

## 描述 / Descriptions

TO-252 塑封封装电压调整器。Voltage Regulator in a TO-252 Plastic Package.

## 特征 / Features

高效率、低压差,输出电流达到 800mA,内设过流、过热保护。

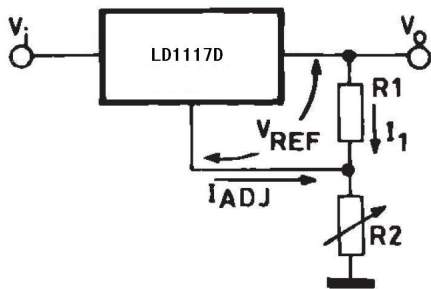
High efficiency, Low dropout voltage(1V  $T_{YP.}$ )output current up to 800mA, internal current and thermal limit.

## 用途 / Applications

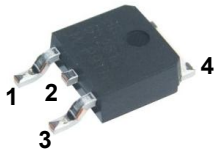
电压调整器。

Voltage Regulator.

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



## 引脚排列 / Pinning



PIN1 : GND/ADJ

PIN 2,4 : OUT

PIN 3 : IN

## 印章代码 / 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
Input voltage	V <sub>I</sub>	15	V
Thermal Resistance Junction-case	R <sub>θJC</sub>	8	°C/W
Storage temperature range	T <sub>stg</sub>	-40~150	°C

**电性能参数 / Electrical Characteristics(Ta=25°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>	LD1117D- Adj	V <sub>in</sub> -V <sub>o</sub> =2V T <sub>j</sub> =25°C I <sub>o</sub> =10mA	1.238	1.25	1.262	V		
			10mA≤I <sub>o</sub> ≤800mA 1.4V≤(V <sub>in</sub> -V <sub>o</sub> )≤10V	1.225	1.25	1.275			
Output Voltage	V <sub>o</sub>	LD1117D-1.2	V <sub>in</sub> =3.2V T <sub>j</sub> =25°C I <sub>o</sub> =10mA	1.176	1.2	1.224	V		
			10mA≤I <sub>o</sub> ≤800mA, 3V≤V <sub>in</sub> ≤8V	1.152	1.2	1.248			
		LD1117D-1.8	V <sub>in</sub> =3.8V T <sub>j</sub> =25°C I <sub>o</sub> =10mA	1.78	1.8	1.82	V		
			0≤I <sub>o</sub> ≤800mA, 3.3V≤V <sub>in</sub> ≤8V	1.76	1.8	1.84			
		LD1117D-2.5	V <sub>in</sub> =4.5V T <sub>j</sub> =25°C I <sub>o</sub> =10mA	2.475	2.5	2.525	V		
			0≤I <sub>o</sub> ≤800mA, 3.9V≤V <sub>in</sub> ≤10V	2.45	2.5	2.55			
		LD1117D-3.3	V <sub>in</sub> =5.3V T <sub>j</sub> =25°C I <sub>o</sub> =10mA	3.267	3.3	3.333	V		
			0≤I <sub>o</sub> ≤800mA, 4.75V≤V <sub>in</sub> ≤10V	3.235	3.3	3.365			
		LD1117D-5.0	V <sub>in</sub> =7V T <sub>j</sub> =25°C I <sub>o</sub> =10mA	4.95	5	5.05	V		
			0≤I <sub>o</sub> ≤800mA, 6.5V≤V <sub>in</sub> ≤15V	4.9	5	5.1			
		Load Regulation	ΔV <sub>o</sub>	LD1117D-Adj	I <sub>o</sub> =10mA 1.5V≤(V <sub>in</sub> -V <sub>o</sub> )≤13.75V		0.035	0.2	%
					V <sub>in</sub> -V <sub>o</sub> =3V 10mA≤I <sub>o</sub> ≤800mA		0.1	0.4	
LD1117D-1.2	3V≤V <sub>in</sub> ≤8.0V I <sub>o</sub> =0mA				1	6	mV		
	V <sub>in</sub> =3V 10mA≤I <sub>o</sub> ≤800mA				1	10			
LD1117D-1.8	3.3V≤V <sub>in</sub> ≤8.0V I <sub>o</sub> =0mA				1	6	mV		
	V <sub>in</sub> =3.3V 0mA≤I <sub>o</sub> ≤800mA				1	10			
LD1117D-2.5	3.9V≤V <sub>in</sub> ≤10V I <sub>o</sub> =0mA				1	6	mV		
	V <sub>in</sub> =3.9V 0mA≤I <sub>o</sub> ≤800mA				1	10			

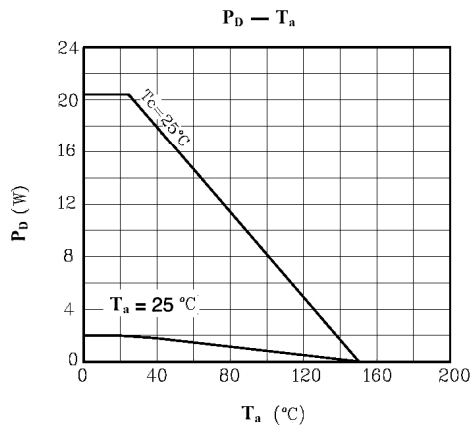
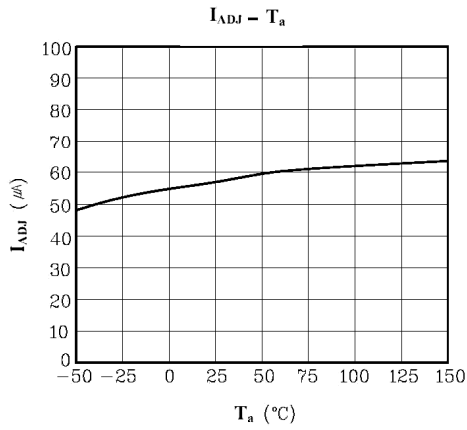
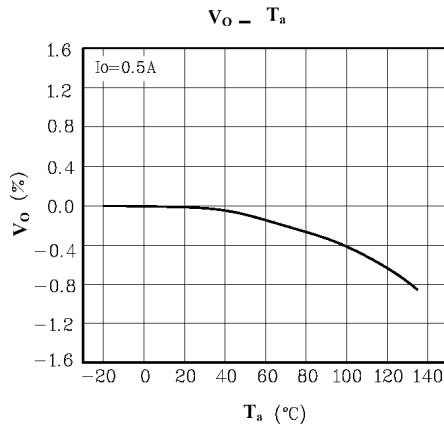
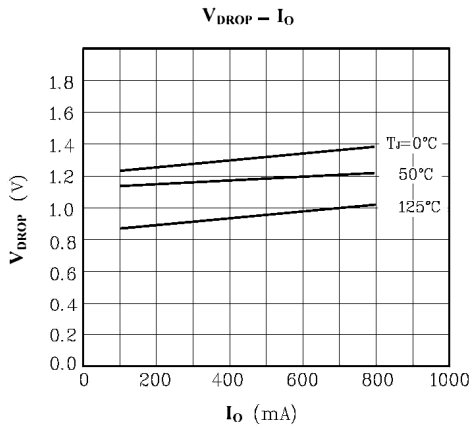
电性能参数 / Electrical Characteristics(Ta=25°C)

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
Load Regulation	$\Delta V_o$	LD1117D-3.3	4.75V $\leq V_{in} \leq 15V$ $I_o = 0mA$		1	6	mV
			$V_{in} = 4.75V$ $0mA \leq I_o \leq 800mA$		1	10	
	LD1117D-5.0	6.5V $\leq V_{in} \leq 15V$ $I_o = 0mA$		1	10	mV	
		$V_{in} = 6.5V$ $0mA \leq I_o \leq 800mA$		1	15		
Operating Input Voltage	$V_{in}$	LD1117D-Adj				15	V
		LD1117D-1.2	$I_o = 100mA$			10	
		LD1117D-1.8				10	
		LD1117D-2.5				15	
		LD1117D-3.3				15	
		LD1117D-5.0				15	
Adjustment Pin Current	$I_{adj}$	LD1117S-Adj		$V_{in} \leq 15V$		60	120
Adjustment Pin Current Change	$\Delta I_{adj}$		$1.4V \leq V_{in} - V_o \leq 10V$ , $0mA \leq I_o \leq 800mA$		1	5	
Quiescent Current	$I_d$	LD1117D-1.2	$V_{in} \leq 8V$		5	10	mA
		LD1117D-1.8	$V_{in} \leq 8V$				
		LD1117D-2.5	$V_{in} \leq 10V$				
		LD1117D-3.3	$V_{in} \leq 15V$				
		LD1117D-5.0					
Output Current	$I_o$	LD1117D-Adj	$V_{in} - V_o = 5V$ $T_j = 25^\circ C$	600	800	1000	mA
		LD1117D-1.2					
		LD1117D-1.8					
		LD1117D-2.5					
		LD1117D-3.3					
		LD1117D-5.0					
Output Noise	$e_N$	LD1117D-Adj	10Hz $\leq B \leq 10KHz$ $T_j = 25^\circ C$		0.003		%
		LD1117D-1.2			100	uV	
		LD1117D-1.8					
		LD1117D-2.5					
		LD1117D-3.3					
		LD1117D-5.0					

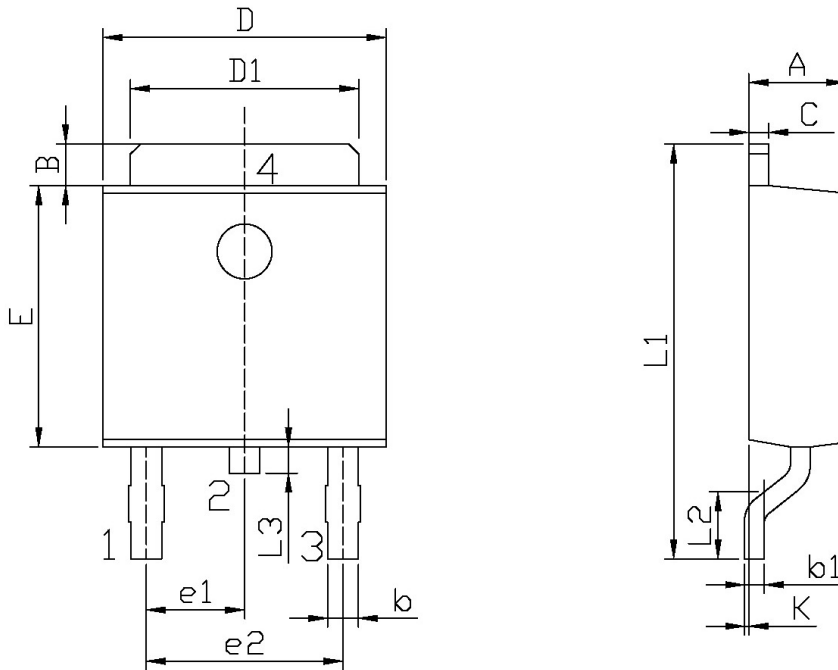
电性能参数 / Electrical Characteristics(Ta=25°C)

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	LD1117D-Adj	Io=40mA      f=120Hz, Tj=25°C      Vin-Vo=3V, Vripple=1Vpp	60	75		dB
		LD1117D-1.2					
		LD1117D-1.8					
		LD1117D-2.5					
		LD1117D-3.3					
		LD1117D-5.0					
Dropout Voltage	Vd	LD1117D-Adj	Io=100mA Io=500mA Io=800mA		1.00 1.05 1.10	1.10 1.15 1.20	V
		LD1117D-1.2					
		LD1117D-1.8					
		LD1117D-2.5					
		LD1117D-3.3					
		LD1117D-5.0					
Thermal Regulation		LD1117D-Adj	Ta=25°C    30ms Pulse		0.01	0.1	%W
		LD1117D-1.2					
		LD1117D-1.8					
		LD1117D-2.5					
		LD1117D-3.3					
		LD1117D-5.0					

电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

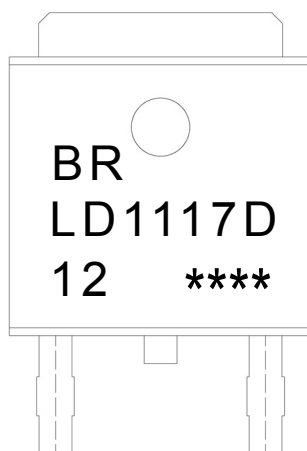


单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.70	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252

印章说明 / Marking Instructions



说明：

BR： 为公司代码

LD1117D： 为产品型号

12： 代表 1.2V

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

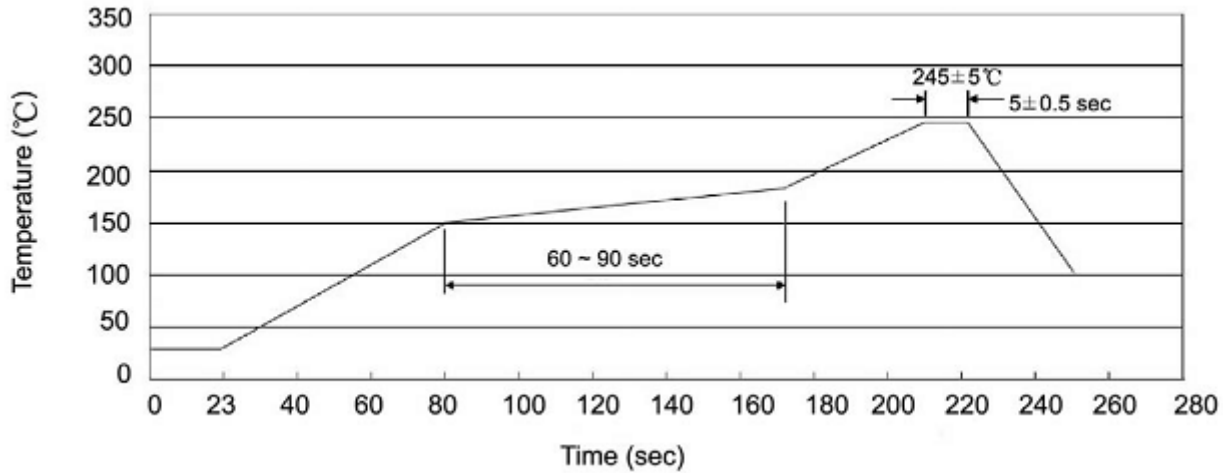
BR: Company Code.

LD1117D: Product Type.

12: On Behalf 1.2V

\*\*\*\*: 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 25~150°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:25~150°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
TO-252	2,500	2	5,000	5	25,000	13" ×16	360×360×50	385×257×392

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

**使用说明 / Notices**