

Battery management ICs

STBC02/03 Li-Ion charger with load switches and smart reset generator



New battery-charger chip reduces cost and time-to-market for wearable and portable applications

The STBC02 and STBC03 battery-charger management chips improve integration without compromising performance and power consumption. They combine a linear battery charger, a 150 mA LDO, two SPDT switches and a protection circuit module for the battery.

In addition, the STBC02 features a digital single wire interface and a smart reset/watchdog function. Both offer the perfect solution for wearable and IoT markets, reducing the application cost, footprint and design time.

KEY FEATURES

- Up to 650 mA charging current
- Power path architecture
- Shipping mode
- Two integrated load switches

KEY BENEFITS

- Save external components thanks to the embedded battery protection module
- SPDT switches implement additional functions like routing of signal and power lines

KEY APPLICATIONS

- Fitness trackers
- Smart wearables
- IoT devices
- Healthcare accessories
- GPS trackers



LI-ION LINEAR BATTERY CHARGERS WITH LDO, LOAD SWITCHES AND (OPTIONAL) SMART RESET GENERATOR

The STBC02/03 are highly integrated battery management ICs embedding a linear battery charger, a 150 mA LDO, 2 SPDT load switches and a protection circuit module to prevent the battery from being damaged under fault conditions. The STBC02 also embeds a smart reset/watchdog block and a single wire interface for IC control.

The STBC02 charges the battery up to 450 mA while the STBC03 up to 650 mA.

Both ICs use a CC/CV algorithm to charge the battery. The fast charge and the pre-charge current can be both independently

programmed using dedicated resistors. The termination current is set by default, being 5 % of the programmed fast charge current, but it can also be set to different values in the STBC02. Likewise, the battery floating voltage value is programmable and can be set to a value up to 4.45 V.

The STBC02/03 also feature a charger enable input to stop the charging process anytime.

Thanks to the power path architecture, the STBC02/03 are automatically powered by the connected battery when the IN pin is not

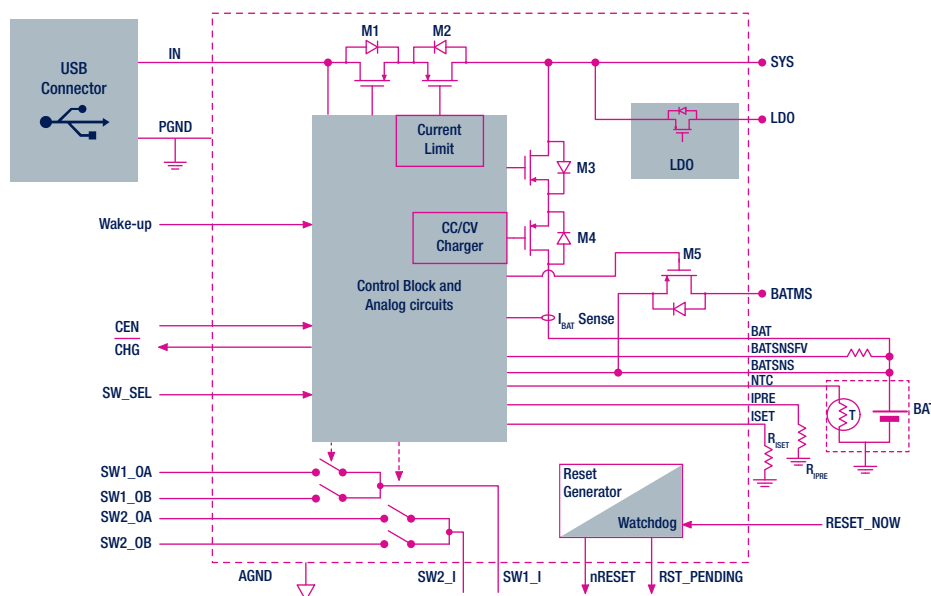
connected to a valid power source (battery mode).

Battery under/over-temperature conditions are detected using an external circuit (NTC thermistor).

The STBC02/03 draw less than 10 nA from the connected battery in shipping mode condition, maximizing battery life during the end product's shelf life.

The devices are available in a 30-bumps flip-chip package.

STBC02 BLOCK DIAGRAM



DEVICE SUMMARY

Part number	LDO output voltage	Max. charging current (mA)	Smart reset/watchdog	Configuration interface
STBC02JR	3.0	450	Yes	Single wire
STBC02AJR	3.3	450	Yes	Single wire
STBC02BJR	3.1	450	Yes	Single wire
STBC03JR	3.0	650	No	No

