



### Features

- 2 V to 5.5 V battery input range
- High efficiency: up to 95%
- Extremely low quiescent current
- 1  $\mu$ A max. shutdown supply current
- 800 mA max. output current
- Adjustable output voltage from 0.6 V
- Low dropout operation: up to 100% duty cycle
- $\pm 1\%$  output voltage accuracy
- 600 MHz switching frequency externally synchronizable up to 1.4 MHz
- Short-circuit protection
- RoHS compliant

### Description

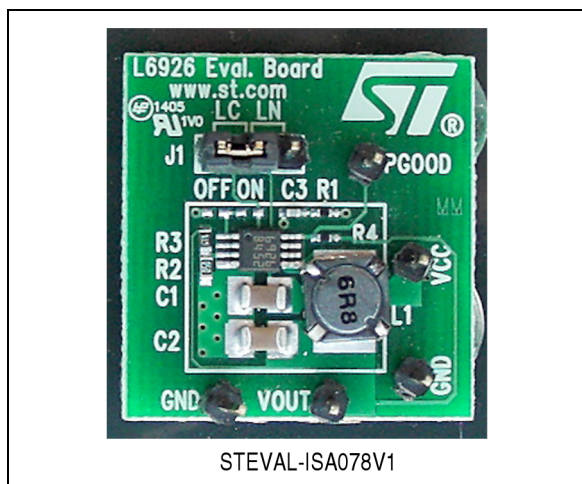
The STEVAL-ISA078V1 demonstration board is a high efficiency monolithic synchronous step-down regulator capable of delivering up to 800 mA of continuous output current and of regulating the output voltage from 0.6 V up to  $V_{IN}$  thanks to the 100% duty cycle operation capability.

The input voltage ranges from 2 V to 5.5 V.

The control loop architecture is based on a constant frequency peak current mode, while high efficiency at light loads is achieved by a low consumption functionality.

The very low quiescent current (25  $\mu$ A) and shutdown current (0.2  $\mu$ A) means that the device is very suitable for supplying battery-powered equipment like PDAs, hand-held terminals, DSCs (digital still cameras) and cellular phones.

The switching frequency is internally set at 600 kHz, but the device can be externally synchronized up to 1.4 MHz. An internal reference voltage of 0.6 V (typ.) allows the device to regulate a minimum output voltage of the same low value.



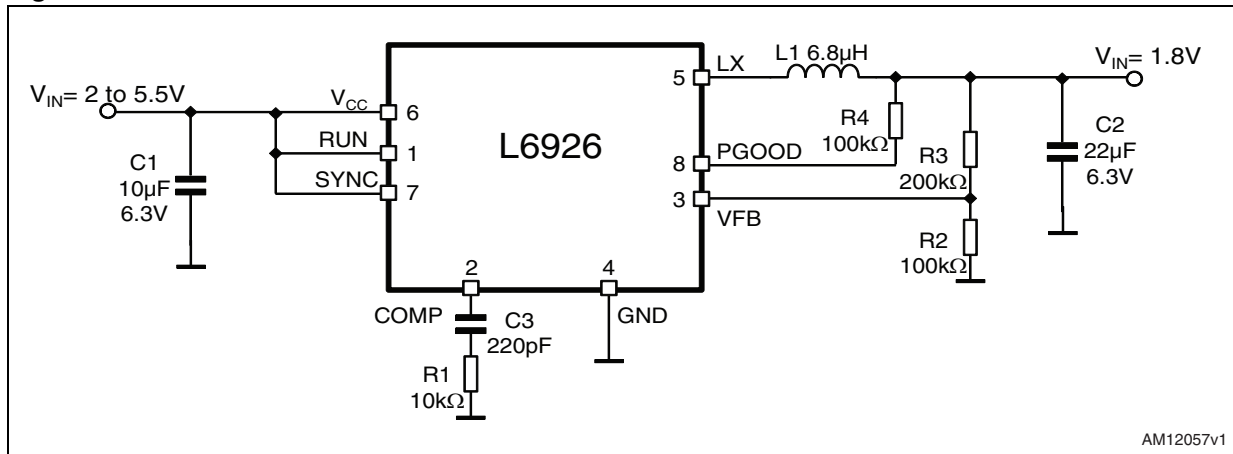
The low MOSFET  $R_{DS(on)}$  ensures high efficiency at high output current.

Additional beneficial features are: hysteretic UVLO, OVP, constant current short-circuit protection, Power Good and thermal shutdown.

The MSOP8 package allows significant space savings on the board.

# 1 Circuit schematic

Figure 1. Circuit schematic



## 2 Revision history

**Table 1. Document revision history**

Date	Revision	Changes
20-Mar-2012	1	Initial release.

**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 TWO AUTHORIZED ST REPRESENTATIVES, 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.

© 2012 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](http://www.st.com)

# Mouser Electronics

Authorized Distributor

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

[STMicroelectronics:](#)

[STEVAL-ISA078V1](#)