ACE4628Z

I²C Communication, 1mA Termination and <1uA Battery Leakage with Power Path Management，500mA Single Cell Li-Ion Battery Charger

Description

The ACE4682Z is a single cell battery charger with power path management function for Li-Ion and Li-Polymer battery. It features pre-charging, fast charging (CC) and constant voltage (CV) charging, end-of charging termination, and auto-recharge, and built-in safe-timer preventing from being over-charged or host running out of control.

The power path management function features a low dropout regulator from the input to the system and a low R_{DSON} switch from battery to the system, so it separates the charging current from the system load. This function prioritizes the battery and the system, ensuring the continuous power supply to the system.

Parameters and functions are programmed or selected through an I2C compatible serial interface, such as input current limit, charging current, battery regulation voltage, safety timer, battery UVLO. It also features a safe watchdog protection.

The ACE4682Z is available in both PLQFN-9L package and FCQFN-9L package.

Features

- Fully Autonomous Charger for Single Cell Li-Ion and Li- Polymer Battery
- 28V Maximum Input Voltage Rating with Over-Voltage Protection
- I²C Interface for Setting Charging Parameters and Status Reporting
- Fully Integrated Power Switch and No External Blocking Diode Required
- Battery Temperature Monitor and Programmable Timer
- Battery or PCB Over-Temperature Protection
- System Reset Function
- Battery Disconnection Function
- Thermal Limiting Regulation on Chip
- IEC 62368-1 CB Certified
- Moisture Sensitivity Level (MSL): Level 3
- Pb Free, RoHS and REACH Compliant
- Halogen Free and “Green” Device
- PLQFN-9L 1.75x1.75mm and FCQFN-9 1.75x1.75mm

Application

- Wearable Devices
- Smart Watches
- IoT Gadgets
- Smart Handheld Devices

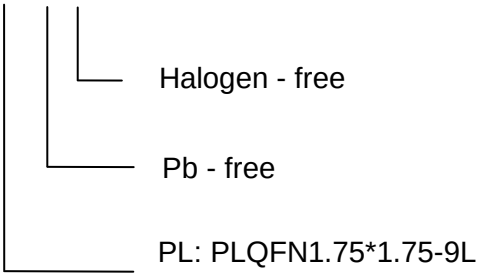
Absolute Maximum Rating

Parameter			Value
IN Pin Voltage to GND			-6V to 28V
VIN to GND Discharge Current			5mA
VSYS to GND Voltage			-0.3V to 5.5V
BAT pin Voltage to GND			-1V to 6V
All Other Pins Voltage to GND			-0.3V to 6V
VSYS, VBAT to Ground Current			Internally Limited
Operating Temperature Range			-40°C to 85°C
Storage Temperature Range			-55°C to 150°C
Thermal Resistance	PLQFN1.75x1.75-9L	θ_{JC}	12°C/W
		θ_{JA}	114°C/W
	FCQFN-9L	θ_{JC}	12°C/W
		θ_{JA}	114°C/W
Lead Temperature (Soldering 10 secs)			260°C
ESD HBM (Human Body Mode)			4KV
ESD CDM (Charged Device Mode)			1KV

Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.

Ordering information

ACE4628Z 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.