



STEVAL-IHM019V1

Complete inverter for low power 3-phase asynchronous motors demonstration board

Data Brief

Features

- Voltage Input range 115 V_{AC} to 230 V_{AC}
50 Hz or 60 Hz
- Total output power 50 W
- High efficiency
- Switching PWM frequency 12 - 22 kHz
- Compliant with EN61000-6-3 and
EN61000-6-2
- Possibility to use two motor types:
 - 2-phase motor two sinusoidal voltage
waves restored with a phase displacement
of 90° between them
 - 3-phase motor three sinusoidal voltages
with phase displacement of 120° among
them



AM01597v1

STEVAL-IHM019V1

where high efficiency is required and low cost per solution is a must.

Applications

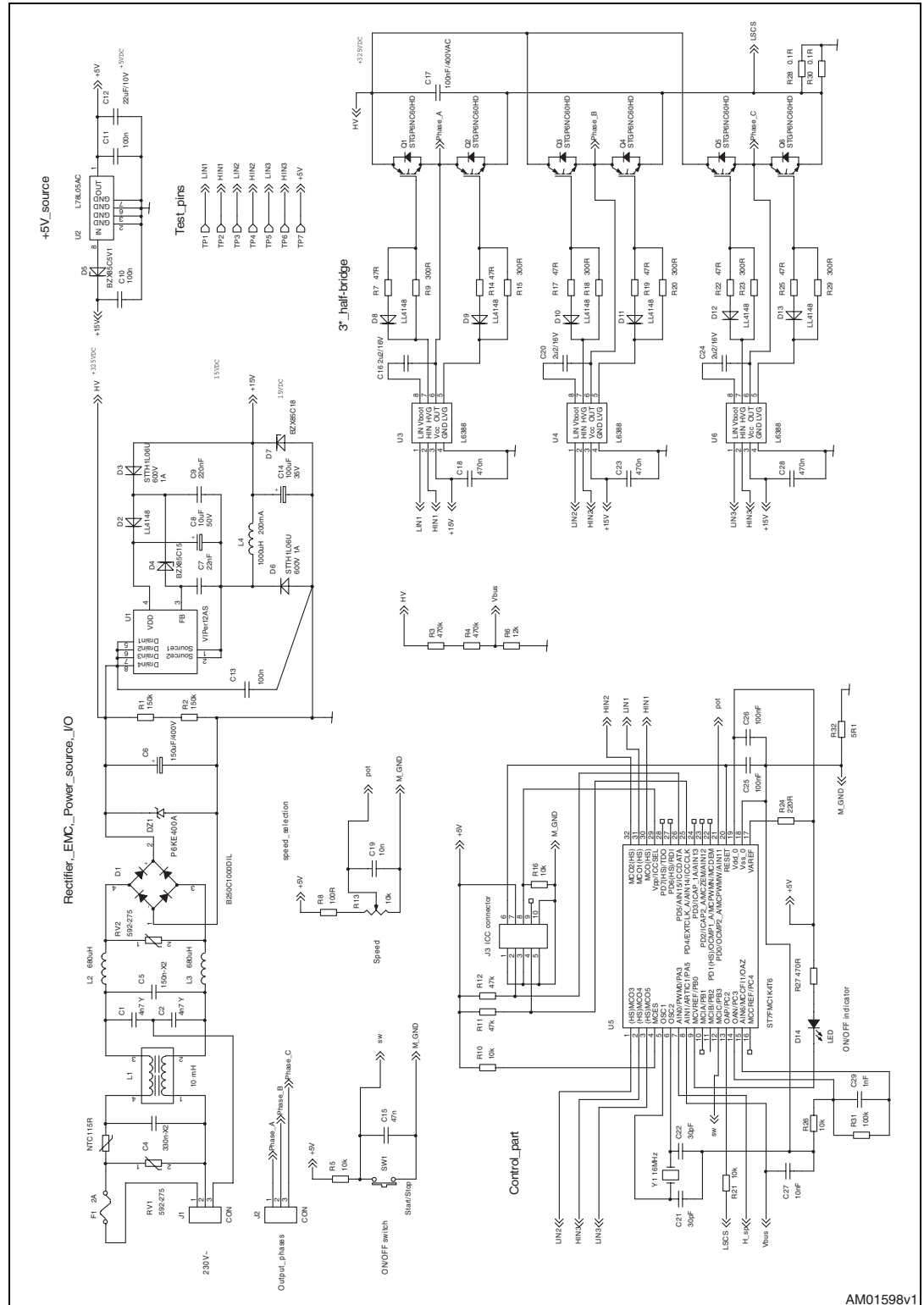
- Water pumps for heating systems in single-family houses
- High efficiency surplus water pump for home appliance white goods, like washing or washer-up machines
- High efficiency transfer pumps for outlet condensation water in gas furnace application

Description

This demonstration board implements a 3-phase inverter for low power asynchronous electric motors or permanent magnet AC motors up to 50 W. Nominal input voltage for inverter is 230 V_{AC} - standard single phase connecting. This 3-phase inverter is based on 8-bit ST7FMC motor control controller. Main target of this demonstration board is a very low-cost effective 3-phase inverter for permanent magnet AC motor, but with certain modification of software it can be used also for 3-phase asynchronous motors

1 Circuit schematic

Figure 1. Schematic



AM01598v1

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