ACE518C

1A Ultra-Low Vin Low Dropout Voltage Linear Regulator

Description

ACE518C series are a group of positive voltage output, high precise, and low power consumption voltage regulator. Voltages are selectable in 100Mv steps within a range of 1.2V to 5.0V. It also can be customized on command.

ACE518C series have excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within ±2%.

Features

- Low Quiescent Current: 100uA at 5V
- High PSRR: 65dB range to 1KHz
- Low Output Noise: 44uVRMS
- Low Dropout: 200mV at 0.8A load, Vout=3.3V
- Maximum output current: 1A
- Highly Accurate: ±2%
- Low ESR Ceramic Capacitor Compatible

Application

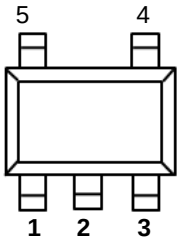
- Reference Voltage Source
- Battery Powered Equipment
- PC Peripherals
- Wireless Devices
- Instrumentation

Absolute Maximum Ratings

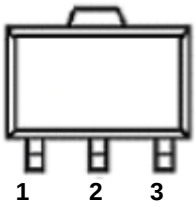
Parameter		Max	Unit
Max Input voltage		8	V
Operating Junction Temperature(T_J)		145	°C
Output Current		300	mA
Ambient Temperature(T_A)		-40~85	°C
Power Dissipation	SOT-23-5	250	mW
	SOT-89-3	500	
Storage temperature (T_S)		- 45 to 150	°C
Lead Temperature & Time		260°C,10S	°C

Packaging Type

SOT-23-5



SOT-89-3



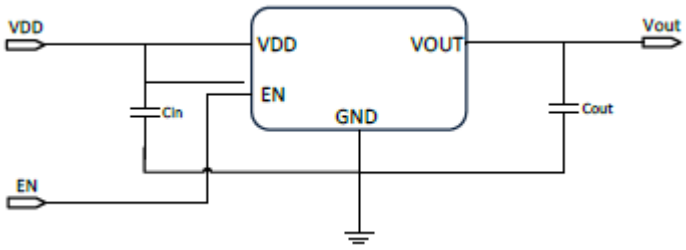
SOT-23-5	SOT-89-3	Description
1	2	VDD
2	1	GND
3		EN
4		NC
5	3	VOUT

Ordering information

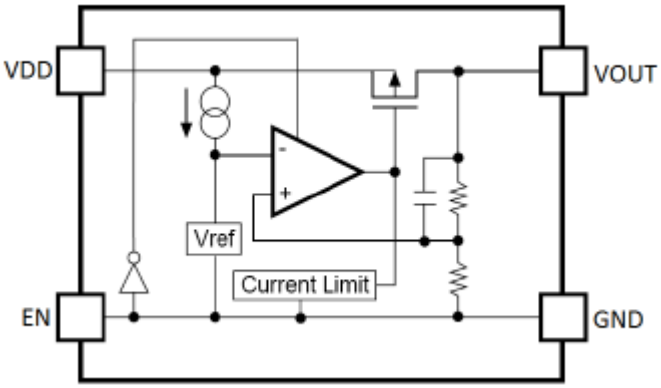
ACE518C XX XX + H

- Halogen - free
- Pb - free
- BN: SOT-23-5
  AM: SOT-89-3
- Output Voltage: 1.0V/1.5V/1.8V…..4.5V

TYPICAL APPLICATION



Block Diagram



Recommended Work Conditions

Item	Min	Max	Unit
Input Voltage Range	1.5	6	V
Ambient Temperature	-40	85	℃
Operating Junction Temperature (TJ)	125		℃

Electrical Characteristics

Test Conditions: C_{IN}=4.7uF,C_{OUT}=4.7uF,T_A=25℃, unless otherwise specified

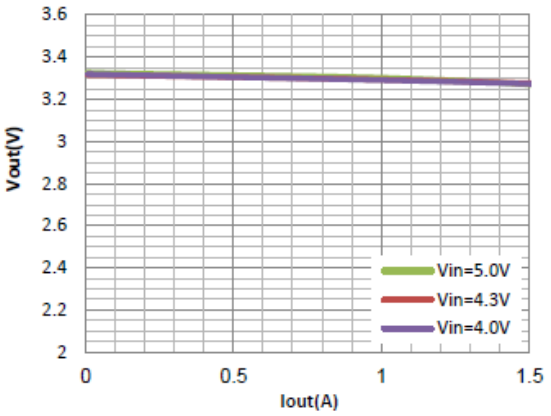
Symbol	Parameter		Conditions	Min	Typ	Max	Units
V_{DD}	Input Voltage			1.5*		6	V
V_{OUT}	Output Voltage	V_{OUT}>1.5	VDD=Set VOUT+1V 1mA≤IOUT≤10mA	V_{OUT} X0.98	V_{OUT}	V_{OUT} X1.02	V
		V_{OUT}<=1.5		V_{OUT} -0.03		V_{OUT} +0.03	
I_{OUT} (Max.) **	Maximum Output Current		V_{DD}-V_{OUT}=1V	1			A
V_{DROP}	Dropout Voltage		VOUT=3.3V, IOUT=1A		300	500	mV
△Vout / △Vin-Vout	Line Regulation		IOUT=10mA, 4V≤VDD≤6V		0.05	0.2	%/V
ΔVout □	Load Regulation		V_{DD}=Set V_{OUT}+1V 1mA≤I_{OUT}≤2.5A		30	60	mV
Is	Supply Current		V_{DD}=Set V_{OUT}+1V,V_{OUT} Floating		100	150	uA
△Vout / △T*Vout	Output Voltage Temperature Coefficient		I_{OUT}=10mA		±100		ppm/℃
PSRR	Ripple Rejection		f=100Hz,Ripple=0.5Vp-p, V_{PP}=Set V_{OUT}+1V		65		dB
en	Output Noise		BW=10Hz~100kHz		44		uVrms

Note: *Iout=500mA@Vout=1.2V

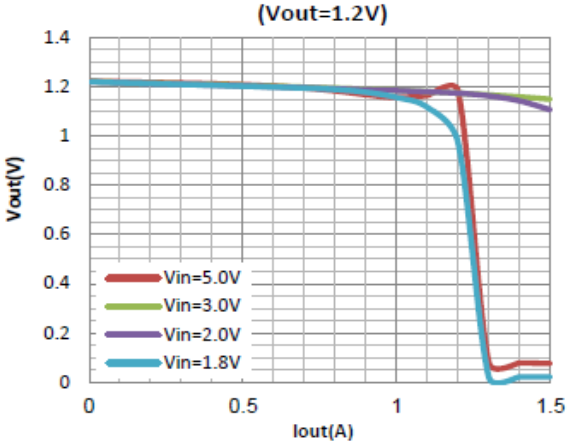
**The maximum power rating of each package is a constant, so along with the change of I_{LOAD}, the V_{DD}-V_{OUT} should be controlled to a certain range to ensure the normal operation.

Typical Performance Characteristics

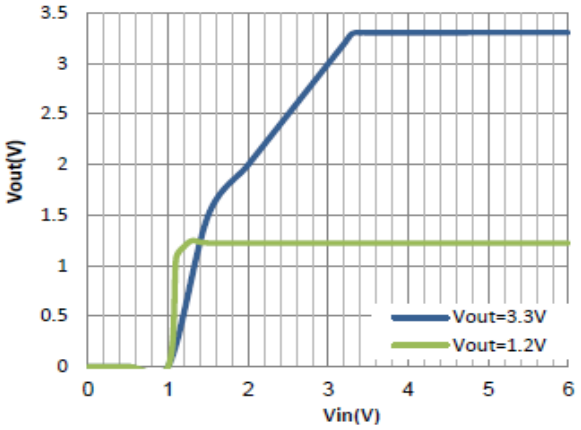
Load Regulation
(Vout=3.3V)



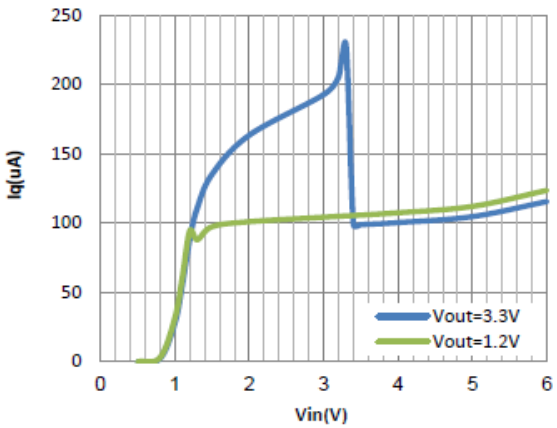
Load Regulation
(Vout=1.2V)



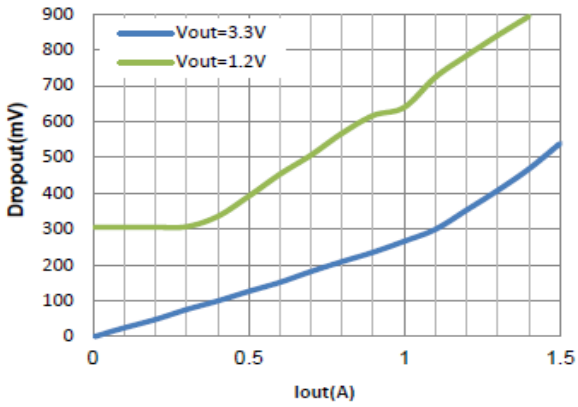
Line Regulation



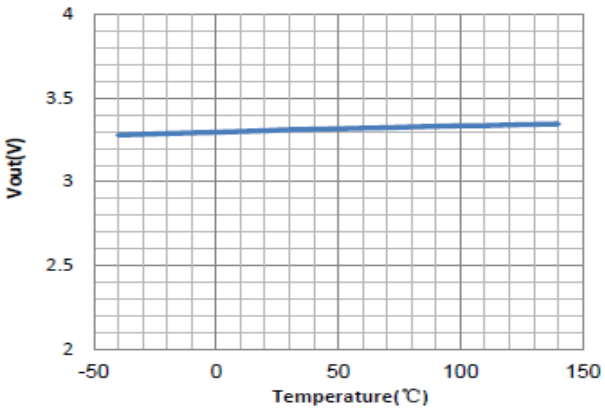
Iq



Dropout Voltage

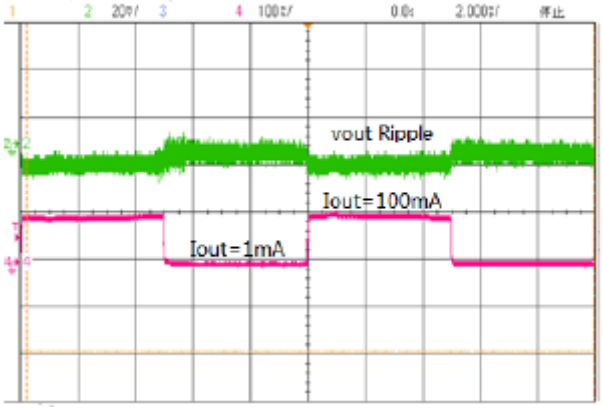


Vout vs. Temperature

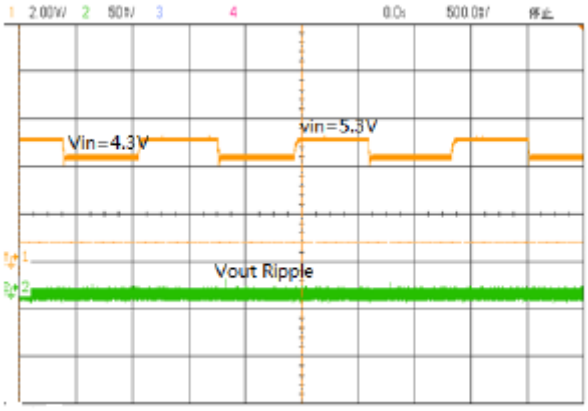


Typical Performance Characteristics

Load Transient Response(Vin=5V,Vout=3.3V)
Cin=1uF,Cout=1uf,Iout=1mA-100mA

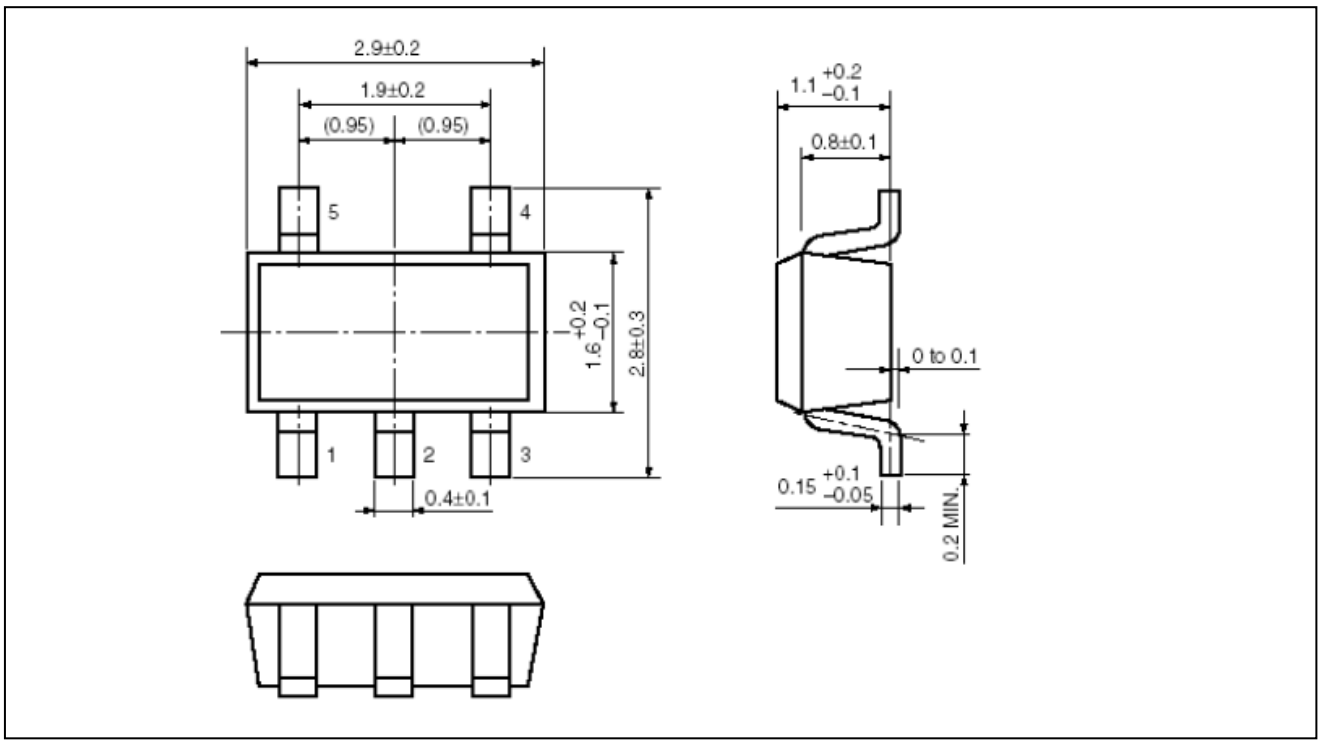


Line Transient Response(Vin=5V,Vout=3.3V)
Cin=1uF,Cout=1uf,Iout=10mAVin=4.3V-5.3V

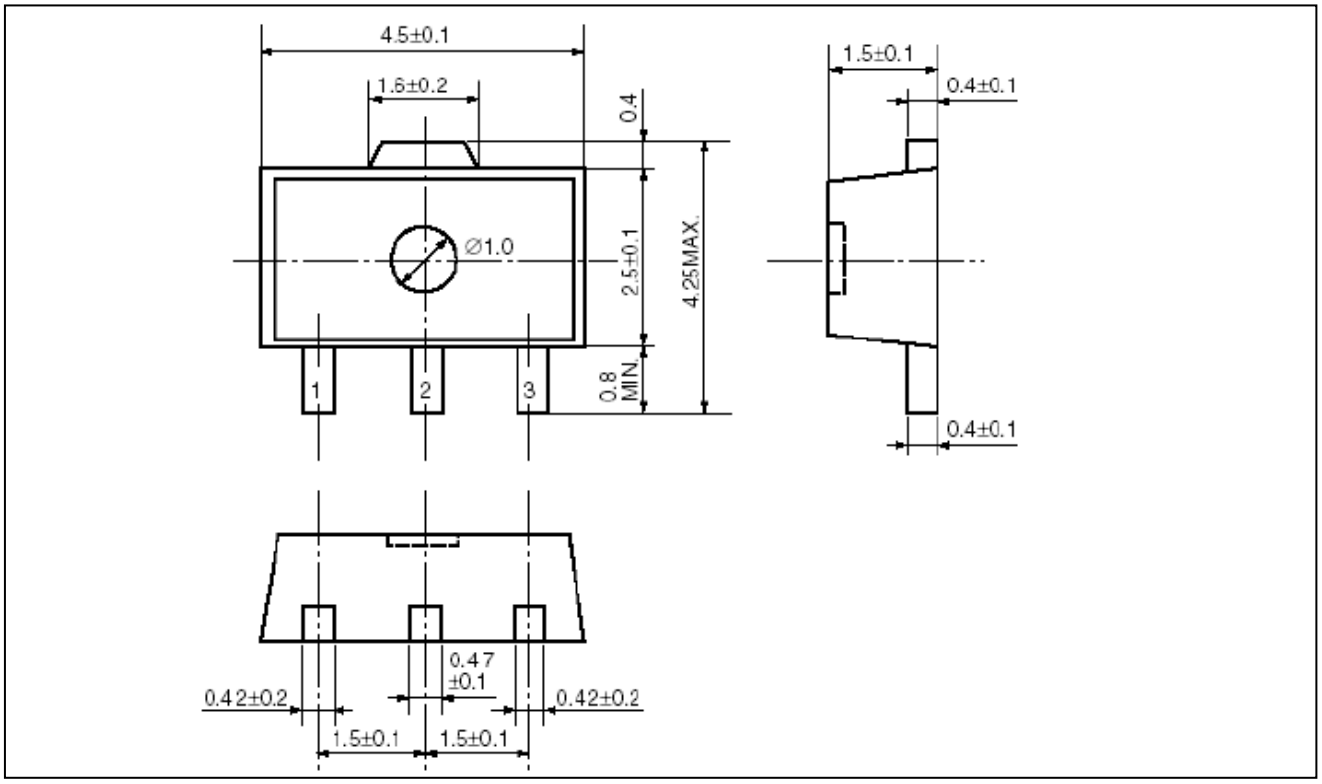


Packing Information

SOT-23-5



SOP-89-3



Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Electronics Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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