ACE537P
Low Noise High PSRR High Speed CMOS LDO

Description

The ACE537P is a high accuracy, low noise, high speed, low dropout CMOS Linear regulator with high ripple rejection and fast discharge function. The devices offer a new level of cost effective performance in cellular phones, laptop and notebook computers, and other portable devices.

The current limiter's fold-back circuit also operates as a short circuit protection and an output current limiter at the output pin.

The ACE537P regulators are available in standard SOT-23-5 packages. Standard products are Pb-free and Halogen-free.

Features

- Input voltage : 2.5V~5.5V
- Output range : 1.2V~3.3V
- Output current: 300mA Typ
- PSRR: 70dB @ 1KHz
- Dropout voltage: 170mV @ I_{OUT}=200mA
- Quiescent current: 30μA Typ.
- Shut-down current: < 1μA
- Recommend capacitor: 1uF
- Ultra Low Output Noise: 100uV_{RMS}
- Fast Discharge Function

Application

- MP3/MP4 Players
- Cellphones, radiophone, digital cameras
- Bluetooth, wireless handsets
- Others portable electronic device

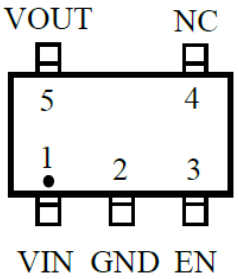
Absolute Maximum Ratings (Note)

Symbol	Items		Value	Unit
V_{IN}	Input Voltage		-0.3～6	V
V_{EN}	Enable Pin		-0.3～6	V
V_{pin}	All Other Pins		GND-0.3 to VDD+0.3	V
P_{DMAX}	Power Dissipation	SOT23-5	0.3	W
T_J	Junction Temperature		-40~125	℃
T_{stg}	Storage Temperature		-55 to 150	℃
T_{solder}	Package Lead Soldering Temperature		260℃, 10s	

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

Packaging Type

SOT-23-5



Pin Description

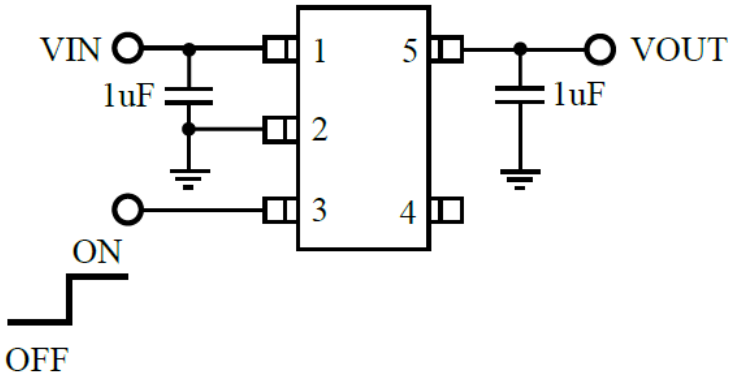
Description	Function
VIN	Input
GND	Ground
EN	Enable (Active high)
NC	Not connected
VOUT	Output

Ordering information

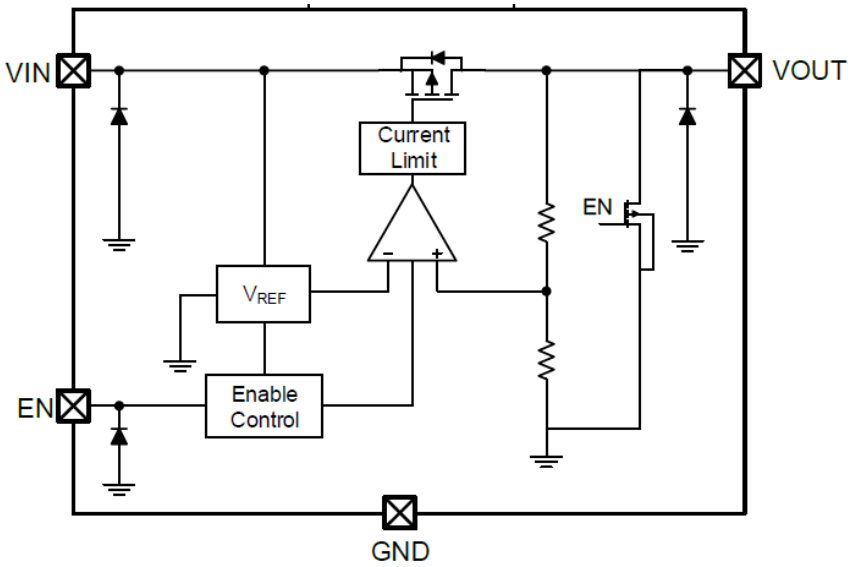
ACE537P XX XX+H

- Halogen - free
- Pb - free
- BN：SOT-23-5
- Output Voltage：1.2 / 1.3V …../3.3V

Typical Application Circuit



Block Diagram



Recommended Operation Range

Symbol	Items	Value	Unit
V_{IN}	VIN Supply Voltage	0.9 to 5.5	V
V_{EN}	Enable Voltage	0.9 to 5.5	V
T_{OPT}	Operating Temperature	-40 to +85	℃

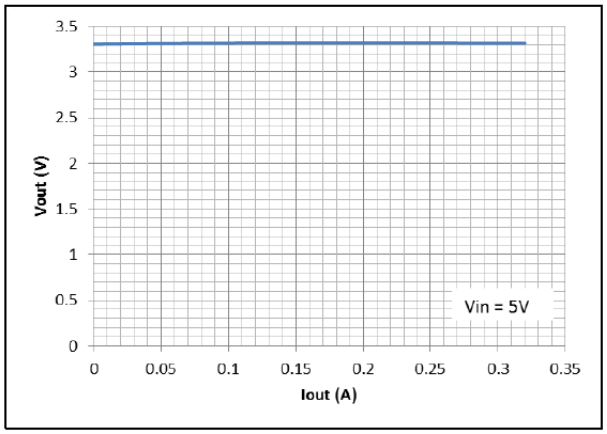
Electrical Characteristics

The following specifications apply for V_{OUT}=3.3V T_A=25℃unless specified otherwise.

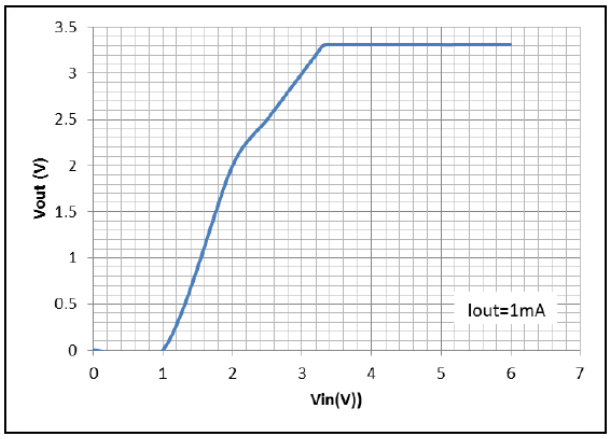
Items	Symbol	Conditions	Min	Typ	Max	Unit
Input Voltage	V_{IN}				5.5	V
Vout range	Vout	V_{OUT}<2V V_{IN}=2.7V I_{OUT}=1mA	-3%	Vout	3%	V
		V_{OUT}≧2V, I_{OUT}=1mA	-2%	Vout	2%	
Quiescent Current	I_q	V_{OUT}=3.3V I_{OUT}=0		35		μA
Current Limit	I_{limit}	Vin=Ven=5V		450		mA
Dropout Voltage	V_{drop}	V_{OUT}=3.3V I_{OUT}=200mA		170	200	mV
		V_{OUT}=3.3V I_{OUT}=300mA		250	300	
Line Regulation	ΔV_{LINE}	V_{IN}=2.7~5.5V, I_{OUT}=1mA		0.01	0.15	%/V
Load Regulation	ΔV_{Load}	V_{OUT}=2.8V , I_{OUT}=1~300mA		20	30	mV
Short Current	I_{SHORT}	V_{EN}=V_{IN}, V_{OUT} Short to GND with 1Ω		90		mA
Shut-down Current	I_{SHDN}	V_{EN}=0V			1	μA
Power Supply Rejection Rate	PSRR	V_{IN}=(V_{OUT}+1V)$_{DC}$+0.5V_{P-P} F=1KHz ,Iout=10mA		70		dB
		V_{IN}=(V_{OUT}+1V)$_{DC}$+0.5V_{P-P} F=10KHz, Iout=10mA		65		
EN logic high voltage	V_{ENH}	V_{IN}=5.5V, I_{OUT}=1mA	1.2			V
EN logic low voltage	V_{ENL}	V_{IN}=5.5V, V_{OUT}=0V			0.4	V
EN Input Current	I_{EN}	V_{EN}= 0 to 5.5V			1.0	uA
Output Noise Voltage	e_{NO}	10Hz to 100KHz, COUT=1μF		100		μV_{RMS}

Typical Characteristics

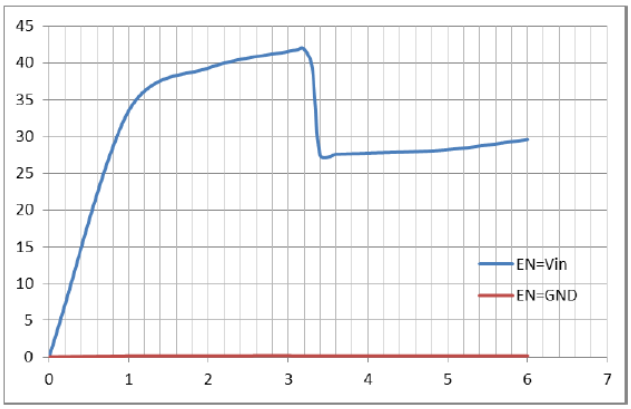
Load Regulation



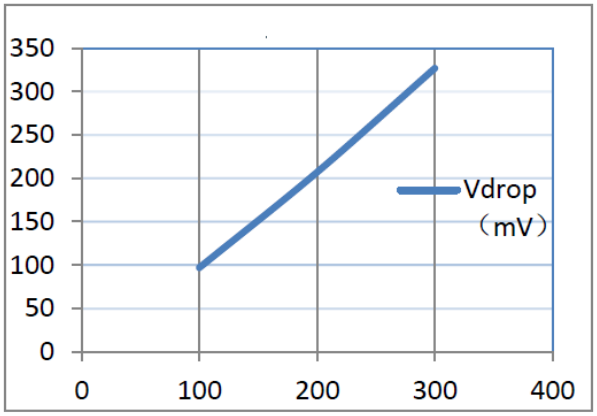
Line Regulation



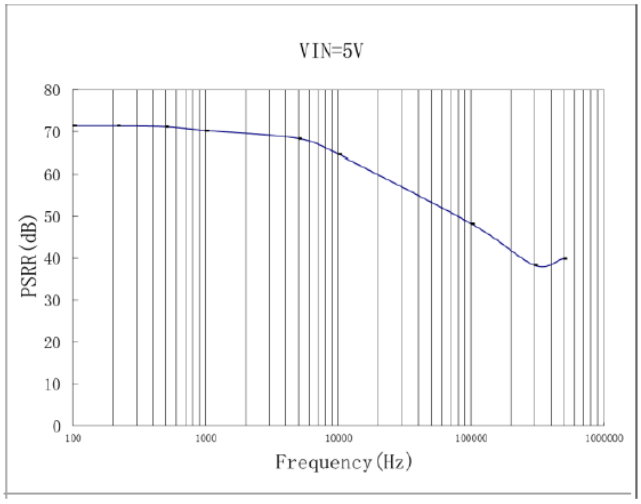
Iq



Dropout

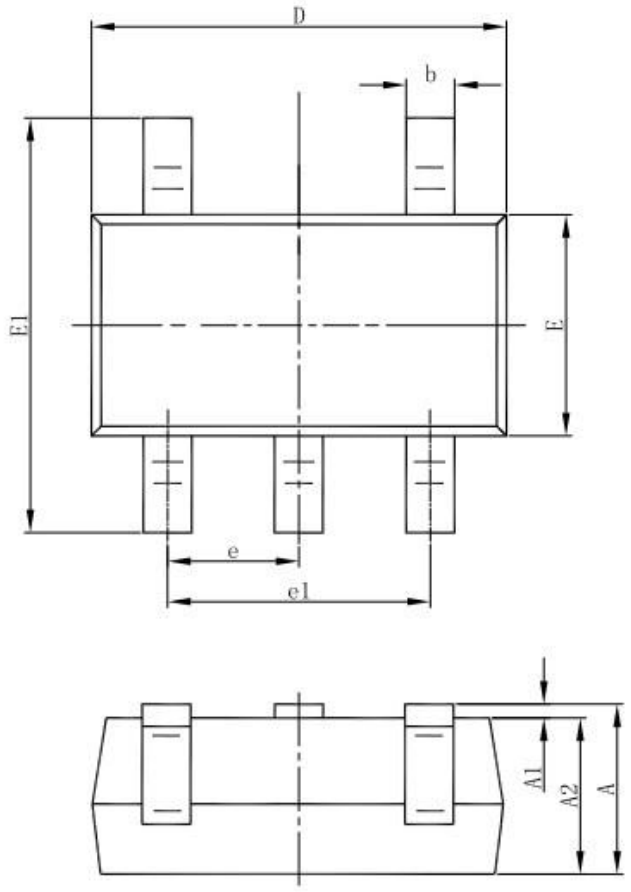


PSRR



Packing Information

SOT23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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.