

## 1 A buck LED driver board based on the ALED6000 automotive-grade dimmable LED driver



### Features

- 4.5 V to 60 V input voltage
- Step-down conversion
- 1 A programmed LED current
- 500 kHz switching frequency
- Digital dimming
- Compliant with ceramic output capacitors
- 180° out of phase synchronization available
- Auto recovery overcurrent and thermal protection
- RoHS and WEEE compliant

### Description

The [STEVAL-ILL089V1](#) evaluation board is based on the [ALED6000](#) monolithic current source for high power LED driving. Digital dimming is implemented by driving the dedicated DIM pin. Low drop-out operation with almost 100% duty cycle can be achieved.

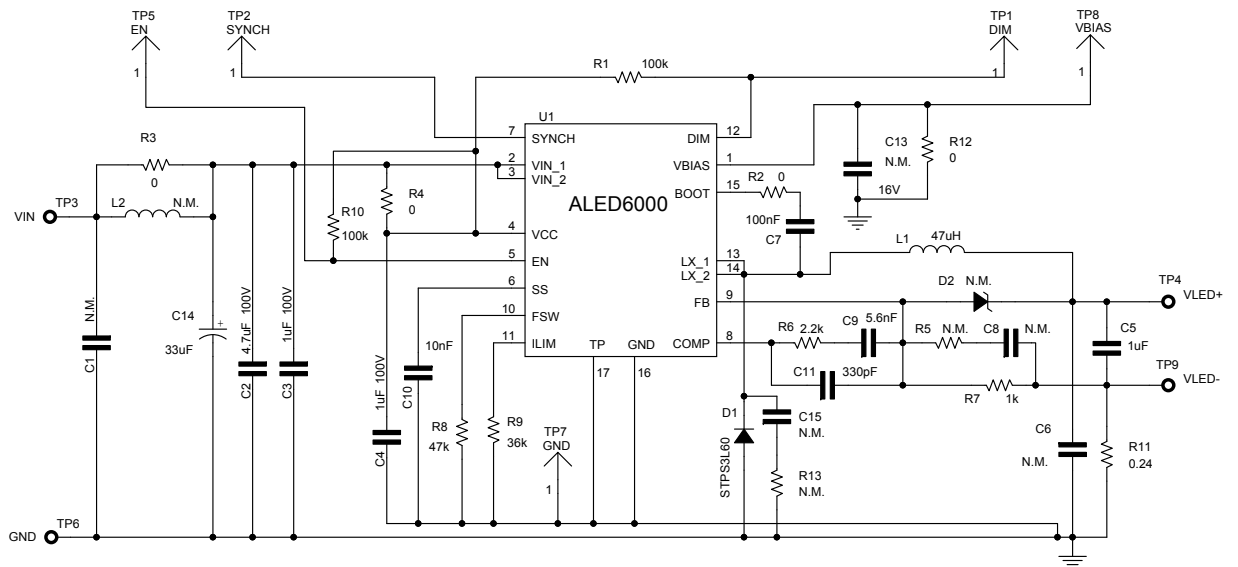
The ALED6000 is a 61 V asynchronous switching regulator with embedded Power MOSFET, designed to source up to 3 A<sub>DC</sub> current depending on the application conditions. The 250 mV typical R<sub>SENSE</sub> voltage drop, the embedded switchover feature on the VBIAS pin and the light load management (pulse skipping) all contribute to maximizing power conversion efficiency across the entire load range.

The current limit threshold and the switching frequency are adjustable for application optimization. The device includes an internal 250 kHz oscillator that can be externally adjusted up to 1.5 MHz. The size of the overall application is minimized thanks to the high switching frequency and its compatibility with ceramic output capacitors. Two LED6000 regulators can be synchronized in a 180° out-of-phase configuration for reduced total input RMS current.

| Product summary table  |  |
|--|--|
| 1 A buck LED driver board based on the ALED6000                        | <a href="#">STEVAL-ILL089V1</a>          |
| Automotive 3 A, 61 V monolithic current source with dimming capability | <a href="#">ALED6000</a>                 |
| Application  | <a href="#">Automotive Motor Control</a> |

# 1 Schematic diagram

Figure 1. STEVAL-ILL089V1 board schematic



## Revision history

**Table 1. Document revision history**

| Date        | Version | Changes          |
|-------------|---------|------------------|
| 07-Nov-2019 | 1       | Initial release. |

**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. For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks). 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.

© 2019 STMicroelectronics – All rights reserved

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[STEVAL-ILL089V1](#)