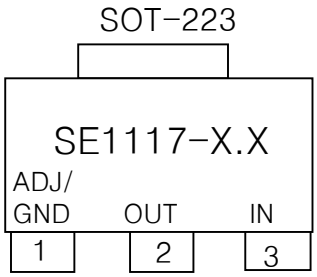
TECHNICAL DATA

SE1117-X.X

LDO Linear Regulator

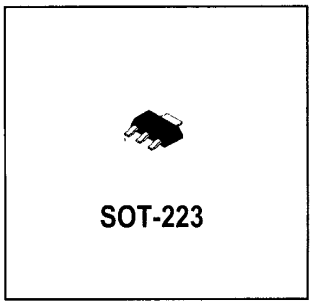
Features

- ◆ Adjustable and Fixed of 1.8V, 2.5V, 3.3V, 5.0V
- ◆ Space saving SMD types of SOT-223
- ◆ Output Current up to 1A
- ◆ Low Dropout Voltage (700mV at 1A Output Current)
- ◆ Very Low Quiescent Current
- ◆ Internal Current and Terminal Limit
- ◆ Output trimmed to ±2% Tolerance
- ◆ 0.04% Line Regulation, 0.1% Load Regulation



General Description

The SE1117 is a low power positive-voltage regulator designed to meet 1A of output current.
The SE1117 features very low quiescent current and very low dropout voltage of 700mV at a full load and lower as output current decreases.
The SE1117 is available in four fixed voltages, 1.8V, 2.5V, 3.3V and 5.0V. Additonally it is also available in adjustable version.
The SE1117 series is offered in a 3-pin SOT-223 packages.
A minimum of 10uF capacitor is required at the output to improve the transient response and stability.



Applications

- ◆ Post Regulator for sitching DC/DC Converter
- ◆ High Efficiency Linear Regulator
- ◆ Battery Chargers
- ◆ PC Add on Card
- ◆ Motherboard clock supplies

Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN(MAX)}$	7	V
Junction Temperature	T_J	0 ~ +125	℃
Storage Temperature	T_{STG}	−55 ~ +150	℃
Lead Temperature	T_{SOL}	Max. 260	℃

Electrical Characteristics

(Co = 10uF, Ta = 25℃, unless otherwise specified)

Parameter	Symbol	Test Condition	Mln.	Typ.	Max.	Units
Reference Voltage	V_{REF}	SE1117-AD Only $1.4V<(V_{IN}-V_{OUT})<10V$, $10mA<I_O<1A$	1.225	1.250	1.275	V
Output Voltage	V_{OUT}	SE1117-1.8 $0<I_{OUT}<1A$, $3.9V<V_{IN}<10V$	1.764	1.800	1.836	V
		SE1117-2.5 $0<I_{OUT}<1A$, $3.9V<V_{IN}<10V$	2.450	2.500	2.550	V
		SE1117-3.3 $0<I_{OUT}<1A$, $4.75V<V_{IN}<10V$	3.234	3.300	3.366	V
		SE1117-5.0 $0<I_{OUT}<1A$, $6.5V<V_{IN}<15V$	4.900	5.000	5.100	V

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Electrical Characteristics

(Vin = 5V, Co = 10uF, Ta = 25℃, unless otherwise specified)

Parameter	Symbol	Test Condition	Mln.	Typ.	Max.	Units
Line Regulation	dV_{OUT1}	SE1117-AD I_{OUT}=10mA, 1.5V < (V_{IN}-V_{OUT}) < 13.5V	-	0.035	0.2	%
		SE1117-1.8 I_{OUT}=0mA, 3.9V < V_{IN} < 10V	-	0.04	0.2	mV
		SE1117-2.5 I_{OUT}=0mA, 3.9V < V_{IN} < 10V	-	0.04	0.2	mV
		SE1117-3.3 I_{OUT}=0mA, 4.75V < V_{IN} < 15V	-	0.04	0.2	mV
		SE1117-5.0 I_{OUT}=0mA, 6.50V < V_{IN} < 15V	-	0.04	0.2	mV
Load Regulation	dV_{OUT2}	SE1117-AD V_{IN}-V_{OUT}=3V, 10mA < I_{OUT} < 1A	-	0.1	0.4	%
		SE1117-1.8 V_{IN}=3.9V, 0 < I_{OUT} < 1A	-	0.08	0.4	mV
		SE1117-2.5 V_{IN}=3.9V, 0 < I_{OUT} < 1A	-	0.08	0.4	mV
		SE1117-3.3 V_{IN}=4.75V, 0 < I_{OUT} < 1A	-	0.08	0.4	mV
		SE1117-5.0 V_{IN}=6.5V, 0 < I_{OUT} < 1A	-	0.08	0.4	mV
Dropout Voltage 1	V_{DROP1}	SE1117-AD I_{OUT}=100mA,V_{IN}=V_{OUT}+0.8V	-	1.0	1.1	V
		Others I_{OUT}=100mA	-			
Dropout Voltage 2	V_{DROP2}	SE1117-AD I_{OUT}=1A,V_{IN}=V_{OUT}+0.8V	-	1.0	1.3	V
		Others I_{OUT}=800mA	-	1.1	1.2	
Quiescent Current	Iq	SE1117-1.8, 2.5, 3.3 V_{IN} < 10V	-	5	10	mA
		SE1117-5.0 V_{IN} < 15V	-			
Supply Voltage Rejection	SVR	SE1117-AD f=120Hz ,V_{NIPPLE}=1V_{PP}, V_{IN}-V_{OUT}=3V, Iout=40mA	60	75	-	dB
		SE1117-1.8 f=120Hz ,V_{NIPPLE}=1V_{PP}, V_{IN}=5.5V, Iout=40mA				
		SE1117-2.5 f=120Hz ,V_{NIPPLE}=1V_{PP}, V_{IN}=5.5V, Iout=40mA				
		SE1117-3.3 f=120Hz ,V_{NIPPLE}=1V_{PP}, V_{IN}=6.3V, Iout=40mA				
		SE1117-5.0 f=120Hz ,V_{NIPPLE}=1V_{PP}, V_{IN}=6.3V, Iout=40mA				
Adjust Pin Current	Iadj	V_{IN}<15V, I_{LOAD}=10mA	-	50	120	uA
Adjust Pin Current Change	Ichg	10mA < Iout < 1A 1.4V < V_{IN} - V_{OUT} < 10V	-	1	5	uA
Minimum Load Current	Imin	Only SE1117-AD V_{IN} = 15V		1.7	5	mA
Long Term Stability	Stable	T_A = 125℃, 1000hrs	-	0.3		%
Output Noise Voltage	Vn	SE1117-AD 10Hz < f < 10kHz		0.003		%
		Others 10Hz < f < 10kHz	-	100	-	uV

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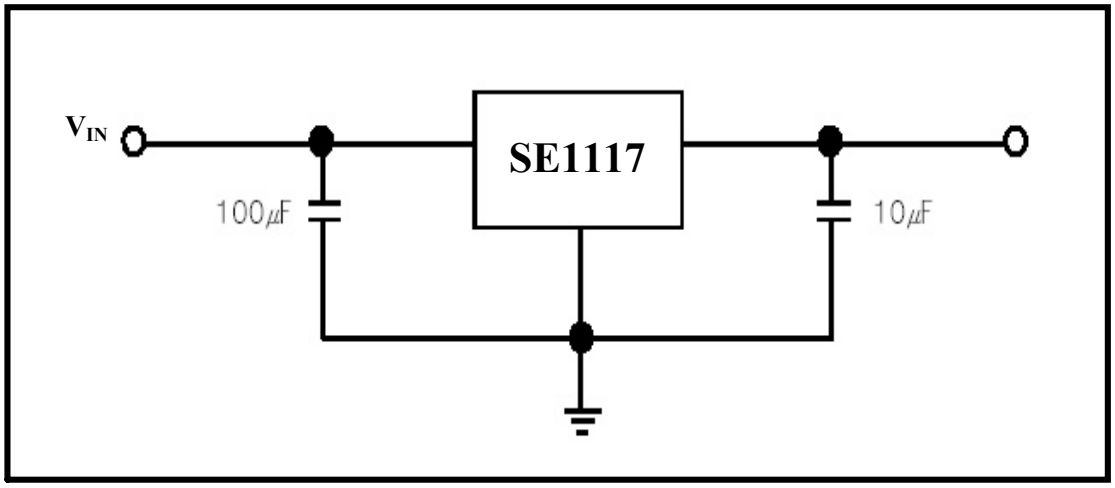
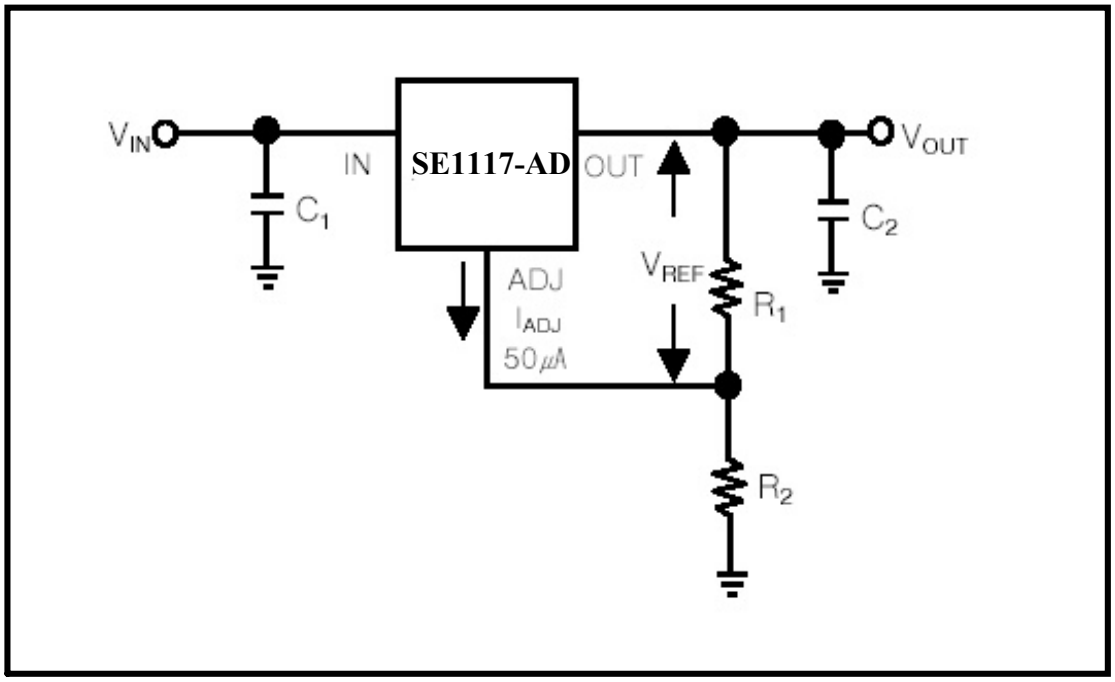
Typical Application



Typical Adjustable Regulator



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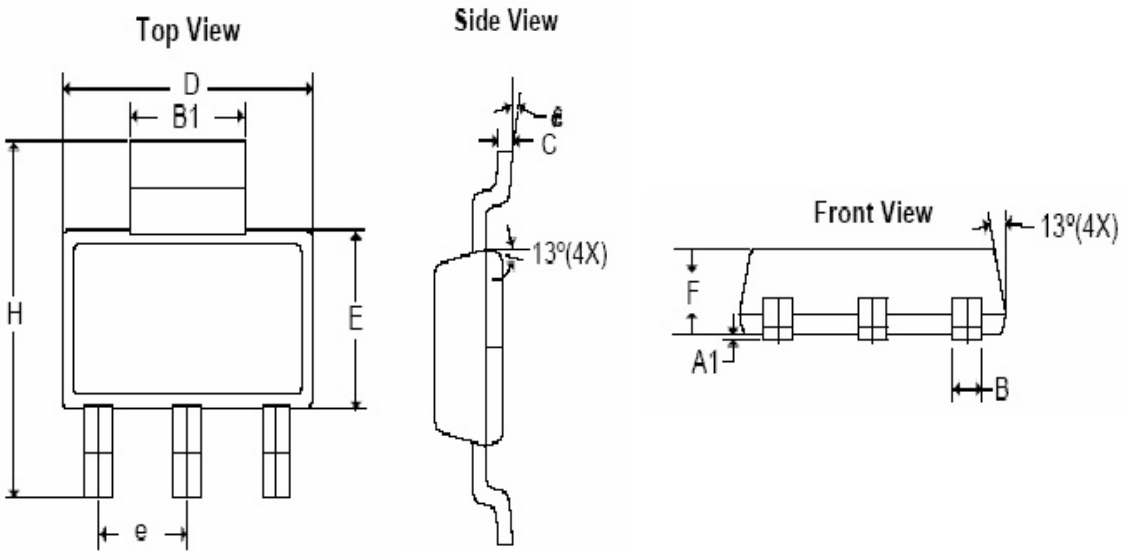
Package Dimension



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.01	0.10	0.0004	0.0039
B	0.60	0.84	0.0236	0.0330
B1	2.90	3.15	0.1140	0.1240
C	0.24	0.38	0.0094	0.0150
D	6.30	6.71	0.2480	0.2640
E	3.30	3.71	0.1299	0.1460
e	2.20	2.40	0.0865	0.0944
F	1.50	1.75	0.0590	0.0688
H	6.70	7.30	0.2638	0.2874
θ	0^O	10^O	0^O	10^O

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