ZHEJIANG UNIU-NE Technology CO.,LTD

浙 江 宇 力 微 新 能 源 科 技 有 限 公 司

U1117 Data Sheet

V 1.1

Features

- Maximum output current is 1.1A
- Range of operation input voltage: Max 18V
- Line regulation: 0.03%/V (typ.)
- Standby current: 1.8mA (typ.)
- Load regulation: 0.2%/A (typ.)
- Environment Temperature: -20℃~85℃

Applications

- l Power Management for Computer Mother Board, Graphic Card
- l LCD Monitor and LCD TV
- l DVD Decode Board
- l ADSL Modem
- l Post Regulators For Switching Supplies

General Description

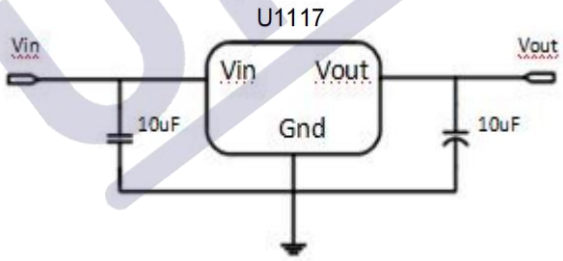
U1117 is a series of low dropout three-terminal regulators with a dropout of 1.3V at 1A load current. U1117 features a very low standby current 1.8mA compared to 5mA of competitor.

Other than a fixed version, Vout = 3.3V, 5.0V, U1117 has an adjustable version, which can provide an output voltage from 3.3 V to 5.0V with only two external resistors.

U1117 offers thermal shut down function, to assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within 2%. Other output voltage accuracy can be customized on demand, such as 1%.

U1117 is available in SOT223 power package.

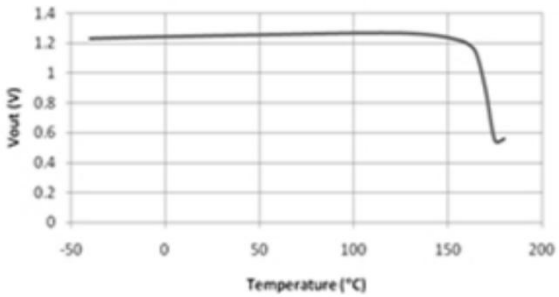
Typical Application



Application circuit of U1117 fixed version

Typical Electrical Characteristic

U1117 Vout.Vs.TEMP



Ordering Information

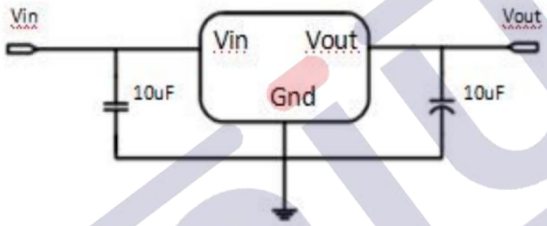
Marking	Designator	Description
1117 XX XXXX	1117	Product code
	XX	Output Voltage 3.3V/5.0V
	XXXX	LOT

Note:"XX" stands for output voltages. "XX" stands for LOT.

Typical Application

U1117 has an adjustable version and six fixed versions (3.3V，5V)

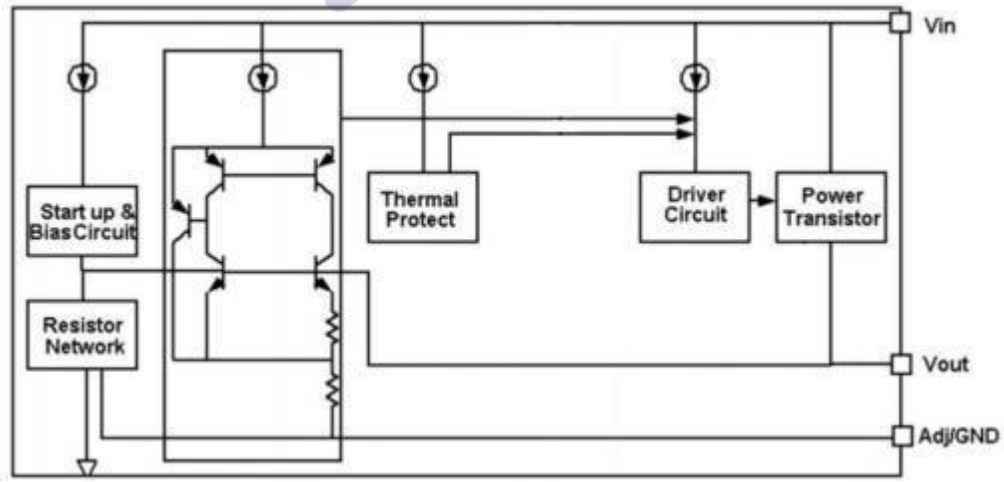
Fixed Output Voltage Version



Application circuit of U1117 fixed version

1) Recommend using 10uF tan capacitor as bypass capacitor (C1) for all application circuit.
2) Recommend using 10uF tan capacitor to assure circuit stability.

Block Diagram



Absolute Maximum Ratings

Max Input Voltage 18V
Max Operating Junction Temperature(Tj) ..... 150℃
Ambient Temperature(Ta) ..... -40℃~ 85℃
Storage Temperature(Ts) ..... -40℃~150℃
Lead Temperature & Time ..... 260℃ 10S

Caution: Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.

Electrical Characteristics

TA=25℃ , unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Vout	Output voltage	U1117-3.3V 0≤Iout≤1A , Vin=5.3V	3.234	3.3	3.366	V
		U1117-5.0V 0≤Iout≤1A , Vin=7.0V	4.9	5	5.1	V
△Vout	Line regulation	U1117-3.3V Iout=10mA, 4.8V≤Vin≤12V		0.03	0.2	%/V
		U1117-5.0V Iout=10mA, 6.5V≤Vin≤12V		0.03	0.2	%/V
		U1117-3.3 Vin =4.8V, 10mA≤Iout≤1A		6	24	mV
		U1117-5.0 Vin =6.5V, 10mA≤Iout≤1A		9	36	mV
Vdrop	Dropout voltage	Iout =100mA		1.15	1.3	V
		Iout=1A		1.3	1.5	V
Iq	Quiescent Current	U1117-3.3V,Vin=12V		1.8	5	mA
		U1117-5.0V,Vin=12V		1.8	5	mA

Note1: All test are conducted under ambient temperature 25°C and within a short period of time 20ms

Detailed Description

U1117 is a series of low dropout voltage, three terminal regulators. Its application circuit is very simple: the fixed version only needs two capacitors and the adjustable version only needs two resistors and two capacitors to work. It is composed of some modules including start-up circuit, bias circuit, bandgap, thermal shutdown, power transistors and its driver circuit and so on.

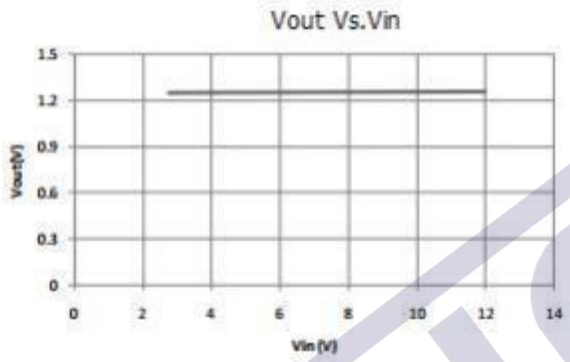
The thermal shut down modules can assure chip and its application system working safety when the junction temperature is larger than 140°C.

The bandgap module provides stable reference voltage, whose temperature coefficient is compensated by careful design considerations. The temperature coefficient is under 100 ppm/°C. And the accuracy of output voltage is guaranteed by trimming technique.

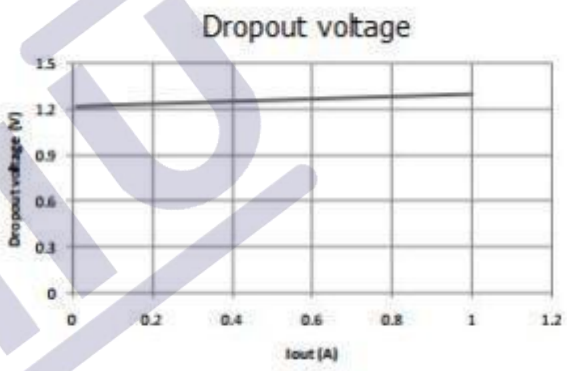
Typical Performance Characteristics

T_A=25℃, unless otherwise noted.

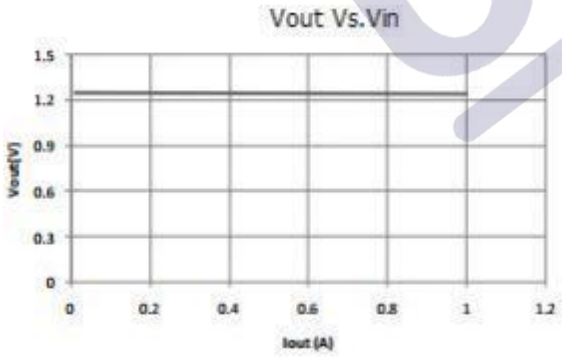
Line regulation



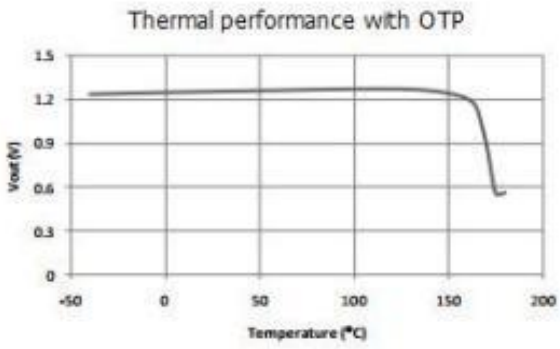
Dropout voltage



Load regulation

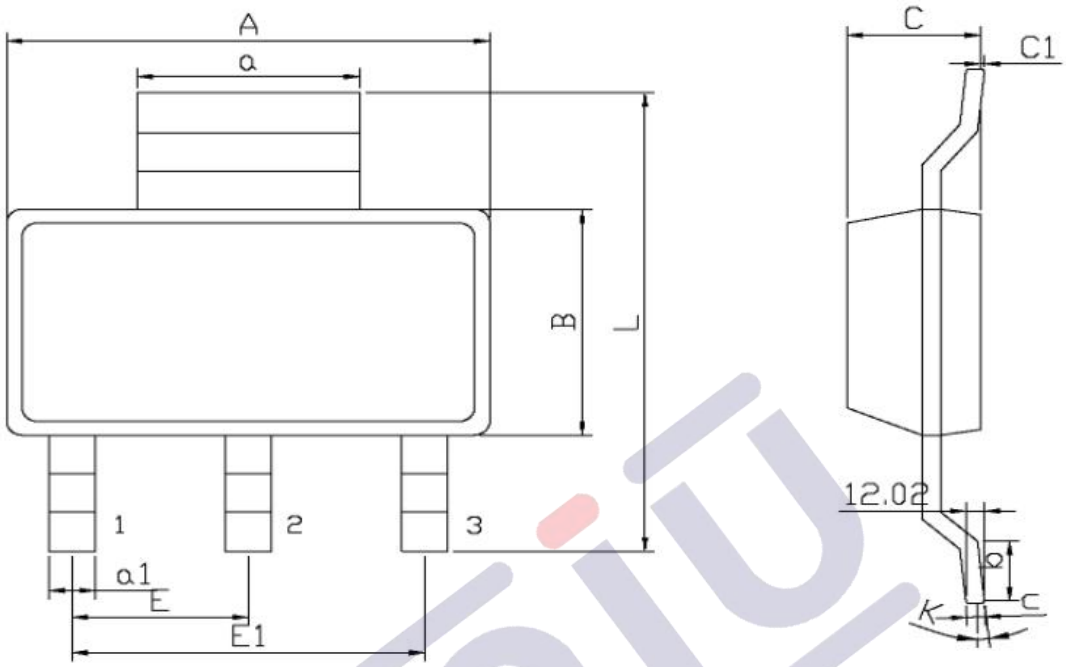


Thermal performance with OTP



Package Information

SOT-223



单位：mm

Symbol	Dimension In Millmeter		Symbol	Dimension In Millmeter	
	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			

1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2021/12/11	1.1	Layout adjustment

2.免责声明

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