3 A LED driver based on the LED5000 in floating boost topology

Description
The STEVAL-ILL063V1 is a product evaluation board based on the LED5000, an 850 kHz fixed switching frequency monolithic step-down DC-DC converter designed to operate as a precise constant current source with an adjustable current capability up to 3 A DC.

The embedded PWM dimming circuitry features LED brightness control. The regulated output current level is set by connecting a sensing resistor to the feedback pin. The 200 mV typical $R_{\text{SENSE}}$ voltage drop enhances performance in terms of efficiency.

The size of the overall application is minimized thanks to the high switching frequency and its compatibility with ceramic output capacitors. The device is fully protected against overheating, overcurrent and output short-circuit.

Features
- 5.5 V to 48 V operating input voltage range
- 850 kHz fixed switching frequency
- 200 mV typ. current sense voltage drop
- Floating boost topology
- PWM dimming
- ±3% output current accuracy over temperature
- 200 mOhm typical $R_{\text{DS(ON)}}$
- Peak current mode architecture
- Short-circuit protection
- Compliant with ceramic output capacitors
- Inhibit for zero current consumption
- Thermal shutdown
- RoHS compliant

For further information contact your local STMicroelectronics sales office

www.st.com
1 Schematic diagram

Figure 1: STEVAL-ILL063V1 board schematic

Schematic diagram

STEVAL-ILL063V1

DocID026227 Rev 2
2 Revision history

Table 1: Document revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>28-Jul-2014</td>
<td>1</td>
<td>Initial release.</td>
</tr>
<tr>
<td>17-Dec-2014</td>
<td>2</td>
<td>Minor text edits. No technical changes.</td>
</tr>
</tbody>
</table>
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.

© 2014 STMicroelectronics – All rights reserved