

Dual source USB Li-Ion charger with gas gauge

Data Brief

Features

- Constant current constant voltage (CCCV) charger
- Dual charging source (main adaptor or USB cable)
- Fast charge current control up to 1A for main adaptor and up to 500mA for USB
- Internal power device and sense resistor, option for external components for current higher than 1A
- Programmable charge voltage (4.1V, 4.2V, 4.3V, 4.35V) with 1% accuracy
- Thermal regulation
- Trickle charge mode at low battery voltage
- Main adaptor voltage up to 16V
- Battery overvoltage protection at 4.7V
- Gas gauge with 13 bit AD converter
- Battery voltage monitor with 7-12 bit ADC
- I2C interface for device monitoring and control
- Charge status output pin
- Power detection output pin
- Programmable watchdog security timer
- 4.7V LDO regulator (external pmos)

Applications

- Cellular phones (GSM, CDMA, WCDMA), PDA, MP3 players, cordless phones
- Digital camera, USB appliances, bluetooth



Description

The STw4102 is a stand-alone constant-current constant-voltage (CCCV) linear charger dedicated for Li-Ion battery.

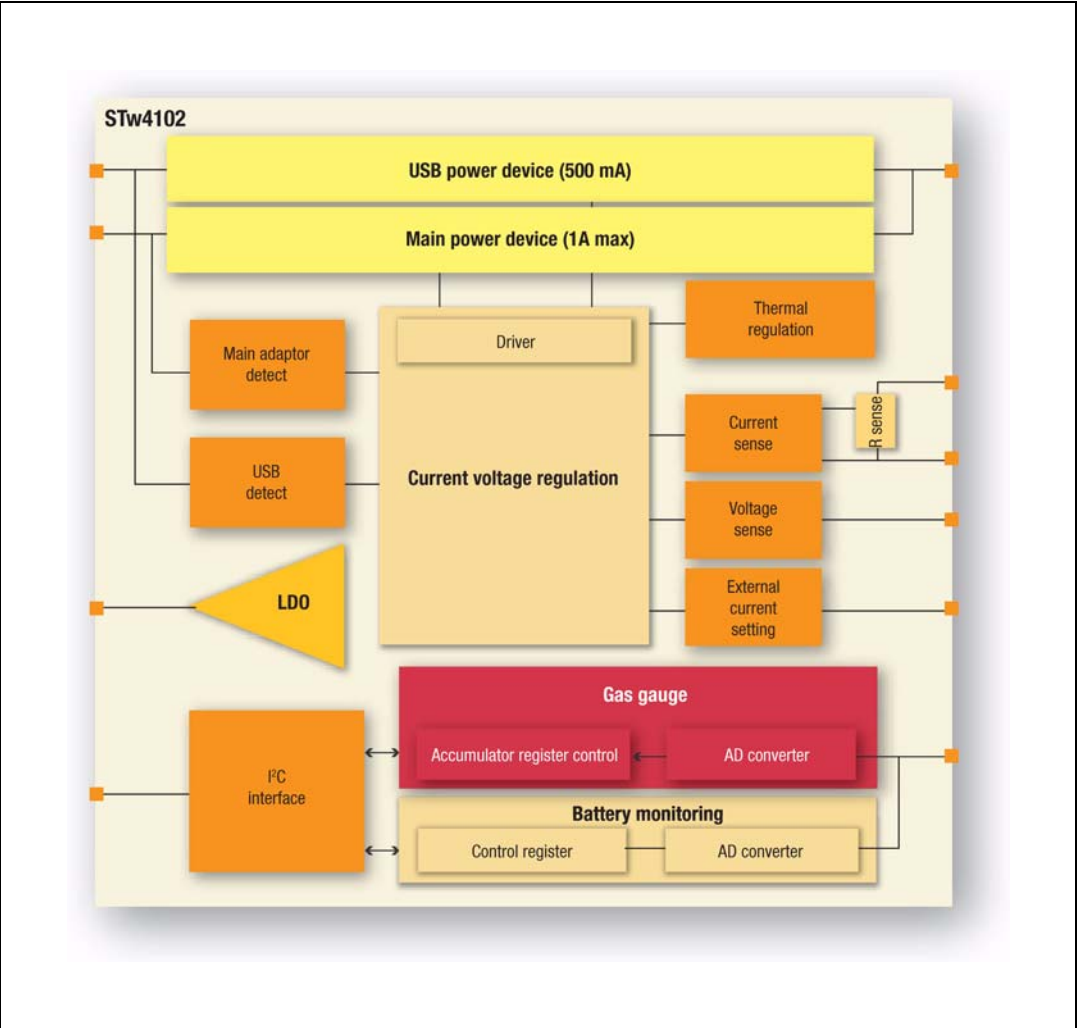
The STw4102 allows dual charging capability using the main input adaptor up to 1A (Wall adaptor, Car adaptor) or USB cable up to 500mA without external component. Upper 1A charging is possible by adding just one external transistor.

The STw4102 offers programmable fast charge current up to 1A with external resistor. A thermal regulation circuitry limits the charge current against the die high power dissipation or high ambient temperature. An end of charge output pin indicates the charge termination when the fast charge current drops below 10% of the programmed current value.

The STw4102 contains an accurate gas gauge based on a 13 bit AD converter. External resistor is used between battery and ground to sense a charge/discharge current. With a typical 30 mOhms resistor, current can be up to 2.5A.

Block diagram

Figure 1. Internal block diagram



Ordering information

Table 1. Order code

Part number ⁽¹⁾	Package
STw4102IQT	QFN24 Tape& reel W4102I

1. Specific programming of OTP parameters are possible, for OTP customization, contact your ST local sale representative

Revision history

Table 2. Document revision history

Date	Revision	Changes
11-Jan-2007	1	Initial release.

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