ACE4LP882F

Step-down 2-cell lithium ion Battery Charger IC

Description

ACE4LP882F is a step-down PWM switch-mode charger IC for 2-cell lithium-ion batteries with few external components in small footprint package. The ACE4LP882F is specially designed for charging 2-cell lithium ion batteries with trickle charge, constant current and constant voltage mode. In constant voltage mode, the regulation voltage is fixed at 8.4V with 1% accuracy. The constant charging current is set with an external current sense resistor. When solar panel is used as power supply, ACE4LP882F can automatically adjust charge current to track solar panel's maximum power point. Deeply discharged batteries are automatically trickle charged at 25% of the full-scale charge current until the cell voltage exceeds 66.6% of regulation voltage. The charge cycle is terminated once the charge current drops to 15% of full-scale charge current, and a new charge cycle automatically restarts if battery voltage falls below 95.8% of regulation voltage. ACE4LP882F will automatically enter sleep mode when input voltage is lower than battery voltage. Other features include JEITA-compliant battery temperature monitoring, battery reverse current blocking, battery over voltage protection, 2 open-drain status indications, etc.

Features

- Standalone Charge Management for 2-cell Lithium-ion Battery
- Wide Input Voltage: 6.5V to 30V
- Regulation Voltage: 8.4V±1%
- Charge Current up to 6A
- PWM Switching Frequency: 550KHz
- 2 Open-drain Status Indication
- Solar Panel MPPT Function
- Built-in Soft Start
- Battery Reverse Current Blocking
- Operating Ambient Temperature: -40℃ to 85℃
- Charge Current is externally set
- Automatic Conditioning of Deeply Discharged Batteries
- 100% Duty Cycle
- Automatic Recharge
- JEITA-Compliant Battery Temperature Monitoring
- Available in TSSOP-16 Package

Application

- Industrial and Medical Equipment
- Emergency Lighting and Electric Tools
- Audio/Video Systems and Handheld Equipment

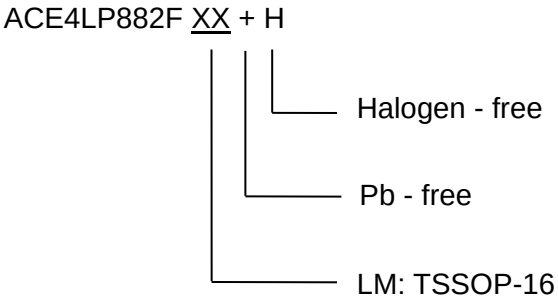
Absolute Maximum Ratings

Parameter	Value
Voltage from VIN, SW, CSP, BAT, $\overline{CHRG}$, $\overline{DONE}$ to GND	-0.3V to 32V
Voltage from VDD, MPPT to GND	-0.3V to 6.5V
Voltage from BST, HDRV to SW	-0.3V to 6.5V
Voltage from COM, LDRV, TEMP, MPPT to GND	-0.3V to VDD+0.3V
Voltage from PG to GND	-0.3V to BAT+0.3V
Maximum Junction Temperature	150℃
Operating Temperature Range	-40℃ to 85℃
Storage Temperature	-65℃ to 150℃
Lead Temperature (Soldering, 10 seconds)	260℃
Thermal Resistance	200℃/W

Note:

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 in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Ordering information



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.