



ACE4063F

3-Cell Lithium Battery Charger IC PFM Step-up

Description

ACE4063F is a PFM mode step-up battery charge management IC with operating voltage range between 2.7V to 6.5V. It is specially designed for 3-cell lithium battery charge management with fewer external components. ACE4063F adopts constant current and quasi-constant voltage (Quasi-CVTM) mode to charge battery.

On power up, ACE4063F enters charging state, the external N-channel MOSFET is turned on, inductor current rises. When inductor current reaches upper threshold, the N-channel MOSFET is turned off, inductor is discharged, the energy stored in inductor is transferred to battery. When the inductor current is discharged to its lower threshold, the N-channel MOSFET is turned on again. When BAT pin voltage reaches 12.6V(Typ.) for the first time, ACE4063F enters quasi-CV mode, in which the charge current is reduced. The charge process will not be terminated until BAT voltage reaches 12.6V for the second time. In termination mode, the N-channel MOSFET is turned off. When BAT voltage falls below recharge threshold, the ACE4063F enters charge mode again.

ACE4063F's switching frequency can be up to 1MHz, which makes a small-profile inductor usable.

If battery voltage is lower than input voltage by a diode drop, ACE4063F will increase the off time to 5us to reduce the charge current as a protection for battery with the joint action of external N-channel and P-channel MOSFET.

The other features include chip enable input, status indication, etc.

Features

- Input Voltage Range : 2.7V to 6.5V
- Operating Current : 280uA@ $V_{IN}=5V$
- Inductor Current Detection
- Switching Frequency up to 1MHz
- Quasi-CV mode to Compensate for the Voltage Loss on Battery Internal Resistance and Trace Resistance
- Automatic Recharge
- Output Power up to 35W
- Protection for Low Battery Voltage and Short Battery
- Automatic Adaptability to Input Supply with Limited Driving Capability
- Chip Enable Input
- Battery Overvoltage Protection
- Status Indication
- Operating Temperature : $-40^{\circ}C$ to $85^{\circ}C$
- Available in SOP8 Package
- Lead-free, rohs-Compliant and Halogen Free



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Application

- 3-cell Li+ Battery Charging Management
- Beauty Apparatus
- Audio System
- Standalone Charger

Absolute Maximum Ratings

Parameter	Value
VIN, CSN and CE Voltage	-0.3V to 7.0V
BAT Voltage	-0.3V to 18V
CSN and VIN Voltage	-0.3V to 0.3V
STAT, LDRV and HDRV Voltage	-0.3V to VIN
Maximum Junction Temperature	150°C
Operating Temperature	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Lead Temperature (Soldering, 10s)	260°C

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 above those indicated in the operational sections of the specifications is not implied. Exposure to Absolute Maximum Rating Conditions for extended periods may affect device reliability.

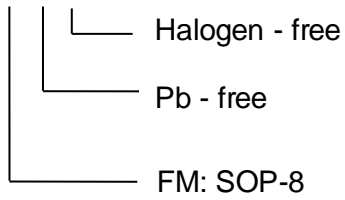


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Ordering information

ACE4063F XX+ H





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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 used 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.