

Descriptions

The LD1117T is Voltage regulator in a SOT-89 Plastic Package

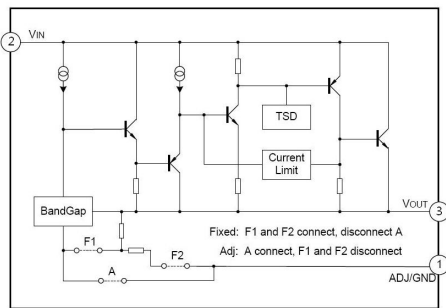
Features

- High efficiency
- Low dropout voltage
- output current up to 800mA
- Internal current and thermal limit
- Halogen free product

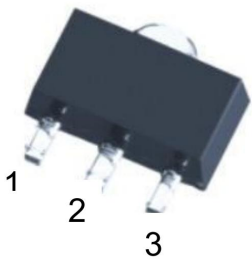
Applications

Voltage Regulator.

Equivalent Circuit



Pinning



Pin1: GND/ADJ Pin2: VOUT Pin3: VIN

Marking

See Marking Instructions

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Input voltage	V _I	15	V
Storage temperature range	T _{stg}	-40~150	°C

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Type	Test Conditions	Min	Typ	Max	Unit		
Reference Voltage	V _{ref}	LD1117T-Adj	V _{in} -V _o =2V T _j =25°C I _o =10mA	1.225	1.25	1.275	V		
			10mA ≤ I _o ≤ 800mA 1.4V ≤ (V _{in} -V _o) ≤ 10V	1.225	1.25	1.275			
Output Voltage	V _o	LD1117T-1.2	V _{in} =3.2V T _j =25°C I _o =10mA	1.176	1.2	1.224	V		
			10mA ≤ I _o ≤ 800mA, 3V ≤ V _{in} ≤ 8V	1.176	1.2	1.224			
		LD1117T-1.8	V _{in} =3.8V T _j =25°C I _o =10mA	1.764	1.8	1.836	V		
			0 ≤ I _o ≤ 800mA, 3.3V ≤ V _{in} ≤ 8V	1.764	1.8	1.836			
		LD1117T-2.5	V _{in} =4.5V T _j =25°C I _o =10mA	2.45	2.5	2.55	V		
			0 ≤ I _o ≤ 800mA, 3.9V ≤ V _{in} ≤ 10V	2.45	2.5	2.55			
		LD1117T-3.3	V _{in} =5.3V T _j =25°C I _o =10mA	3.234	3.3	3.366	V		
			0 ≤ I _o ≤ 800mA, 4.75V ≤ V _{in} ≤ 10V	3.234	3.3	3.366			
		LD1117T-5.0	V _{in} =7V T _j =25°C I _o =10mA	4.9	5	5.1	V		
			0 ≤ I _o ≤ 800mA, 6.5V ≤ V _{in} ≤ 15V	4.9	5	5.1			
		Load Regulation	ΔV _o	LD1117T-Adj	V _{in} -V _o =3V 10mA ≤ I _o ≤ 800mA			30	mV
				LD1117T-1.2	V _{in} =3V 10mA ≤ I _o ≤ 800mA			30	mV
LD1117T-1.8	V _{in} =3.3V 0mA ≤ I _o ≤ 800mA					30	mV		
LD1117T-2.5	V _{in} =3.9V 0mA ≤ I _o ≤ 800mA					30	mV		
LD1117T-3.3	V _{in} =4.75V 0mA ≤ I _o ≤ 800mA					30	mV		
LD1117T-5.0	V _{in} =6.5V 0mA ≤ I _o ≤ 800mA					30	mV		

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Type	Test Conditions	Min	Typ	Max	Unit
Line Regulation	ΔV_o	LD1117T-Adj	$I_o=10mA$ $1.5V \leq (V_{in}-V_o) \leq 13.75V$			23	mV
		LD1117T-1.2	$3V \leq V_{in} \leq 8.0V$ $I_o=0mA$			18	mV
		LD1117T-1.8	$3.3V \leq V_{in} \leq 8.0V$ $I_o=0mA$			31	mV
		LD1117T-2.5	$3.9V \leq V_{in} \leq 10V$ $I_o=0mA$			40	mV
		LD1117T-3.3	$4.75V \leq V_{in} \leq 15V$ $I_o=0mA$			48	mV
		LD1117T-5.0	$6.5V \leq V_{in} \leq 15V$ $I_o=0mA$			55	mV
Operating Input Voltage	V_{in}	LD1117T-Adj	$I_o=100mA$			15	V
		LD1117T-1.2				10	
		LD1117T-1.8				10	
		LD1117T-2.5				15	
		LD1117T-3.3				15	
		LD1117T-5.0				15	
Adjustment Pin Current	I_{adj}	LD1117T-Adj	$V_{in} \leq 15V$		60	120	uA
Adjustment Pin Current Change	ΔI_{adj}		$1.4V \leq V_{in}-V_o \leq 10V,$ $0mA \leq I_o \leq 800mA$		1	5	
Quiescent Current	I_d	LD1117T-1.2	$V_{in} \leq 8V$		5	10	mA
		LD1117T-1.8	$V_{in} \leq 8V$				
		LD1117T-2.5	$V_{in} \leq 10V$				
		LD1117T-3.3	$V_{in} \leq 15V$				
		LD1117T-5.0					
Output Current	I_o	LD1117T-Adj	$V_{in}-V_o=5V$ $T_j=25^\circ C$	600	800	1000	mA
		LD1117T-1.2					
		LD1117T-1.8					
		LD1117T-2.5					
		LD1117T-3.3					
		LD1117T-5.0					
Output Noise	e_N	LD1117T-Adj	$10Hz \leq B \leq 10KHz$ $T_j=25^\circ C$		0.003		%
		LD1117T-1.2			100	uV	
		LD1117T-1.8					
		LD1117T-2.5					
		LD1117T-3.3					
		LD1117T-5.0					

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Type	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Rejection	SVR	LD1117T-Adj	Io=40mA f=120Hz, Tj=25°C Vin- Vo=3V, Vripple=1Vpp	60	75		dB
		LD1117T-1.2					
		LD1117T-1.8					
		LD1117T-2.5					
		LD1117T-3.3					
		LD1117T-5.0					
Dropout Voltage	Vd	LD1117T-Adj	Io=100mA Io=500mA Io=800mA		1.00 1.05 1.10	1.10 1.15 1.20	V
		LD1117T-1.2					
		LD1117T-1.8					
		LD1117T-2.5					
		LD1117T-3.3					
		LD1117T-5.0					
Thermal Regulation		LD1117T-Adj	Ta=25°C 30ms Pulse		0.01	0.1	% / W
		LD1117T-1.2					
		LD1117T-1.8					
		LD1117T-2.5					
		LD1117T-3.3					
		LD1117T-5.0					

Typical Application Circuit

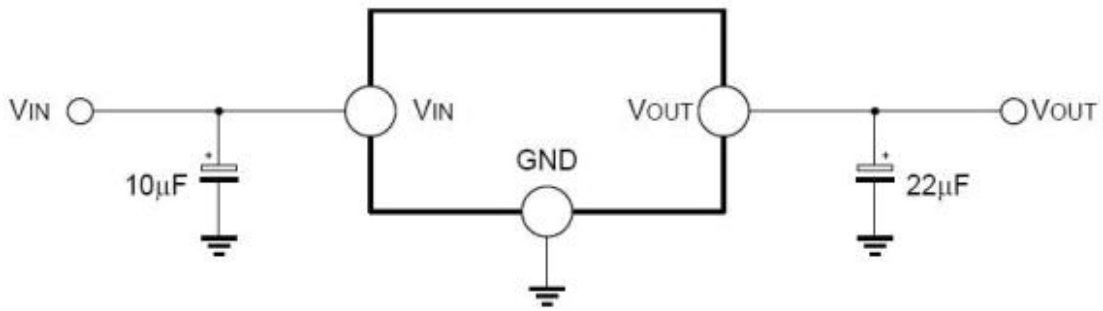
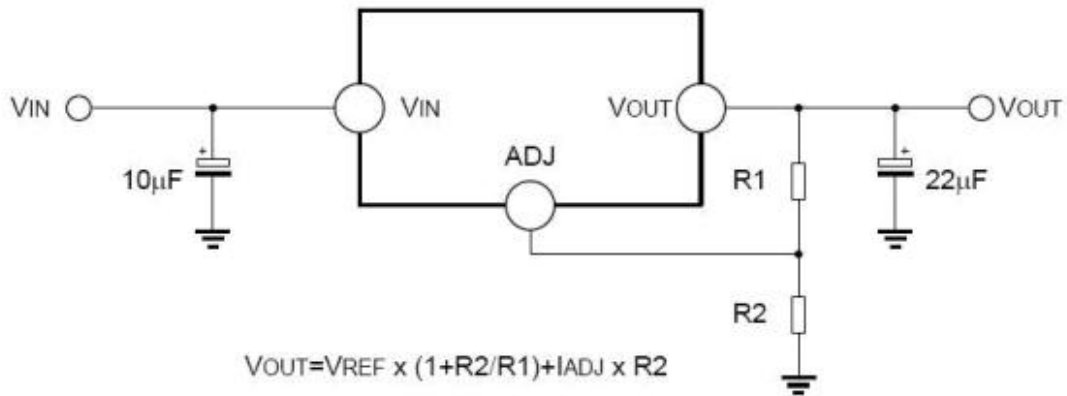


图 1. 典型固定输出电压

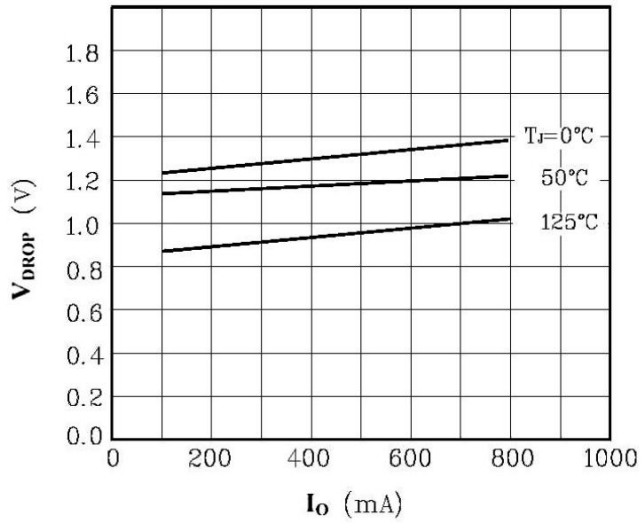


$$V_{OUT} = V_{REF} \times (1 + R2/R1) + I_{ADJ} \times R2$$

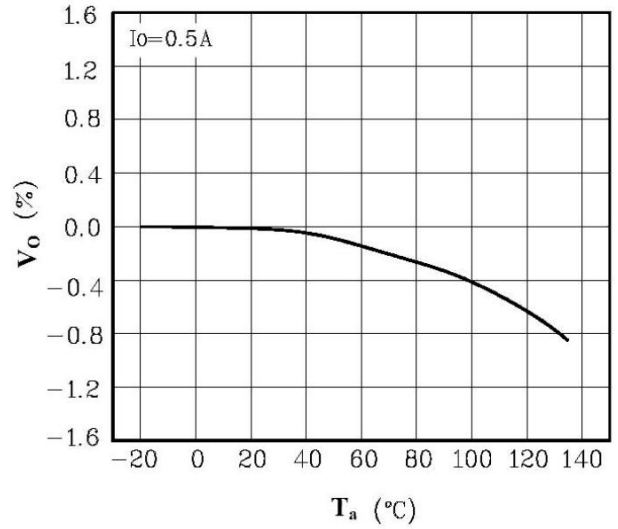
图 2. 典型可调输出电压

Electrical Characteristic Curve

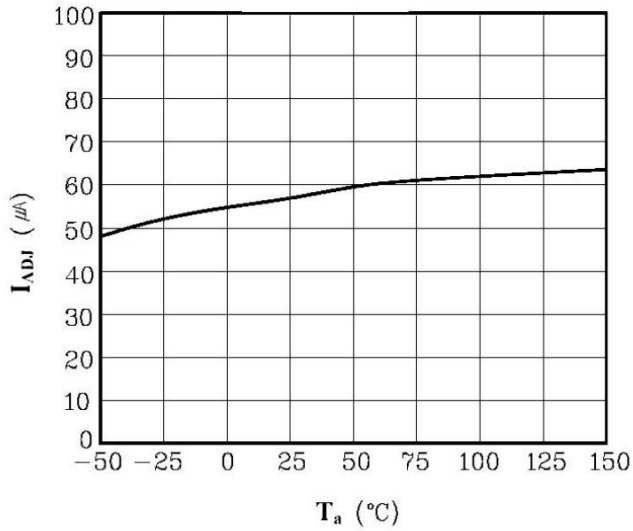
$V_{DROP} - I_O$



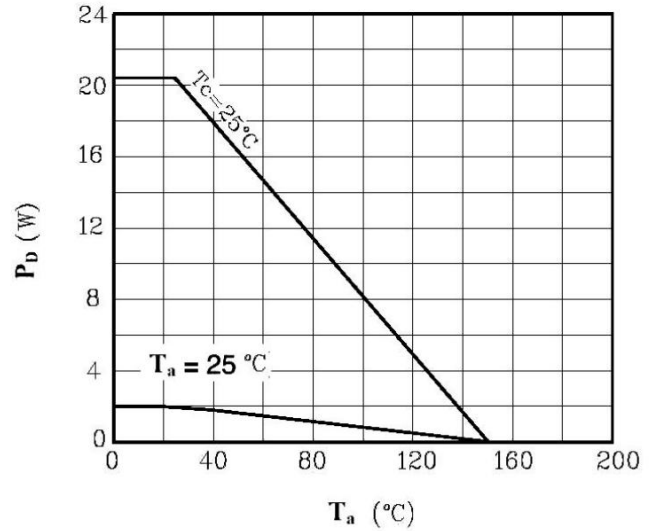
$V_O - T_a$



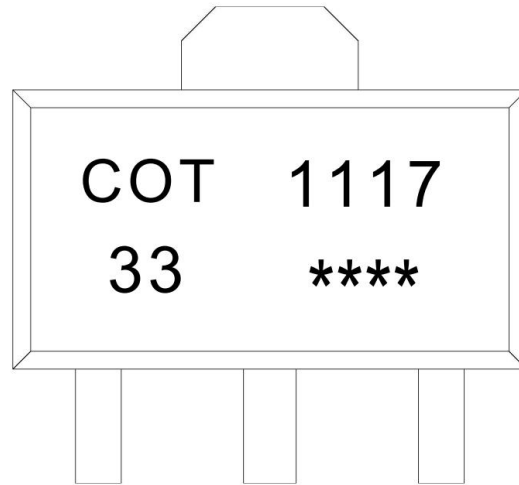
$I_{ADJ} - T_a$



$P_D - T_a$



Marking Instructions



- Note:
- COT: Company Code.
 - 1117: Product Type.
 - 33: On Behalf 3.3V
 - ****: Lot No. Code, code change with Lot No.

Packaging SPEC.

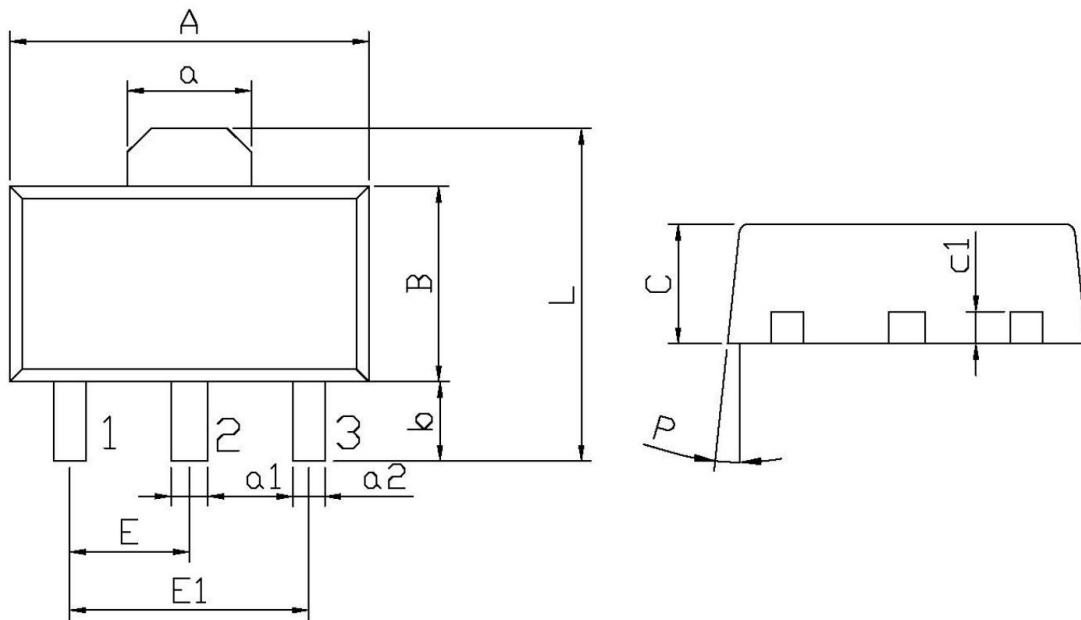
REEL

Package Type	Units					Dimension (unit: mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-89	1,000	7	7,000	6	42,000	7" ×12	180×120×180	390×385×205

Package Dimensions

SOT-89

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
B	2.35	2.65	a2	0.30	0.50
L	3.878	4.478	C	1.40	1.70
a	1.45	1.65	c1	0.35	0.50
E	1.40	1.60	P	6°	
E1	2.80	3.20			
b	0.80	1.20			