ACE5050LA

500mA High PSRR, Ultra-low Noise, Ultra-Fast CMOS LDO Regulator

Description

The ACE5050LA is designed for portable applications with demanding performance and space requirements. The ACE5050LA performance is optimized for battery-powered systems to deliver ultra-low noise and low quiescent current. Regulator ground current increases only slightly in dropout, further prolonging the battery life. The ACE5050LA also works with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications, critical in hand-held wireless devices. The ACE5050LA consumes only 0.1μA current in shutdown mode and has fast turn-on time (Typical 100μs). The other features include ultra- low dropout voltage, high output accuracy, current limiting protection, and high ripple rejection ratio.

Features

- Ultra-low Noise
- Ultra-Fast Transient Response
- High PSRR:
  -85dB @ 300Hz
  -80dB @ 1KHz
  -54dB @ 1MHz
- 0.1μA Standby Current When Shutdown
- Low Dropout: 280mV@500mA (V_{OUT}=2.8V)
- Wide Operating Voltage Ranges: 1.8V to 5.5V
- Current Limiting and Short Circuit Current Protection
- Thermal Shutdown Protection
- Only 1μF Output Capacitor Required for Stability
- Fast output discharge
- Available in SOT23-5, SC70-5 and DFN1X1-4L Packages

Application

- Cellular and Smart Phones
- Cordless Telephones
- Camera and Machine Vision Modules
- Battery-Powered Equipment
- Laptop, Palmtops, Notebook Computers
- Hand-Held Instruments

Absolute Maximum Ratings (Note1)

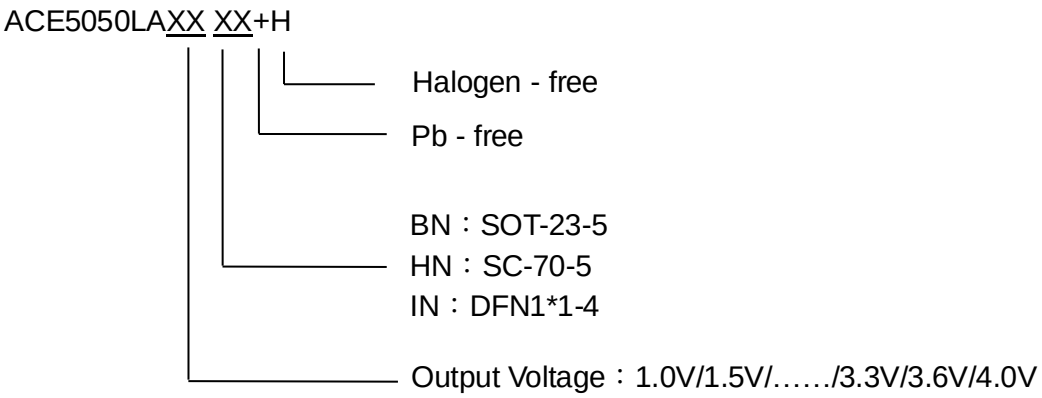
Parameter	Value
Input Supply Voltage (VIN)	-0.3V to +6V
EN Pin Input Voltage	-0.3V to VIN
Output Voltage	-0.3V to VIN+0.3V
Output Current	500mA
Maximum Junction Temperature	150°C
Operating Temperature Range (Note2)	-40°C to 85°C
Storage Temperature Range	-65°C to 125°C
Lead Temperature (Soldering, 10s)	300°C

Note 1: Absolute Maximum Ratings are those values beyond which the life of a device may be impaired.

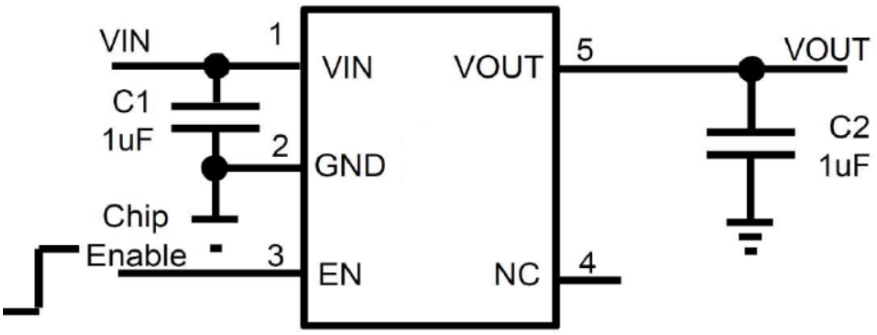
Note 2: The ACE5050LA is guaranteed to meet performance specifications from 0°C to 70°C. Specifications over the –40°C to 85°C operating temperature range are assured by design, characterization and correlation with statistical process controls.

Note 3: Thermal Resistance is specified with approximately 1 square of 1 Oz copper.

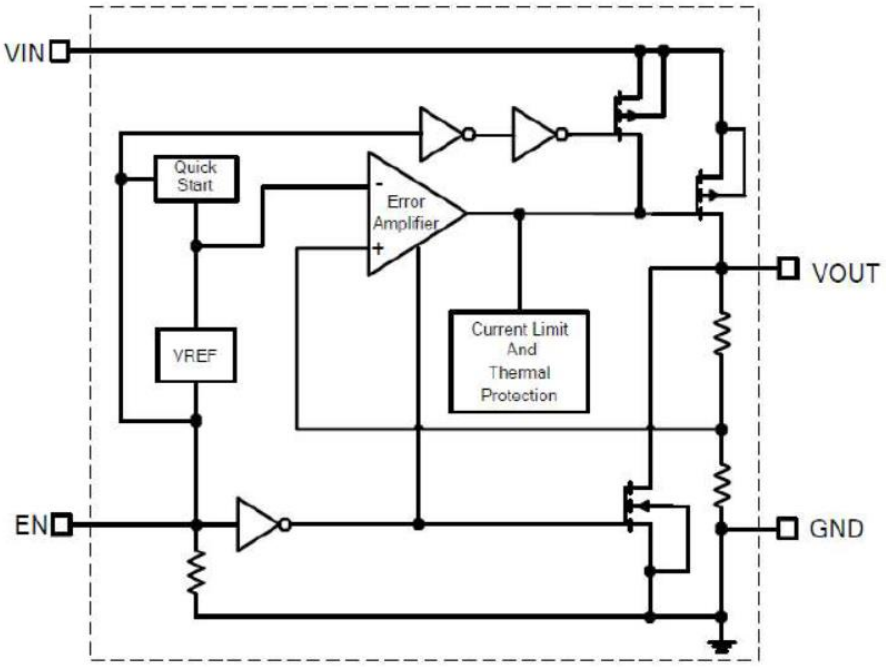
Ordering information



Typical Application



Block Diagram



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 Technology 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.