



# ACE4082R

## 24V Input Voltage Switch Mode Battery Charger

### Description

The ACE4082R is a complete battery charger controller for one (4.2V/4.35V) or two (8.4V) or three (12.6V) cell lithium-ion battery. The ACE4082R provides a small, simple and efficient solution to fast charge Li-ion battery. The ACE4082R built in anti current backward function, so the application does not need the blocking diode. An external sense resistor sets the charge current with high accuracy.

An internal resistor divider and precision reference set the final float voltage to one (4.2V/4.35V) or two (8.4V) or three (12.6V) cell with  $\pm 1\%$  accuracy. When the input supply is removed, the ACE4082R automatically enters a low current sleep mode, dropping the battery drain current to  $3\mu\text{A}$ . After the charge cycle ends, If the battery voltage drops below one (4.1V/4.23V) or two (8.2V) or three (12.2V) cell, a new charge cycle will automatically begin.

### Features

- Input Supply Range : One-cell : 4.7V~16V; Two-cell : 10V~20V; Three-cell : 14V~22V
- Maximum input voltage : 24V
- Built in anti current backward function
- High Efficiency Current Mode PWM Controller
- Built-in input adaptive function
- Constant Switching Frequency for Minimum Noise
- $\pm 1\%$  charge voltage accuracy
- Automatic Recharge
- Automatic Shutdown When Input Supply is Removed
- Automatic Trickle Charging of Low Voltage
- Stable with Ceramic Output Capacitor
- Battery Temperature Sensing

### Application

- Charging Docks
- Handheld Instrument TEMP
- Portable Computers



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### Absolute Maximum Ratings

Parameter		Rating	Unit
VIN , CHRГ , BS , SW , EN Voltage		-0.3~24	V
BAT , SEN Voltage		-0.3~18	V
TEMP Voltage		-0.3~5	V
SW Pin Current		3.8	A
Thermal resistance (Junction to air) $\theta_{JA}$	ESOP-8	63	$^{\circ}\text{C}/\text{W}$
	DFN3*3-10	70	$^{\circ}\text{C}/\text{W}$
Internal Power Dissipation	ESOP-8	1.98	W
	DFN3*3-10	1.79	W
Operating Ambient Temperature Range		-40~85	$^{\circ}\text{C}$
Maximum junction temperature		-40~150	$^{\circ}\text{C}$
Storage temperature Range		-55~150	$^{\circ}\text{C}$
Soldering temperature and time		300 ( Recommended 10S )	$^{\circ}\text{C}$

Note:

1. The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.
2. The maximum allowable power dissipation is a function of the maximum junction temperature  $T_J$  (MAX), the junction-to- ambient thermal resistance  $\theta_{JA}$ , and the ambient temperature  $T_A$ . The maximum allowable continuous power dissipation at any ambient temperature is calculated by  $PD(\text{MAX})=(T_J(\text{MAX})-T_A)/\theta_{JA}$ .
3. Chip is soldered to 400mm<sup>2</sup> (20mm\*20mm) copper (top side solder mask) on 1oz.2 layers FR-4 PCB (for reference only). The  $\theta_{JA}$  values given in this table are for comparison with other packages only and cannot be used for design purposes. They do not represent the performance achieved in real-world applications.

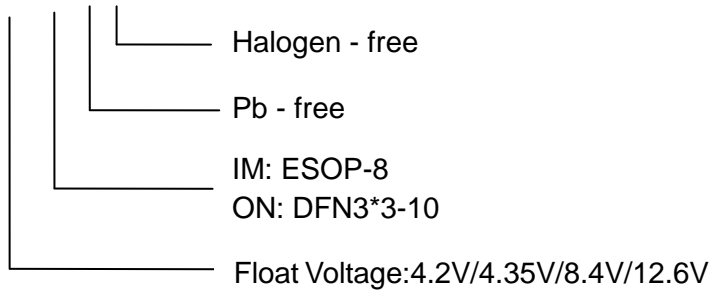


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### Ordering information

ACE4082R XX 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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