



ACE4LP300F

Buck-Boost Multi-cell Li+ Battery Charger IC

Description

ACE4LP300F is a buck-boost PWM switch-mode charger IC for multi-cell lithium-ion batteries with few external components in small footprint package. The ACE4LP300F is specially designed for charging multi-cell lithium ion batteries with trickle charge, constant current and constant voltage mode. In constant voltage mode, the regulation voltage is set with external resistor divider. The constant charging current is set with an external current sense resistor. When solar panel is used as power supply, ACE4LP300F 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 16% of full-scale charge current, and a new charge cycle automatically restarts if battery voltage falls below 95.8% of regulation voltage. Other features include JEITA-compliant battery temperature monitoring, battery over voltage protection, 2 open-drain status indications, etc.

Features

- Standalone Charge Management for multi-cell Lithium-ion Batteries
- Charge Current up to 6A
- Wide Input Voltage: 4.5V to 30V
- PWM Switching Frequency: 550KHz
- Maximum Duty Cycle: 89.5%
- Automatic Recharge
- Support 0V-battery Charging
- 2 Open-drain Status Indication
- Operating Ambient Temperature: -40°C to 85°C
- Regulation Voltage Set by External Resistor Divider
- Charge Current is externally set by a Current Sense Resistor
- Automatic Conditioning of Deeply Discharged Batteries
- Built-in Soft Start
- Solar Panel MPPT Function
- JEITA-Compliant Battery Temperature Monitoring
- Available in QFN3*3-20 Package

Application

- Standalone Battery Charger
- Industrial and Medical Equipment
- Battery Backup and Electric Tools
- Audio/Video Systems
- Energy Storing Application



ACE4LP300F

Buck-Boost Multi-cell Li+ Battery Charger IC

Absolute Maximum Ratings

Parameter	Value
Voltage from VIN, SW1, SW2, CSP, BAT, $\overline{\text{CHRG}}$, $\overline{\text{DONE}}$ to GND	-0.3V to 32V
Voltage from VDD to GND	-0.3V to 6.5V
Voltage from BST1, HDRV1 to SW1	-0.3V to 6.5V
Voltage from BST2, HDRV2 to SW2	-0.3V to 6.5V
Voltage from FB, COM, LDRV1, TEMP, MPPT to GND	-0.3V to VDD+0.3V
Voltage from LDRV2 to GND	0.3V to VDD+0.3V
Maximum Junction Temperature	150°C
Operating Temperature Range	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Lead Temperature (Soldering, 10 seconds)	260°C
Thermal Resistance	90°C/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.

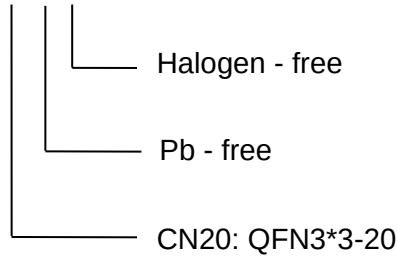


ACE4LP300F

Buck-Boost Multi-cell Li+ Battery Charger IC

Ordering information

ACE4LP300F 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 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.