



ACE7064C

1.2 A, 1.2MHz Synchronous Boost Converter with Output Disconnect

Description

The ACE7064C devices provide a power supply solution for products powered by either a one-cell, two-cell, or three-cell alkaline, NiCd or NiMH, or one-cell Li-ion or Li-polymer battery. The boost converter is based on a fixed frequency, pulse-width-modulation (PWM) controller using a synchronous rectifier to obtain maximum efficiency, which contain an internal NMOS switch and PMOS synchronous rectifier. The maximum peak current in the boost switch is typically limited to a value of 1.2A.

A switching frequency of 800KHz minimizes solution footprint by allowing the use of tiny, low profile inductors and ceramic capacitors. The current mode PWM design is internally compensated, reducing external parts count. Anti-ringing control circuitry reduces EMI concerns by damping the inductor in discontinuous mode. The converter can be disabled to minimize battery drain. During shutdown, the load is completely disconnected from the battery. The device features low shutdown current less than 1 μ A.

Features

- Up to 96% Efficiency
- True Output Load Disconnect During Shutdown
- Delivers 100mA@3.3V from Single AA Cell
- Delivers 300mA@5V from Two AA Cells
- Delivers 600mA@5V from Single Li Cell
- Low Voltage Start-Up: 0.85V
- Continuous Switching at Light Loads
- Internal Synchronous Rectifier
- Current Mode Control
- with Internal Compensation
- 800KHz Fixed Frequency Switching
- Input Range: 0.5V to 4.5V
- Output Range: 2.5V to 4.3V (with Schottky)
- Logic Controlled Shutdown(<1 μ A)
- Anti-ringing Control Minimizes EMI
- 1.2A Peak Switch Current Limit
- Over Temperature Protection
- Tiny External Components
- Low Profile (1mm) SOT-23 Package



Application

- Digital Still and Video Cameras
- Portable Applications Using Single Li+ Cell
- Bus Powered USB Hosts
- USB Hosts Without Native 5-V Supplies
- Portable Audio Players
- LCD Bias Supplies
- Handheld Instruments
- Wireless Handsets
- GPS Receivers
- Personal Medical Products
- White LED Lighting

Absolute Maximum Ratings (Unless otherwise specified, $T_A=25^{\circ}\text{C}$) ⁽¹⁾

Parameter	Symbol	Ratings	Units
Input Voltage ⁽²⁾	V_{IN}	-0.3~7	V
SW Voltage ⁽²⁾		-0.3~7	V
CE, FB Voltage ⁽²⁾		-0.3~7	V
Output Voltage range ⁽²⁾	V_{OUT}	-0.3~7	V
Peak SW Sink and Source Current	I_{SWMAX}	1.5	A
Operating Virtual Junction Temperature Range	T_j	-40~150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40~125	$^{\circ}\text{C}$
Lead Temperature(Soldering, 10 sec)	T_{solder}	260	$^{\circ}\text{C}$
ESD rating ⁽³⁾	Human Body Model - (HBM)	4000	V
	Machine Model- (MM)	200	V

(1) Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under recommended operating conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

(2) All voltages are with respect to network ground terminal.

(3) ESD testing is performed according to the respective JESD22 JEDEC standard.

The human body model is a 100 pF capacitor discharged through a 1.5k Ω resistor into each pin. The machine model is a 200pF capacitor discharged directly into each pin.

Caution

This integrated circuit can be damaged by ESD if you don't pay attention to ESD protection. Chi power recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

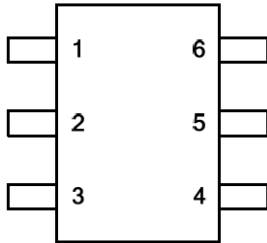


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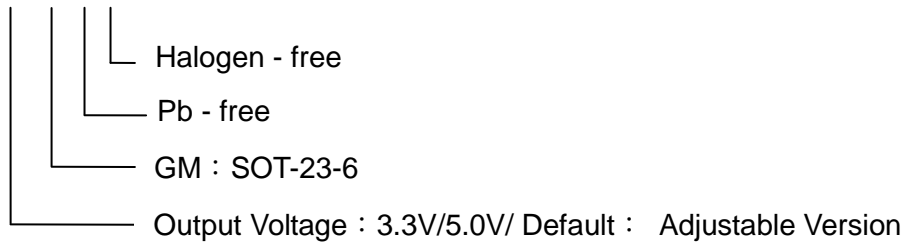
Packaging Type

SOT-23-6



Ordering Information

ACE7064CXX XX+ H





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 whose 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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