



STEVAL-ISB003V1

Demonstration board on USB Li-Ion battery charger based on the microcontroller ST7260E2

Data brief

Features

- Can be powered from USB connector
- Available to work stand alone powered from external power supply (5 V, 1 A)
- Max. charging current 250 mA

Description

This demonstration board is an USB based single cell Li-Ion battery charger which consists of the ST7260E2-based low-speed USB controller and the ST7LIT15BY0-based battery charger.

This board includes a power selector circuit to select the appropriate power supply source and a step-up converter circuit based on the L6920 device to provide a fixed output voltage to the USB controller. The power supply for the battery charger controller is generated from TL1431 keeping in mind the accuracy requirement for charging. An additional current-limiter is also included in series with a USB power supply to show any incorrect behavior using a status LED.

A provision is provided on demonstration board such that any external low-speed USB controller can control the charger operation, hence this system can be used with any low-speed USB controller.

The charger used in this demonstration board utilizes a modified form of non-inverting buckboost converter to support the charging voltage requirement for single cell Li-Ion battery.

This converter is explained in more detail in AN2390.

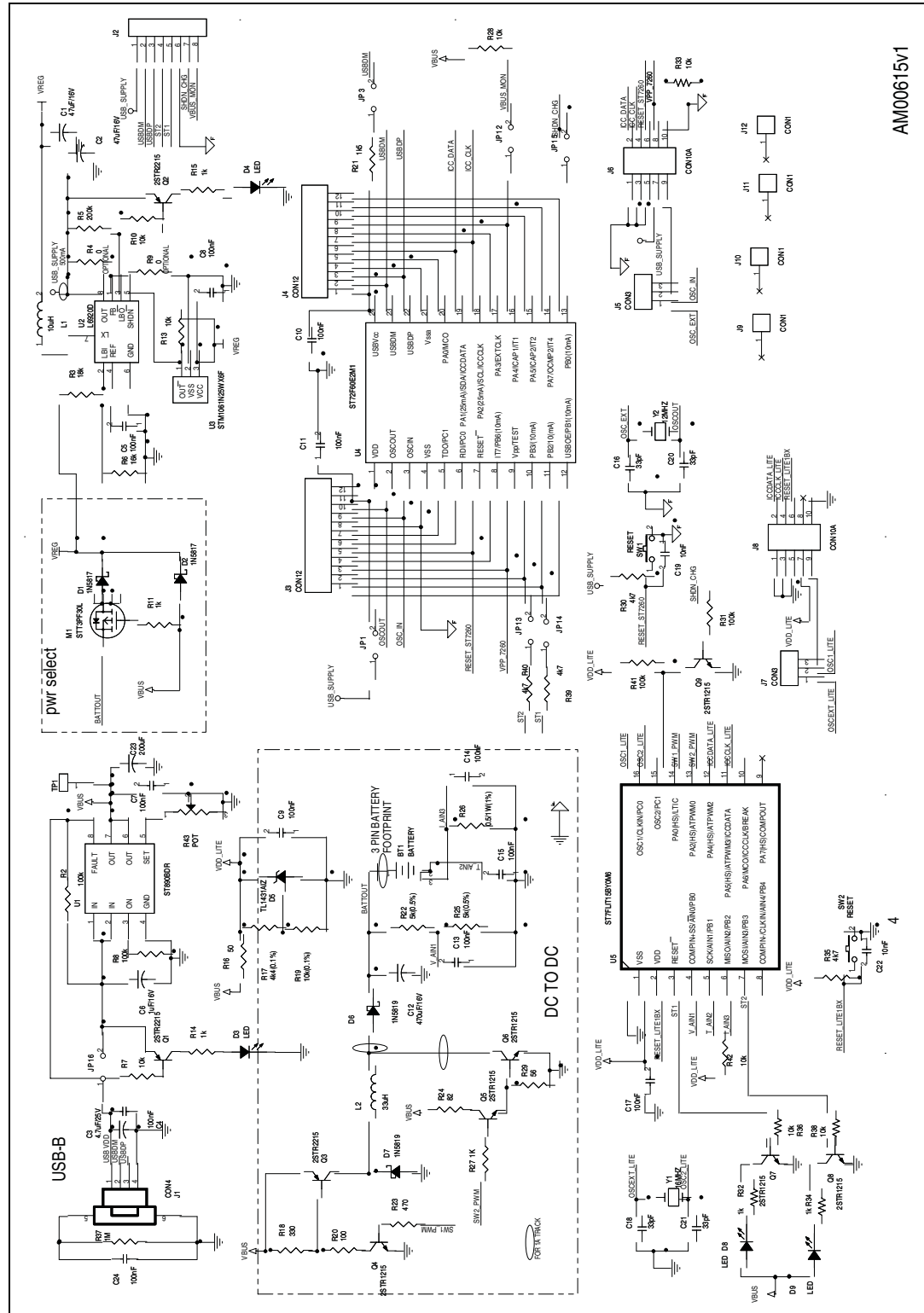
This demonstration board system is a complete USB-based portable system which uses a single cell Li-Ion in MP3 players for example.

There are separate ICP connectors provided on the evaluation board to reprogram the USB controller and charger controller.



1 Block diagram

Figure 1. USB battery charger



AM00615v1

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
04-Jun-2008	1	Initial release.
20-May-2011	2	Updated cover page.

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2011 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com