ACE577C
40V 150mA Low Consumption Linear Regulator

Description

ACE577C series is a group of positive voltage output, low power consumption, low dropout voltage regulator. It can provide 150mA output current when input / output voltage differential drops to 400mV (Vout = 5V), and it also provides fold back short-circuit protection, thermal protection and output current limit function. The very low power consumption of ACE577C (Iq = 2.5uA) can greatly improve natural life of batteries.

ACE577C can provide output value in the range of 1.2V~5.0V in 0.1V steps. It also can customize on command.

ACE577C includes high accuracy voltage reference, error amplifier, and current limit circuit and output driver module.

ACE577C has well load transient response and good temperature characteristic, And it uses trimming technique to guarantee output voltage accuracy within±2%.

Features

- Low Power Consumption: 2.5uA(Typ.)
- Maximum Output Current: 150mA
- Small Dropout Voltage
- 400mV@100mA (Vout=5V)
- Input Voltage Range: 3V~40V
- Output Voltage Range: 1.2V~5.0V (Vout>5V customized)
- Highly Accurate:±2%(±1% customized)
- Output Current Limit: 180mA

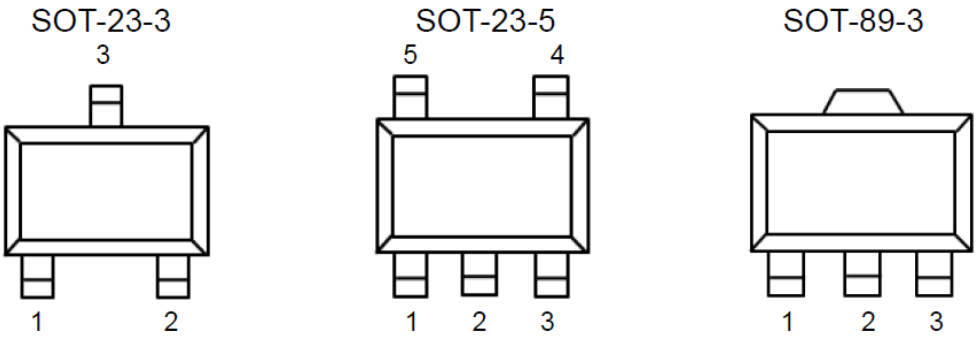
Application

- Battery Powered equipment
- Power Management of MP3、PDA、DSC、 Mouse、PS2 Games
- Reference Voltage Source Regulation after Switching Power

Absolute Maximum Ratings

Parameter		Value
Max Input Voltage		48V
Operating Junction Temperature(Tj)		125℃
Ambient Temperature(Ta)		-40 ℃-85℃
Power Dissipation (P_D@Ta=25℃) Storage Temperature(Ts)	SOT-23-3	250mW
	SOT-23-5	400mW
	SOT-89-3	500mW
Lead Temperature & Time		-40℃ -150℃
Power Dissipation (PD@Ta=25)		260℃,10S

Packaging Type



Pin Configuration

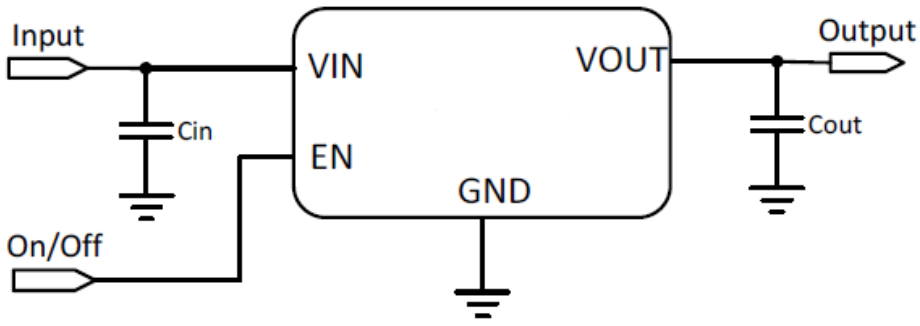
SOT-23-3	SOT-23-5	SOT-89-3(A)	SOT-89-3(B)	Description
1	2	1	2	GND
2	5	3	1	Vout
3	1	2	3	Vin
	3			EN
	4			NC

Ordering Information

ACE577CXX XX+ H

- Halogen - free
- Pb - free
- BM: SOT-23-3
  BN: SOT-23-5
  AMA: SOT-89-3(A)
  AMB: SOT-89-3(B)
- Output Voltage: 1.2V/1.5V/……/5.0V

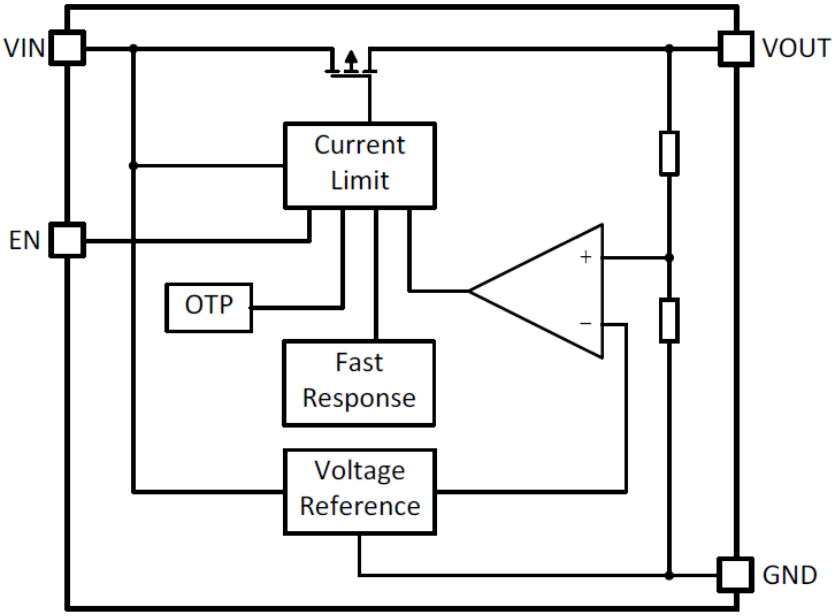
Typical Application



Recommended Work Conditions

Item	Min	Max.	Unit
Input Voltage Range	3	40	V
Ambient Temperature	-40	85	℃

Block Diagram



Explanation

ACE577C is a series of low dropout voltage and low power consumption regulator. Its application circuit is very simple, which only needs two outside capacitors. It is composed of these modules: high accuracy voltage reference, current limit circuit, error amplifier, output driver and power transistor.

Current Limit module can keep chip and power system away from danger when load current is more than 180mA.

ACE577C uses trimming technique to assure the accuracy of output value within±2%, at the same time, temperature compensation is elaborately considered in this chip, which makes ACE577C's temperature coefficient within ±100ppm/℃。

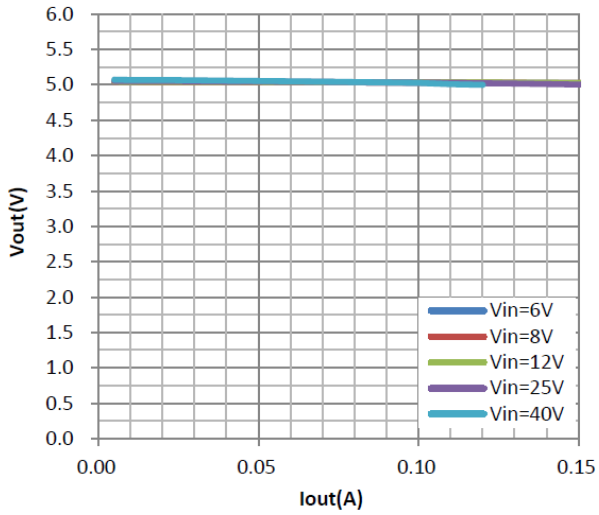
Electrical Characteristics

(Test Conditions: Cin=1uF, Cout=1uF, Ta=25℃, Unless Otherwise Specified)

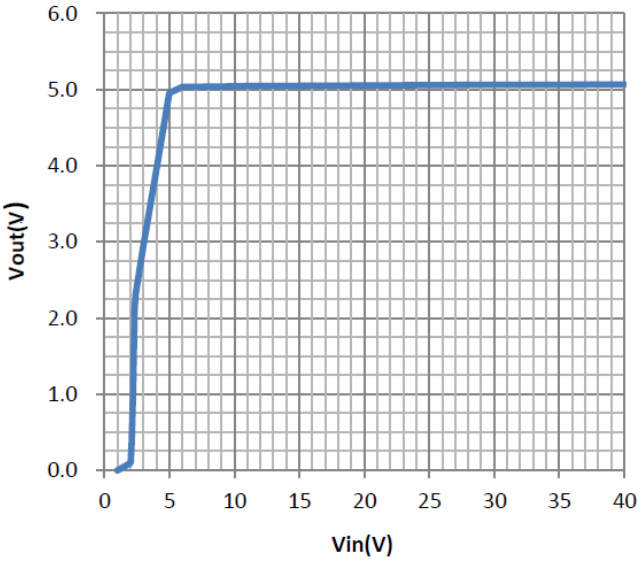
Parameter		Symbol	Conditions	Min	Typ	Max	Units
Input Voltage		Vin		3		40	V
Output Voltage	Vout>1.5V	Vout	Vin-Vout=1V 1mA≤Iout≤30mA	Vout x0.98	Vout	Vout X1.02	V
	Vout≤1.5V			Vout -0.03		Vout +0.03	
Maximum Output Current		Iout(Max.)	Vin-Vout=1V	150			mA
Input-Output Voltage Differential		Dropout Voltage	Iout=100mA, Vout = 5V		400		mV
Line Regulation		$\frac{\Delta Vout}{\Delta Vin \cdot Vout}$	Iout=10mA, 4V≤Vin≤40V		0.2	0.3	%/V
Load Regulation		ΔVout	Vin=Set Vout+1V 1mA≤Iout≤100mA		20	40	mV
Quiescent Current		Iq	Vin=Set Vout+1V		2.5	5	uA
Output Voltage Temperature Coefficient		$\frac{Vout}{\Delta T \cdot Vout}$	Iout=10mA		±100		ppm/°C
Thermal Shutdown					130		°C

Typical Performance Characteristics

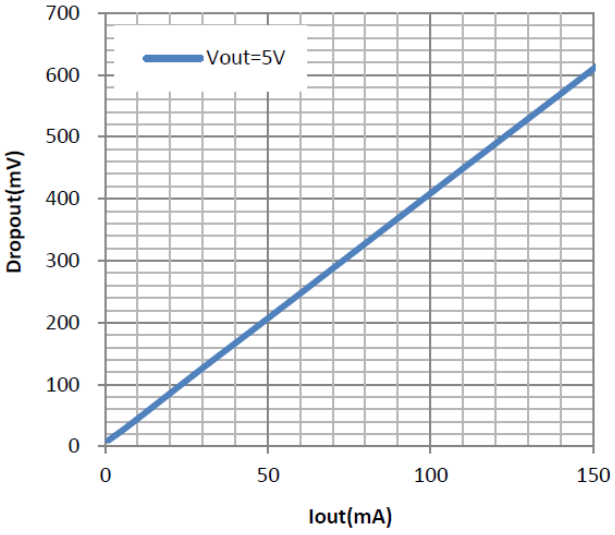
Load Regulation



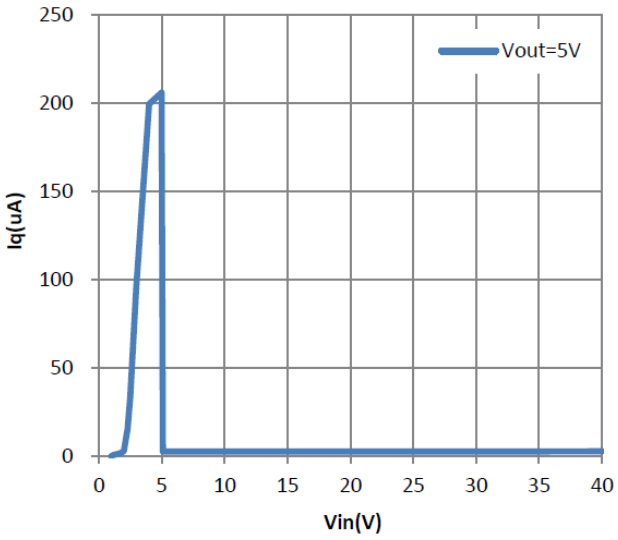
Line Regulation



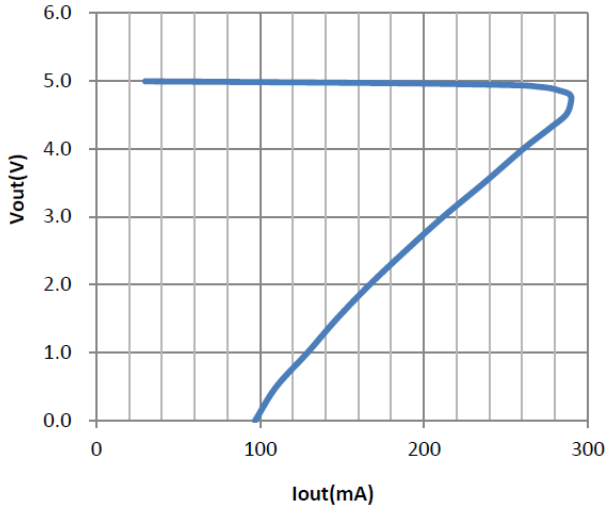
Dropout



Iq



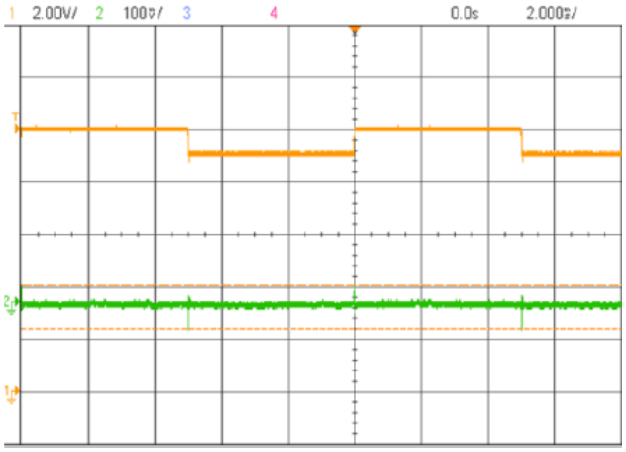
Current Limit



Line transient response

Vin=6V~7V, Iout=10mA

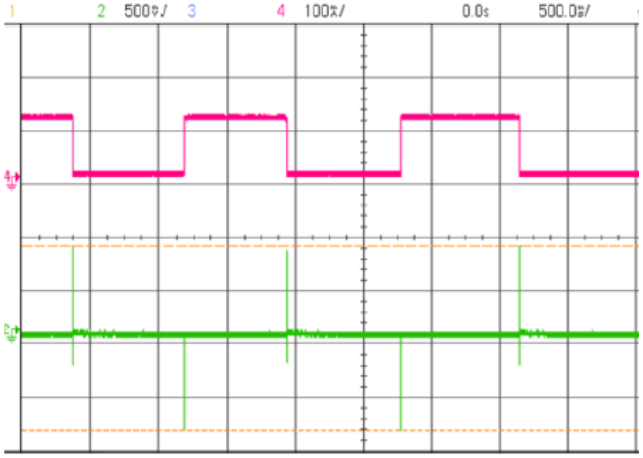
Ch1—Vin, Ch2—Vout



Load transient response

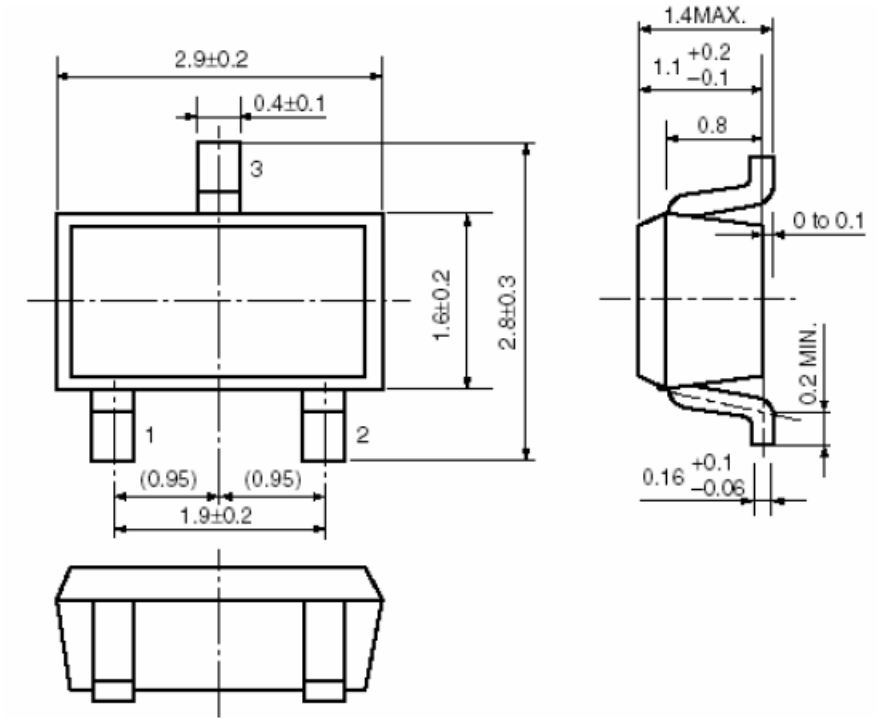
Vin=12V, Iout=10mA~100mA

Ch2—Vout, Ch4—Iout

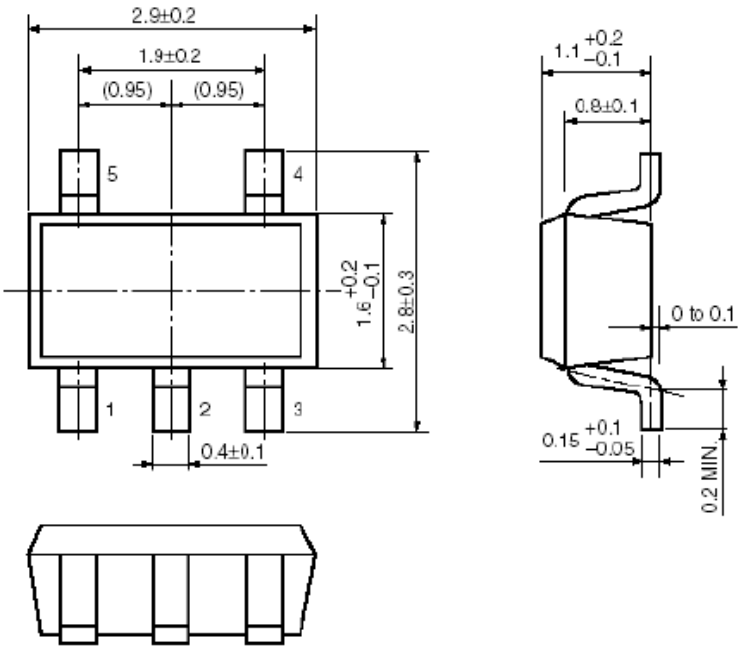


Packing Information

SOT-23-3

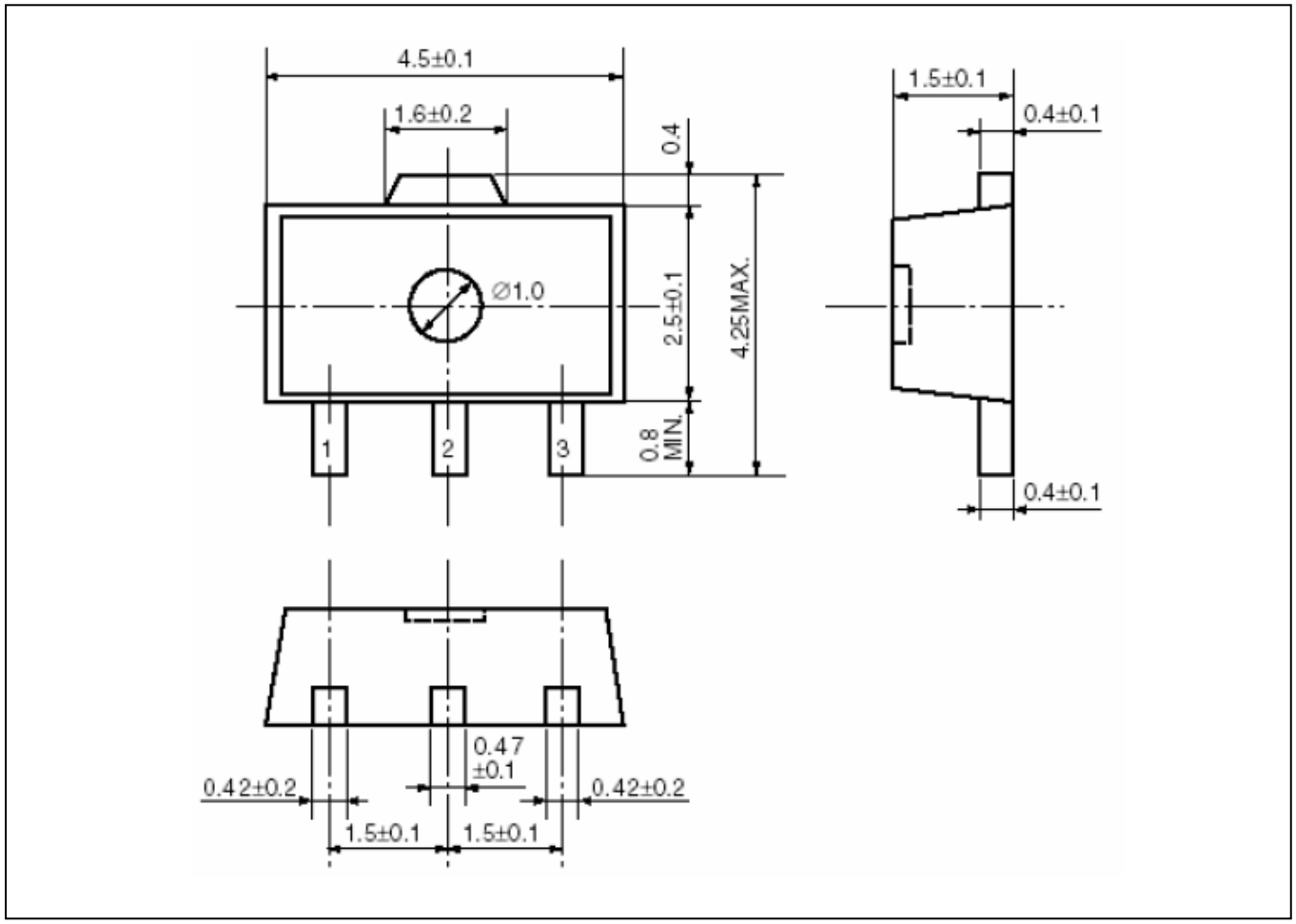


SOT-23-5



Packing Information

SOT-89-3



Notes

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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.