



ACE44560P

Single Cell Li-Ion Battery Linear Charger

Description

ACE44560P is a complete constant-current & constant voltage linear charger for single cell lithium-ion batteries with power path management and I2C program function. ACE44560P is specifically designed to work within USB power specification and direct interface. ACE44560P integrates an internal Mid voltage block to prevent accidental high voltage spike from USB port such as line-inrush voltage and mistaken high voltages from QC/PD adaptors. Meanwhile, the chip provides system short circuit protection function by limiting the current from input to system and battery to system. These features are effective to protect the battery or chip from damaging. The parameters of input current limitation, the discharge current limitation and safety timer can be programmed by I2C interface. Additionally, input over voltage protection, input under voltage lockout and input headroom voltage are integrated for good input source detection. ACE44560P is highly integrated, it can simplify system design and reduce the number of components outside. The device is packaged in advanced Full- Green compliant CSP package.

Features

- Programmable Charge Parameters Through I²C
- 24V Maximum Rating for VIN Power
- Internal 6.0V Over Input Voltage Protection
- Charge Voltage Regulation Accuracy: $\pm 0.5\%$
- Wide Range of Fast Charge Current: 8mA~512mA
- Thermal Limiting Regulation On-Chip
- Outside OTP Sensing by NTC pin
- Battery Disconnection Function
- Support Shipping Mode, Wake Up and System Reset Function
- Auto Power Path Management for Powering the System and Charging the Battery
- Integrated Power MOSFETs for System load and Charging Mode
- Strong and Robust Protection: VIN OVP, Battery OVP, OCP, Reverse Leakage Protection, Short Protection, Thermal Protection, PCB Over Temperature Protection

Applications

- Smart Watches
- IoT Gadgets
- Wearable Devices



ACE44560P

Single Cell Li-Ion Battery Linear Charger

Absolute Maximum Ratings ^(Note)

Symbol	Items		Value	Unit
IN	Input Supply Voltage		-0.3 ~ 24	V
All other pins	Pin Voltage		-0.3 ~ 6	V
I _{BAT}	Maximum Continues Current of BAT Pin		1	A
I _{SYS}	Maximum Continues Current of SYS Pin		1.5	A
I _{BAT_SYS}	Maximum Continues Current of BAT to SYS		3	A
P _{D_MAX}	Power Dissipation	CSP-9	1.5	W
R _{θJA}	Thermal Resistance	CSP-9	85	°C/W
T _J	Junction Temperature		-40 to 150	°C
T _{STG}	Storage Temperature		-60 to 150	°C
T _{SOLDER}	Package Lead Soldering Temperature		260°C, 10s	
HBM	Human Body Model ESD level		2	KV
CDM	Charged Device Model ESD level		1	KV

Note:

Exceed the absolute maximum rating maybe damage the device. Exposure to absolute maximum rating conditions may affect device reliability.

Recommended Operating Condition

Symbol	Items	Min	NOM	Max	Unit
IN	Input operating voltage range	4.35	5	20	V
I _{BAT}	Battery charge current range			512	mA
I _{SYS}	System current range			680	mA
I _{BAT_SYS}	Battery to System current range			2.67	A
T _J	Junction temperature	0		125	°C

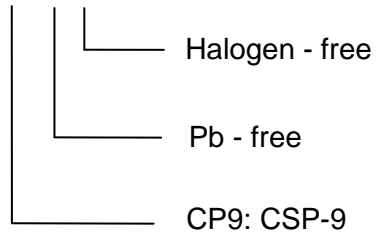


ACE44560P

Single Cell Li-Ion Battery Linear Charger

Ordering Information

ACE44560P XXX + H





ACE44560P

Single Cell Li-Ion Battery Linear Charger

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 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.

ACE Technology Co., LTD.
<http://www.ace-ele.com/>