

2 A, high efficiency single inductor buck-boost DC-DC converter and high brightness white LED driver based on the STBB3JCC

Data brief



Description

The STEVAL-ISA141V2 is a product evaluation board based on the STBB3JCC fixed frequency, high efficiency, buck-boost DC-DC converter. The STBB3JCC is capable of driving a HB WLED from a 1.8 V to 5.5 V input voltage supplied by a one cell Li-Ion battery. Thanks to its high switching frequency (2 MHz) it is possible to reduce the size and cost of the external power components. Low FB voltage (100 mV) reduces power dissipation across the external sensing resistor and maximizes the LED current.

Features

- 100 mV voltage feedback
- Input voltage range from 1.8 V to 5.5 V
- 2 A output current at 3.3 V in buck mode ($V_{IN} = 3.6 V$ to 5.5 V)
- 800 mA output current at 3.3 V in boost mode ($V_{IN} 2.0 V$)
- Typical efficiency greater than 94%
- $\pm 2\%$ DC feedback voltage tolerance
- Automatic transition between step-down and boost mode
- Adjustable output voltage from 1.2 V to 5.5 V
- Power save mode (PS) at light load
- 2.0 MHz fixed switching frequency
- Adjustable switching frequency up to 2.4 MHz (by external synchronous square signal)
- Device quiescent current less than 50 A
- Load disconnect during shutdown
- Shutdown function and soft-start
- Shutdown current $< 1 A$
- Available in Flip Chip 20, pitch = 0.4 mm
- RoHS compliant

2 Revision history

Table 1: Document revision history

Data	Revision	Changes
27-May-2014	1	Initial release
30-May-2016	2	Updated: Figure 1 STEVAL-ISA141V2 circuit schematic

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2016 STMicroelectronics – All rights reserved