



STEVAL-ISA057V1

15 W wide range SMPS for metering based on the ESBT™
STC03DE220HV and L6565 PWM controller

Data Brief

Features

- Minimum input voltage: 125 VDC
- Maximum input voltage: 1250 VDC
- Output voltage: 5 V to 3.0 A
- Maximum output power: 15 W
- Short-circuit protection based on auto-restart feature
- Minimum switching frequency limited to 30 kHz
- Safety compliant according EN60950
- Overall converter efficiency > 60%
- Not galvanic isolated solution used in most metering applications
- PCB type and size:
 - Material of PCB: FR4
 - Double side layout
 - Total diameter of demonstration board 58 x 120 mm



single package to reduce application complexity, EMI, price and increase reliability and performance.

Description

This demonstration board implements a 15 W flyback SMPS which is a very popular and much known topology in applications switch mode power supplies where the required output power is in the range of 5 W to 200 W.

The converter is based on the L6565 PWM driver working in quasi resonant mode, it means zero voltage switching or at least switching in valley during turn-off phases and current mode primary control.

Excellent wide voltage input range from 125 VDC to 1250 VDC with good efficiency.

For this application is used an ESBT™ switch: STC03DE220HV.

The ESBT™ is a cascade configuration of a high voltage BJT and a low voltage power MOSFET. STMicroelectronics optimizes performance of both devices and offers this kind of switch in one

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
12-Nov-2008	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 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.

© 2008 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 - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com