

### 描述 / Descriptions

SOT-223 塑封封装 电压调整器。  
Voltage Regulator in a SOT-223 Plastic Package.

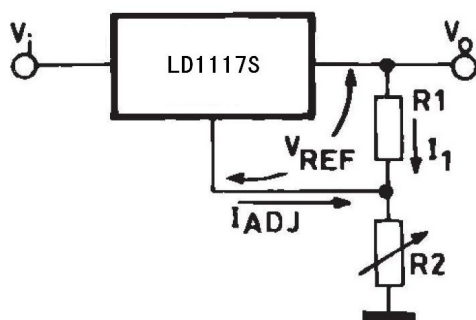
### 特征 / Features

高效率、低压差,输出电流达到 1.0A,内设过流、过热保护。  
High efficiency, Low dropout voltage(1V TYP.)output current up to 1.0A, internal current and thermal limit.

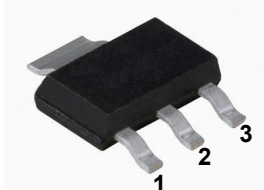
### 用途 / Applications

电压调整器。  
Voltage Regulator.

### 内部等效电路/应用电路 / Equivalent Circuit or Application Circuit



### 引脚排列 / Pinning



PIN 1 : GND/ADJ      PIN 2 : OUT      PIN 3 : IN

### 放大及印章代码 / h<sub>FE</sub> Classifications & Marking

见印章说明。 See Marking Instructions.

**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
DC Input Voltage	V <sub>I</sub>	15	V
Thermal Resistance Junction-case	R <sub>θJC</sub>	15	°C/W
Storage Temperature Range	T <sub>stg</sub>	-40~150	°C

**电性能参数 / Electrical Characteristics(T<sub>J</sub> = -25 to 125°C)**

参数 Parameter	符号 Symbol	型号 Type	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit		
Reference Voltage	V <sub>ref</sub>	LD1117S-ADJ	V <sub>in</sub> -V <sub>o</sub> =2V I <sub>o</sub> =10mA T <sub>J</sub> =25°C	1.225	1.250	1.275	V		
			10mA ≤ I <sub>o</sub> ≤ 1000mA, 1.4V ≤ (V <sub>in</sub> -V <sub>o</sub> ) ≤ 10V	1.225	1.250	1.275			
Output Voltage	V <sub>o</sub>	LD1117S-1.2	V <sub>in</sub> =3.2V I <sub>o</sub> =10mA T <sub>J</sub> =25°C	1.176	1.2	1.224	V		
			10mA ≤ I <sub>o</sub> ≤ 1000mA 3V ≤ V <sub>in</sub> ≤ 8V	1.176	1.2	1.224			
		LD1117S-1.8	V <sub>in</sub> =3.8V I <sub>o</sub> =10mA T <sub>J</sub> =25°C	1.764	1.800	1.836	V		
			0 ≤ I <sub>o</sub> ≤ 1000mA, 3.3V ≤ V <sub>in</sub> ≤ 8V	1.764	1.800	1.836			
		LD1117S-2.5	V <sub>in</sub> =4.5V I <sub>o</sub> =10mA T <sub>J</sub> =25°C	2.450	2.500	2.550	V		
			0 ≤ I <sub>o</sub> ≤ 1000mA, 3.9V ≤ V <sub>in</sub> ≤ 10V	2.450	2.500	2.550			
		LD1117S-3.3	V <sub>in</sub> =5.3V I <sub>o</sub> =10mA T <sub>J</sub> =25°C	3.234	3.300	3.366	V		
			0 ≤ I <sub>o</sub> ≤ 1000mA, 4.75V ≤ V <sub>in</sub> ≤ 10V	3.234	3.300	3.366			
		LD1117S-5.0	V <sub>in</sub> =7V I <sub>o</sub> =10mA T <sub>J</sub> =25°C	4.900	5.000	5.100	V		
			0 ≤ I <sub>o</sub> ≤ 1000mA, 6.5V ≤ V <sub>in</sub> ≤ 15V	4.900	5.000	5.100			
		Load Regulation	ΔV <sub>o</sub>	LD1117S-Adj	V <sub>in</sub> -V <sub>o</sub> =3V 10mA ≤ I <sub>o</sub> ≤ 1000mA			30	mV
				LD1117S-1.2	V <sub>in</sub> =3V 10mA ≤ I <sub>o</sub> ≤ 1000mA			30	mV
LD1117S-1.8	V <sub>in</sub> =3.3V 0mA ≤ I <sub>o</sub> ≤ 1000mA					30	mV		
LD1117S-2.5	V <sub>in</sub> =3.9V 0mA ≤ I <sub>o</sub> ≤ 1000mA					30	mV		
LD1117S-3.3	V <sub>in</sub> =4.75V 0mA ≤ I <sub>o</sub> ≤ 1000mA					30	mV		
LD1117S-5.0	V <sub>in</sub> =6.5V 0mA ≤ I <sub>o</sub> ≤ 1000mA					30	mV		

电性能参数 / Electrical Characteristics (T<sub>j</sub>= -25 to 125°C)

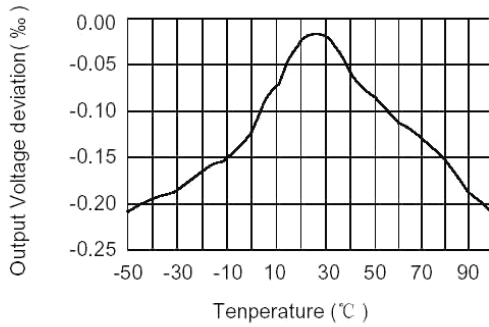
参数 Parameter	符号 Symbol	型号 Type	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Line Regulation	ΔVo	LD1117S-Adj	Io=10mA 1.5V≤(Vin-Vo)≤13.75V			23	mV
		LD1117S-1.2	3V≤Vin≤8.0V Io=0mA			18	mV
		LD1117S-1.8	Io=0mA 3.3V≤Vin≤8.0V			31	mV
		LD1117S-2.5	Io=0mA 3.9V≤Vin≤10V			40	mV
		LD1117S-3.3	Io=0mA 4.75V≤Vin≤15V			48	mV
		LD1117S-5.0	6.5V≤Vin≤15V Io=0mA			55	mV
Operating Input Voltage	Vin	LD1117S-Adj	Io=100mA			15	V
		LD1117S-1.2				10	
		LD1117S-1.8				10	
		LD1117S-2.5				15	
		LD1117S-3.3				15	
		LD1117S-5.0				15	
Adjustment Pin Current	Iadj	LD1117S-Adj	Vin≤15V		60	120	uA
Adjustment Pin Current Change	ΔIadj	LD1117S-Adj	1.4V≤Vin-Vo≤10V 0mA≤Io≤1000mA		1	5	
Quiescent Current	Id	LD1117S-1.2	Vin≤8V		5	10	mA
		LD1117S-1.8	Vin≤8V				
		LD1117S-2.5	Vin≤10V				
		LD1117S-3.3	Vin≤15V				
		LD1117S-5.0					
Output Current	Io	LD1117S-Adj	Vin-Vo=5V Tj=25°C	800	950	1300	mA
		LD1117S-1.2					
		LD1117S-1.8					
		LD1117S-2.5					
		LD1117S-3.3					
		LD1117S-5.0					
Output Noise	eN	LD1117S-Adj	10Hz≤B≤10KHz Tj=25°C		100		%
		LD1117S-1.2					uV
		LD1117S-1.8					
		LD1117S-2.5					
		LD1117S-3.3					
		LD1117S-5.0					

电性能参数 / Electrical Characteristics( Tj= -25 to 125°C)

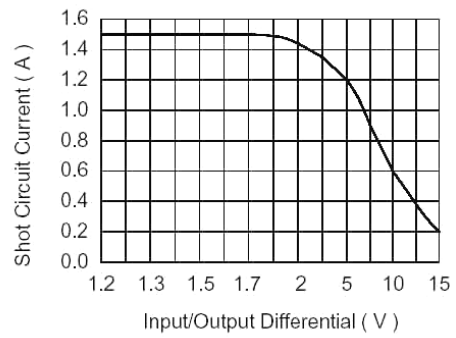
参数 Parameter	符号 Symbol	型号 Type	测试条件 Test Conditions	最小值 Min	典型 值 Typ	最大 值 Max	单位 Unit
Supply Voltage Rejection	SVR	LD1117S-Adj	Io=40mA    f=120Hz Tj=25°C Vin-Vo=3V Vripple=1Vpp	60	75		dB
		LD1117S-1.2					
		LD1117S-1.8					
		LD1117S-2.5					
		LD1117S-3.3					
		LD1117S-5.0					
Dropout Voltage	Vd	LD1117S-Adj	Io=100mA Io=500mA Io=800mA Io=1000mA		1.00 1.05 1.10 1.15	1.10 1.15 1.20 1.25	V
		LD1117S-1.2					
		LD1117S-1.8					
		LD1117S-2.5					
		LD1117S-3.3					
		LD1117S-5.0					
Thermal Regulation		LD1117S-Adj	Ta=25°C    30ms Pulse		0.01	0.1	%W
		LD1117S-1.2					
		LD1117S-1.8					
		LD1117S-2.5					
		LD1117S-3.3					
		LD1117S-5.0					

电参数曲线图 / Electrical Characteristic Curve

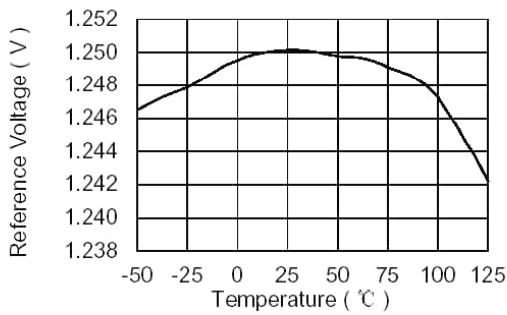
Load regulation



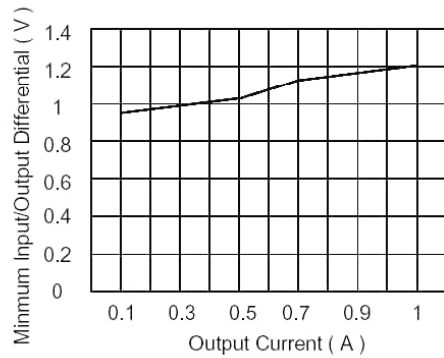
Short circuit current



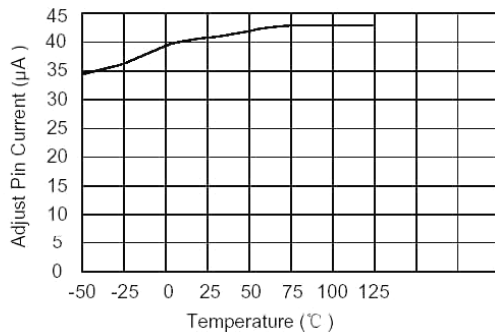
Temperature stability



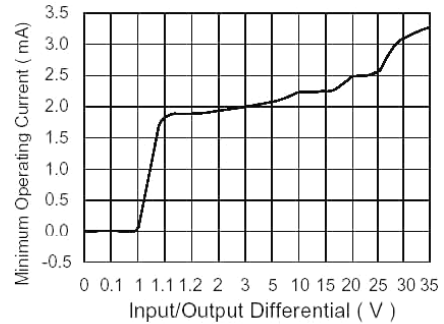
Dropout voltage



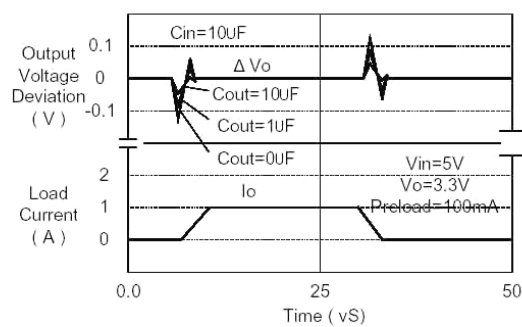
Adjust pin current



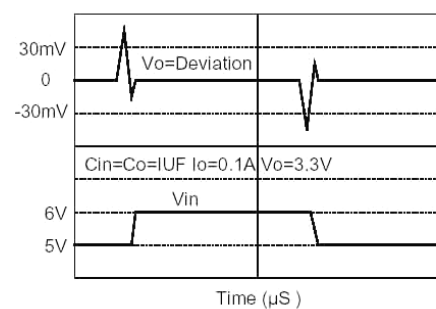
Minimum operating current



Load transient response



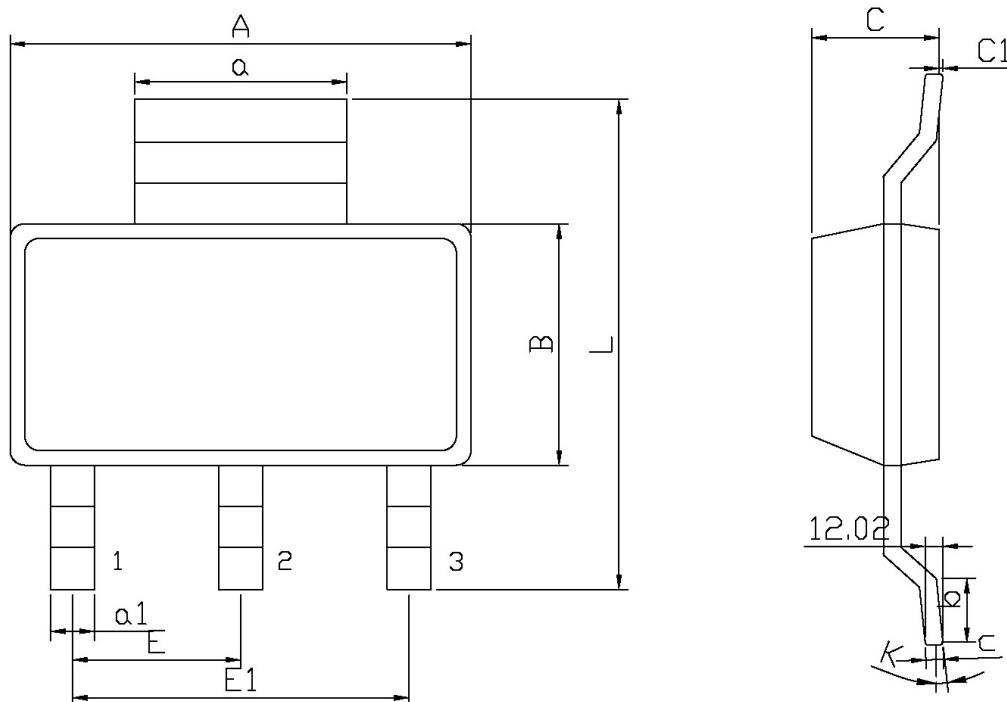
Line transient response



外形尺寸图 / Package Dimensions

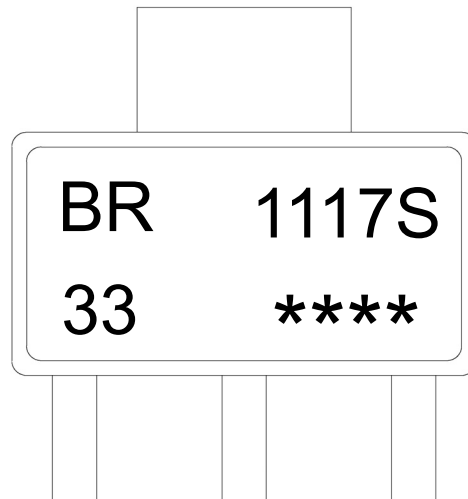
SOT-223

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	6.30	6.70	C	-	1.80
a	2.90	3.10	b	0.91	-
B	3.30	3.70	c	0.24	0.32
L	6.70	7.30	C1	0.02	0.10
a1	0.60	0.80	K	0°	10°
E1	4.10	5.10			
E	2.00	2.60			

印章说明 / Marking Instructions



说明：

BR： 为公司代码

1117S： 为型号代码

33： 代表 3.3V

\*\*\*\*： 为生产批号代码，随生产批号变化

Note:

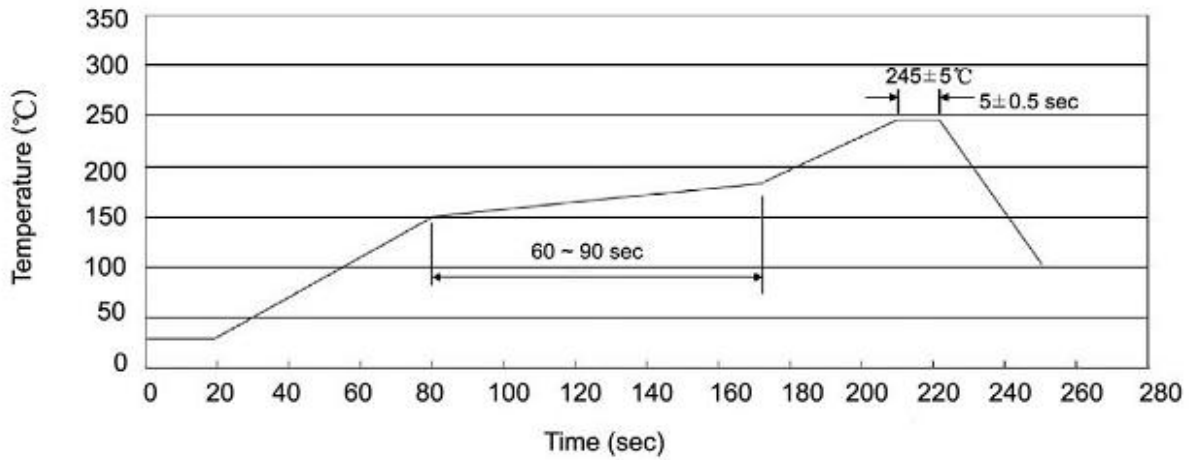
BR: Company Code.

1117S: Product Type.

33: Deputy 3.3V

\*\*\*\*: Lot No. Code, code change with Lot No.

**回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)**



说明：

- 1、预热温度 150 ~ 180°C，时间 60 ~ 90sec；
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec；
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-223	2,500	2	5000	5	25,000	13" ×12	340×340×50	385×257×392

**使用说明 / Notices**