



# ACE4842F

## 4A, 2-cell Lithium-ion Battery Charger IC

### Description

ACE4842F is a PWM switch-mode charger controller IC for 2-cell lithium-ion batteries with few external components in small footprint package. The ACE4842F 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 photovoltaic cell is used as power supply, ACE4842F can automatically adjust charge current to track solar panel's maximum power point. Deeply discharged batteries are automatically trickle charged at 25% of the programmed constant charging current until the cell voltage exceeds 66.6% of regulation voltage. The charge cycle is terminated once the charging current drops to 15% of full-scale current, and a new charge cycle automatically restarts if battery voltage falls below 95.8% of regulation voltage. ACE4842F will automatically enter sleep mode when input voltage is lower than battery voltage. Other features include JEITA-compliant battery temperature monitoring, under voltage lockout, battery over voltage protection, 2 open-drain status indications, etc. ACE4842F is available in thermally-enhanced 10-pin ESSOP package.

### Features

- Wide Input Voltage: 6.5V to 32V
- Charge Current up to 4A
- PWM Switching Frequency: 550KHz
- Regulation Voltage: 8.4V $\pm$ 1%
- Operating Ambient Temperature: -40°C to 85°C
- 100% Duty Cycle
- Photovoltaic Cell Maximum Power Point Tracking
- Standalone Charge Management for 2-cell Lithium-ion Battery
- Charging Current is set with a current sense resistor
- Automatic Conditioning of Deeply Discharged Batteries
- Built-in Soft Start
- Battery Over-voltage Protection
- Automatic Recharge
- 2 Open-drain Status Indication
- JEITA-Compliant Battery Temperature Monitoring
- Available in ESSOP-10 Package

### Application

- Electric Tools
- Industrial and Medical Equipment
- Handheld Equipment
- Emergency Lighting



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### Absolute Maximum Ratings

Parameter	Unite
Voltage from VCC, $\overline{\text{CHRG}}$ , $\overline{\text{DONE}}$ to GND	-0.3V to 36V
Voltage from VG, DRV to VCC	-8V to 0.3V
Voltage from CSP, BAT to GND	-0.3V to 36V
Voltage Temp to GND	-0.3V to 6.5V
Voltage from COM to GND	-0.3V to 6.5V
Voltage from MPPT to GND	-0.3V to 6.5V
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 (ESSOP-10)	TBD

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 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.

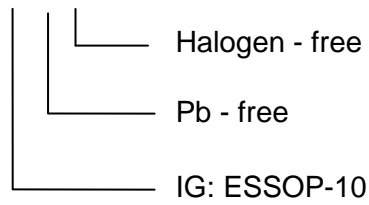


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## Ordering information

ACE4842F 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.

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