub>o</sub> < 1A, T <sub>J</sub> =25°C		12	15	mV
	KMB1117-1.8	V <sub>IN</sub> =3.3V, 0mA < I <sub>o</sub> < 1A, T <sub>J</sub> =25°C		15	18	mV
	KMB1117-1.9	V <sub>IN</sub> =3.3V, 0mA < I <sub>o</sub> < 1A, T <sub>J</sub> =25°C		16	19	mV
	KMB1117-2.5	V <sub>IN</sub> =4V, 0mA < I <sub>o</sub> < 1A, T <sub>J</sub> =25°C		20	25	mV
	KMB1117-3.3	V <sub>IN</sub> =5V, 0mA ≤ I <sub>o</sub> ≤ 1A, T <sub>J</sub> =25°C		26	33	mV
	KMB1117-5.0	V <sub>IN</sub> =8V, 0mA ≤ I <sub>o</sub> ≤ 1A, T <sub>J</sub> =25°C		40	50	mV
Dropout Voltage (V <sub>IN</sub> -V <sub>OUT</sub> )	KMB1117-XXX	I <sub>OUT</sub> = 1A, ΔV <sub>OUT</sub> =0.1%V <sub>OUT</sub>		1.3	1.4	V
Current Limit	KMB1117-XXX	(V <sub>IN</sub> -V <sub>OUT</sub> ) = 5V	1.1			A
Minimum Load Current	KMB1117-XXX	0°C ≤ T <sub>J</sub> ≤ 125°C		5	10	mA
Thermal Regulation		T <sub>A</sub> =25°C, 30ms pulse		0.008	0.04	%/W
Ripple Rejection		F=120Hz, C <sub>OUT</sub> =25uF Tantalum, I <sub>OUT</sub> =1A				
	KMB1117-XXX	V <sub>IN</sub> =V <sub>OUT</sub> +3V		60	70	dB
Temperature Stability		I <sub>o</sub> =10mA		0.5		%

### KMB1117(LMB1117)

■ Typical Characteristics

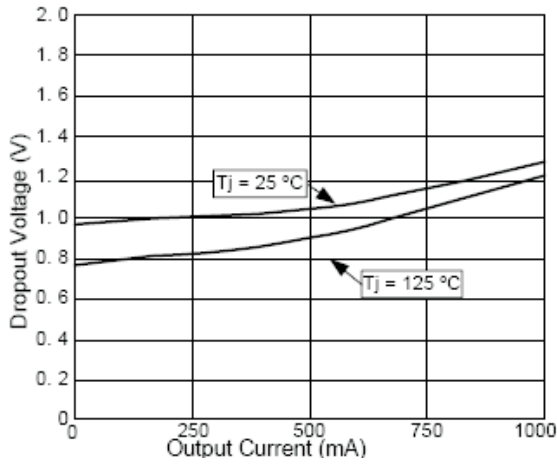


Fig.1 Dropout Voltage vs Output Current

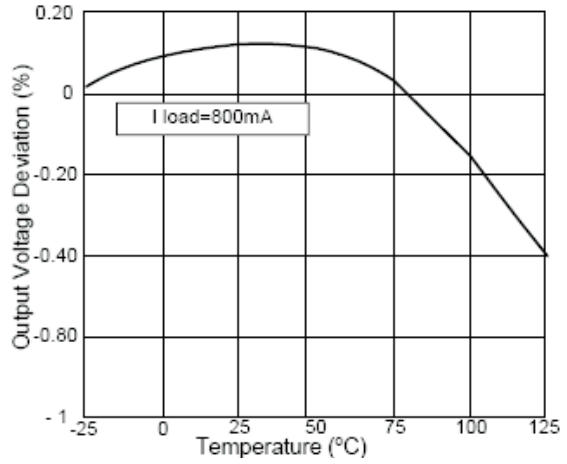


Fig.2 Load Regulation vs Temperature

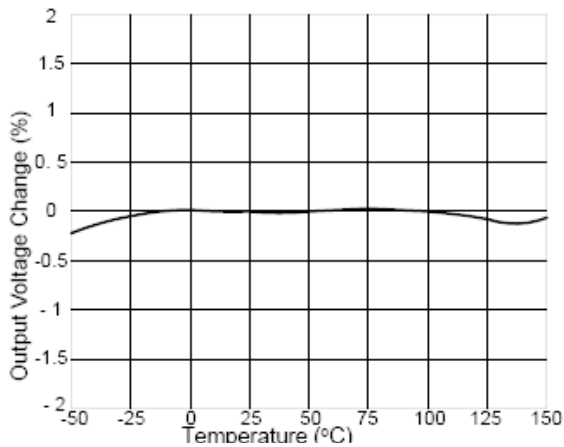


Fig.3 Percent Change in Output Voltage vs Temperature

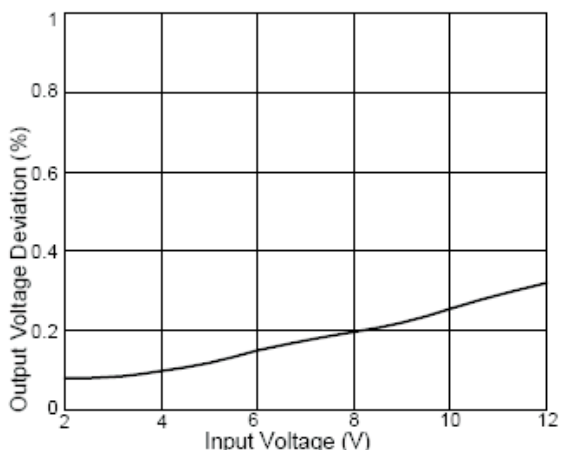


Fig.4 Line Regulation

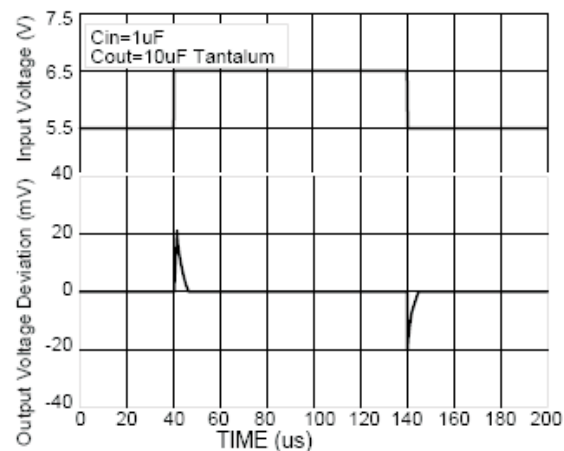


Fig.5 Line Transient Response

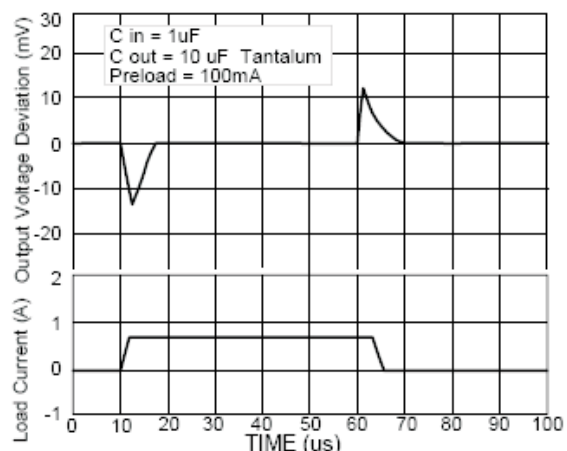


Fig.6 Load Transient Response