Descriptions

The LD1117SG Voltage Regulator in a SOT-223 Plastic Package.

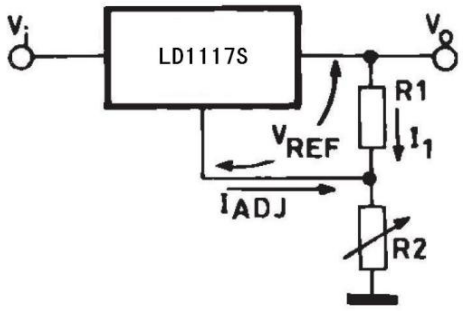
Features

- High efficiency
- Low dropout voltage(1V TYP) output current up to 1.0mA
- Internal current and thermal limit
- Halogen free product

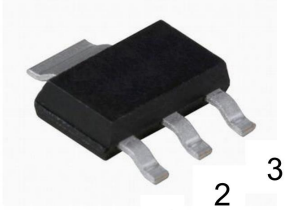
Applications

Voltage Regulator.

Euivalent Circuit or Application Circuit



Pinning



Pin1：GND/ADJ　Pin2：OUT　Pin3：IN

hFE Classifications & Marking

See Marking Instructions

Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Rating	Unit
DC Input Voltage	V_I	15	V
Thermal Resistance Junction-case	$R_{\theta JC}$	15	℃/W
Storage Temperature Range	T_{stg}	-40～150	℃

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Type	Test Conditions	Min	Typ	Max	Unit
Reference Voltage	Vref	LD1117SG-ADJ	Vin-Vo=2V Io=10mA T_j=25℃	1.225	1.250	1.275	V
			10mA≤Io≤1000mA, 1.4V≤(Vin-Vo)≤10V	1.225	1.250	1.275	
Output Voltage	Vo	LD1117SG-1.2	Vin=3.2V Io=10mA T_j=25℃	1.176	1.2	1.224	V
			10mA≤Io≤1000mA 3V≤Vin≤8V	1.176	1.2	1.224	
		LD1117SG-1.8	Vin=3.8V Io=10mA T_j=25℃	1.764	1.800	1.836	V
			0≤Io≤1000mA, 3.3V≤Vin≤8V	1.764	1.800	1.836	
		LD1117SG-2.5	Vin=4.5V Io=10mA T_j=25℃	2.450	2.500	2.550	V
			0≤Io≤1000mA, 3.9V≤Vin≤10V	2.450	2.500	2.550	
		LD1117SG-3.3	Vin=5.3V Io=10mA T_j=25℃	3.234	3.300	3.366	V
			0≤Io≤1000mA, 4.75V≤Vin≤10V	3.234	3.300	3.366	
		LD1117SG-5.0	Vin=7V Io=10mA T_j=25℃	4.900	5.000	5.100	V
			0≤Io≤1000mA, 6.5V≤Vin≤15V	4.900	5.000	5.100	
Load Regulation	△Vo	LD1117SG-Adj	Vin-Vo=3V 10mA≤Io≤1000mA			30	mV
		LD1117SG-1.2	Vin=3V 10mA≤Io≤1000mA			30	mV
		LD1117SG-1.8	Vin=3.3V 0mA≤Io≤1000mA			30	mV
		LD1117SG-2.5	Vin=3.9V 0mA≤Io≤1000mA			30	mV
		LD1117SG-3.3	Vin=4.75V 0mA≤Io≤1000mA			30	mV
		LD1117SG-5.0	Vin=6.5V 0mA≤Io≤1000mA			30	mV

Electrical Characteristic Curve

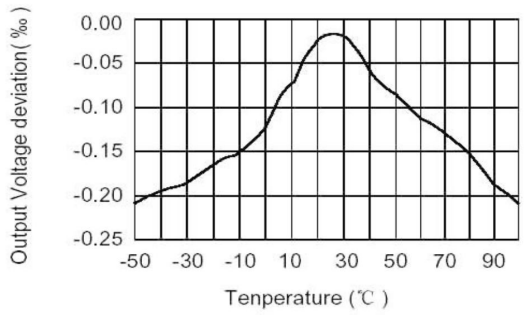
Parameter	Symbol	Type	Test Conditions	Min	Typ	Max	Unit
Line Regulation	△Vo	LD1117SG-Adj	Io=10mA 1.5V≤(Vin-Vo)≤13.75V			23	mV
		LD1117SG-1.2	3V≤Vin≤8.0V Io=0mA			18	mV
		LD1117SG-1.8	Io=0mA 3.3V≤Vin≤8.0V			31	mV
		LD1117SG-2.5	Io=0mA 3.9V≤Vin≤10V			40	mV
		LD1117SG-3.3	Io=0mA 4.75V≤Vin≤15V			48	mV
		LD1117SG-5.0	6.5V≤Vin≤15V Io=0mA			55	mV
Operating Input Voltage	Vin	LD1117SG-Adj				15	V
		LD1117SG-1.2	Io=100mA			10	
		LD1117SG-1.8				10	
		LD1117SG-2.5				15	
		LD1117SG-3.3				15	
		LD1117SG-5.0				15	
Adjustment Pin Current	Iadj	LD1117SG-Adj	Vin≤15V		60	120	uA
Adjustment Pin Current Change	△Iadj		1.4V≤Vin-Vo≤10V 0mA≤Io≤1000mA		1	5	
Quiescent Current	Id	LD1117SG-1.2	Vin≤8V		5	10	mA
		LD1117SG-1.8	Vin≤8V				
		LD1117SG-2.5	Vin≤10V				
		LD1117SG-3.3	Vin≤15V				
		LD1117SG-5.0					
Output Current	Io	LD1117SG-Adj	Vin-Vo=5V T_j=25℃	800	950	1300	mA
		LD1117SG-1.2					
		LD1117SG-1.8					
		LD1117SG-2.5					
		LD1117SG-3.3					
		LD1117SG-5.0					
Output Noise	eN	LD1117SG-Adj	10Hz≤B≤10KHz T_j=25℃		0.003		%
		LD1117SG-1.2			100		uV
		LD1117SG-1.8					
		LD1117SG-2.5					
		LD1117SG-3.3					
		LD1117SG-5.0					

Electrical Characteristic Curve

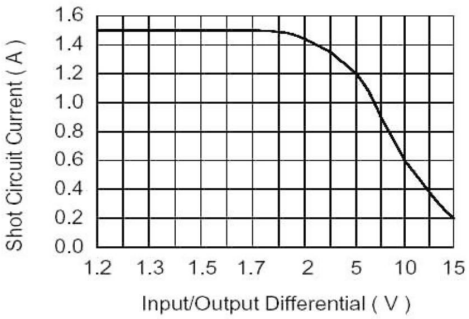
Parameter	Symbol	Type	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Rejection	SVR	LD1117SG-Adj	Io=40mA f=120Hz T_j=25℃ Vin-Vo=3V Vripple=1Vpp	60	75		dB
		LD1117SG-1.2					
		LD1117SG-1.8					
		LD1117SG-2.5					
		LD1117SG-3.3					
		LD1117SG-5.0					
Dropout Voltage	Vd	LD1117SG-Adj	Io=100mA Io=500mA Io=800mA Io=1000mA		1.00 1.05 1.10 1.15	1.10 1.15 1.20 1.25	V
		LD1117SG-1.2					
		LD1117SG-1.8					
		LD1117SG-2.5					
		LD1117SG-3.3					
		LD1117SG-5.0					
Thermal Regulation		LD1117SG-Adj	Ta=25℃ 30ms Pulse		0.01	0.1	%/W
		LD1117SG-1.2					
		LD1117SG-1.8					
		LD1117SG-2.5					
		LD1117SG-3.3					
		LD1117SG-5.0					

Electrical Characteristic Curve

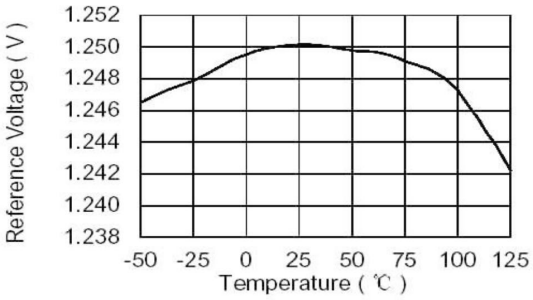
Load regulation



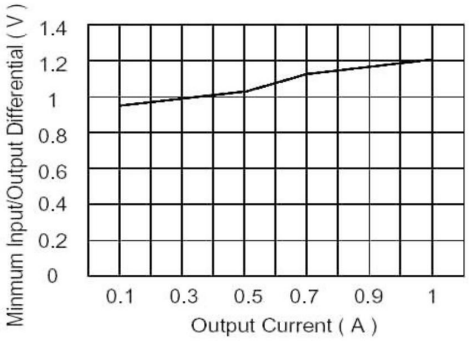
Short circuit current



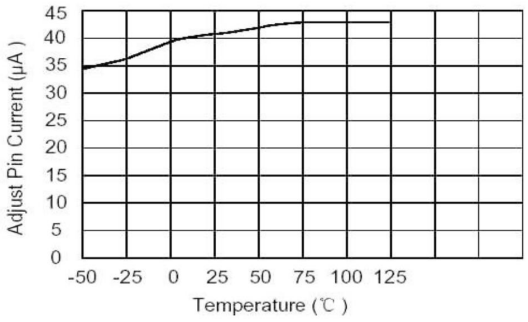
Temperature stability



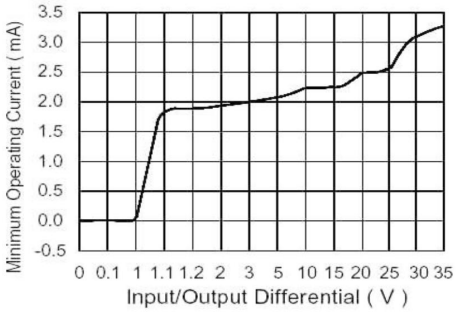
Dropout voltage



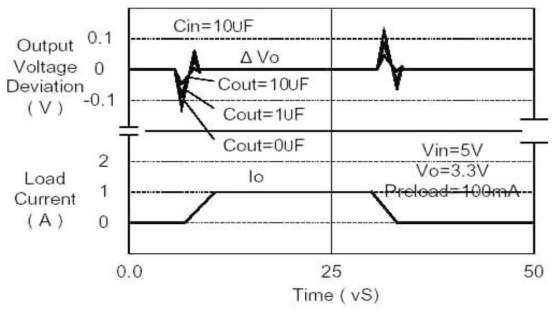
Adjust pin current



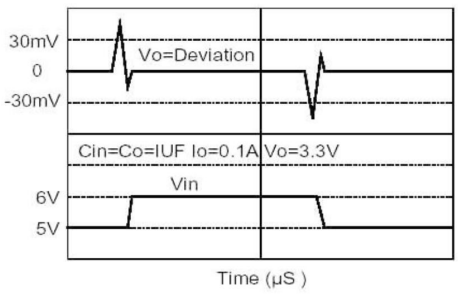
Minimum operating current



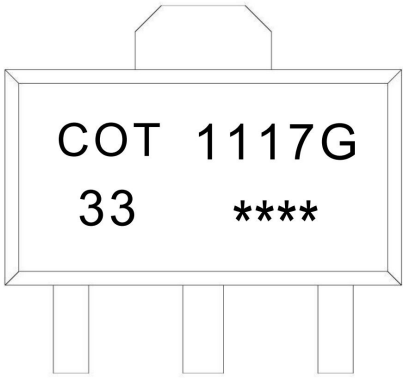
Load transient response



Line transient response



Marking Instructions



Note:

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

Packaging SPEC.

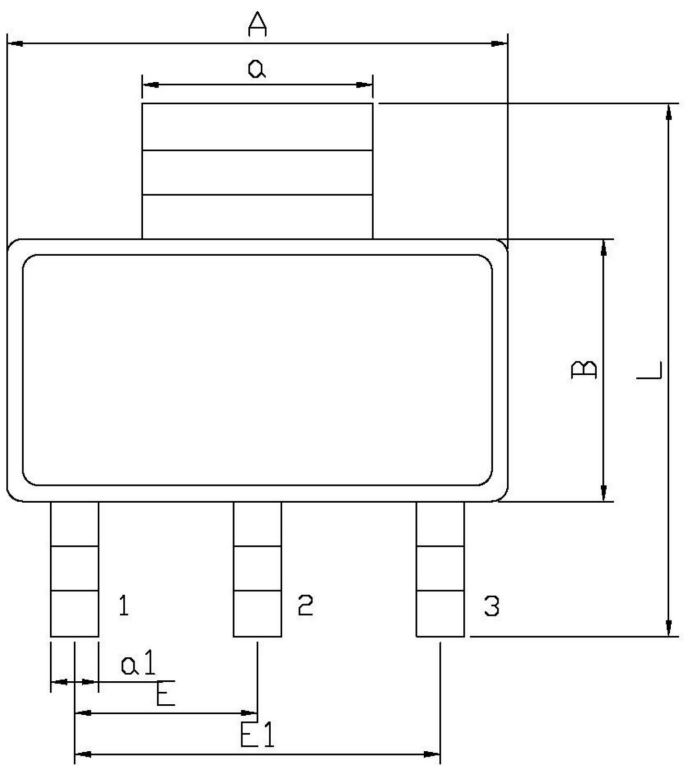
REEL

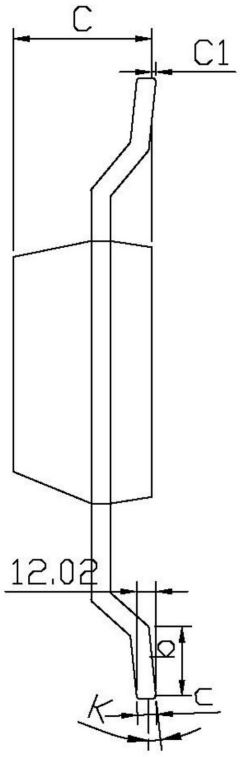
Package Type	Units					Dimension (unit：mm^3)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-223	2,500	2	5000	6	30,000	13″ ×12	360×360×50	380×335×366

Package Dimensions

SOT-223

单位：mm





Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	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			