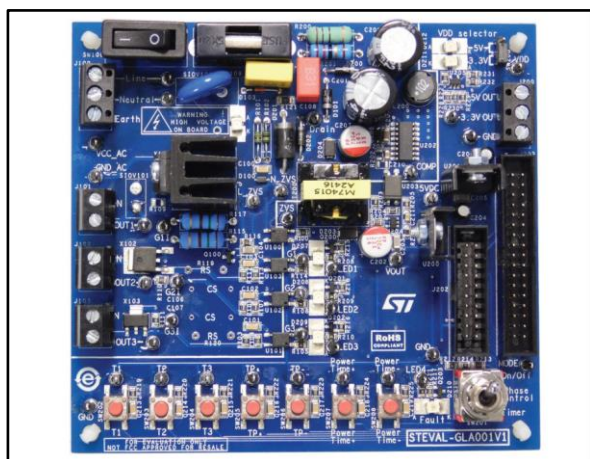


## Insulated AC switch control evaluation board for home appliances

Data brief



### Features

- Insulated control of three different AC switches used to drive AC loads up to 1 kW (230 V<sub>rms</sub>) for residential appliances
- Interface with STM32 Nucleo-64 development board
- Three control modes available thanks to STM32 Nucleo-64 firmware (continuous or pulse gate current, timer option and phase control)
- Easy to configure through user-friendly interface
- Compatible with any external microcontroller
- Input voltage range: 90 V<sub>AC</sub> to 265 V<sub>AC</sub>  
50 / 60 Hz
- Operating temperature: 0 °C to 60 °C
- 5 V and 3.3 V insulated power supply
- Low standby power losses (< 300 mW)
- Criteria A @ 2 kV IEC 61000-4-4
- Criteria B @ 4 kV IEC 61000-4-4
- RoHS compliant

### Description

The STEVAL-GLA001V1 evaluation board allows insulated control of three AC loads up to 1 kW (230 V<sub>rms</sub>) with Triacs and AC switches (instead of relay solutions), particularly suitable for residential appliances.

The board must be controlled with an STM32 microcontroller embedded on an STM32 Nucleo development board or other microcontroller supplied by the user.

If you are using an STM32 Nucleo development board, three AC switch control modes are available for load control: continuous or pulse gate current, timer option and phase control. The firmware is available for free download on [www.st.com](http://www.st.com) and easily programmable through a PC interface on a USB bus.

The main parameters can be adjusted through a common interface like HyperTerminal, without needing to edit the MCU firmware.

The hardware is designed to offer a wide input voltage range, low standby power losses, IEC61000-4-4 robustness and two low voltage power supplies.

# 1 Schematic diagrams

Figure 1: STEVAL-GLA001V1 - AC input

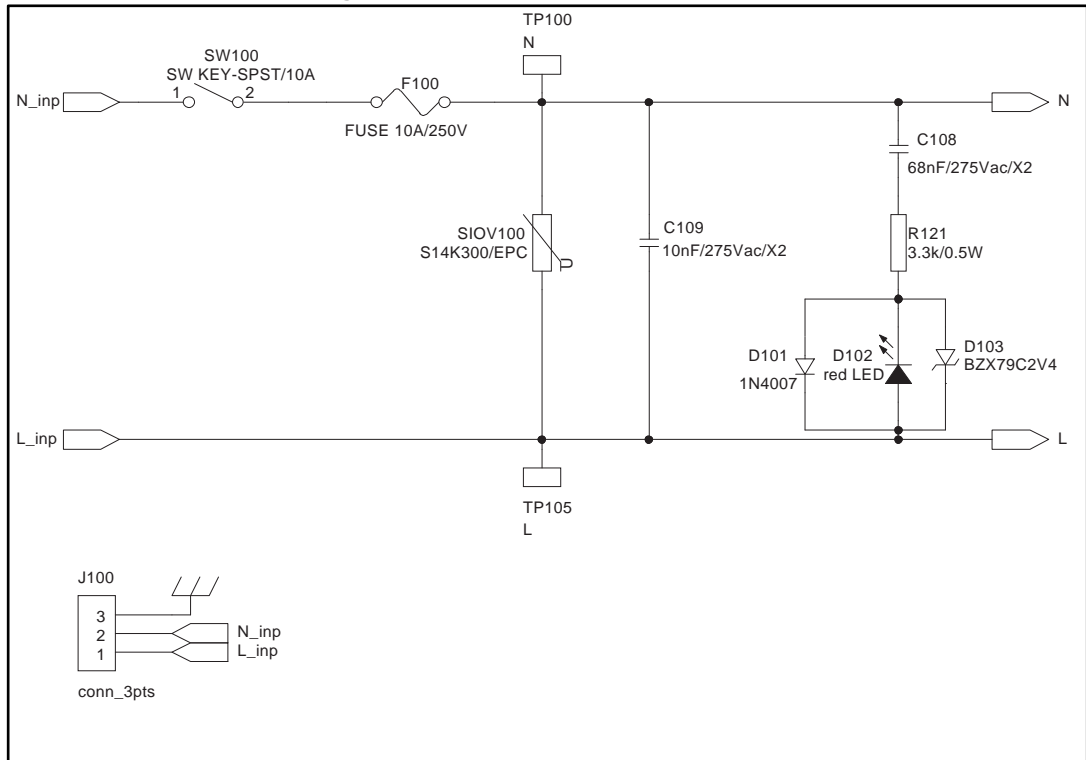


Figure 2: STEVAL-GLA001V1 - ZVS detection

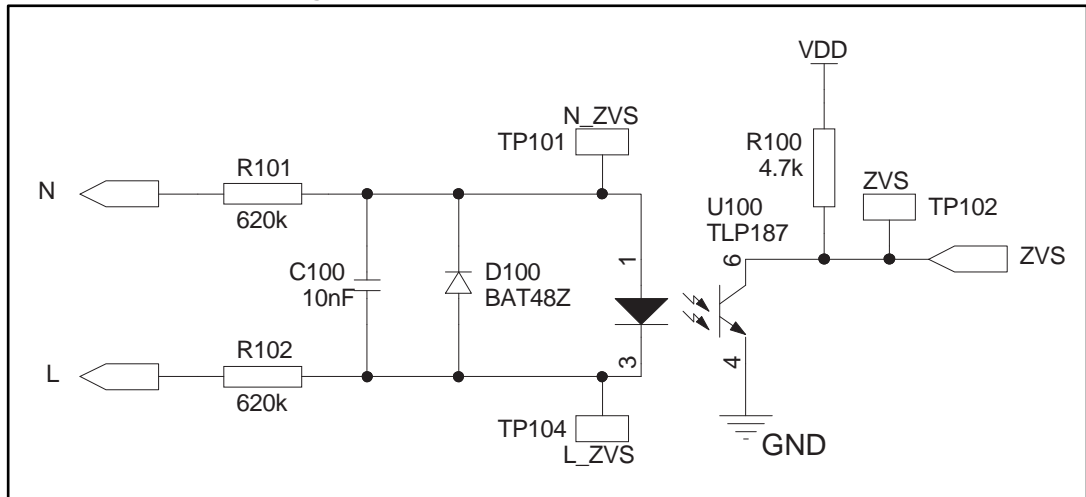


Figure 3: STEVAL-GLA001V1 - Triac gate control

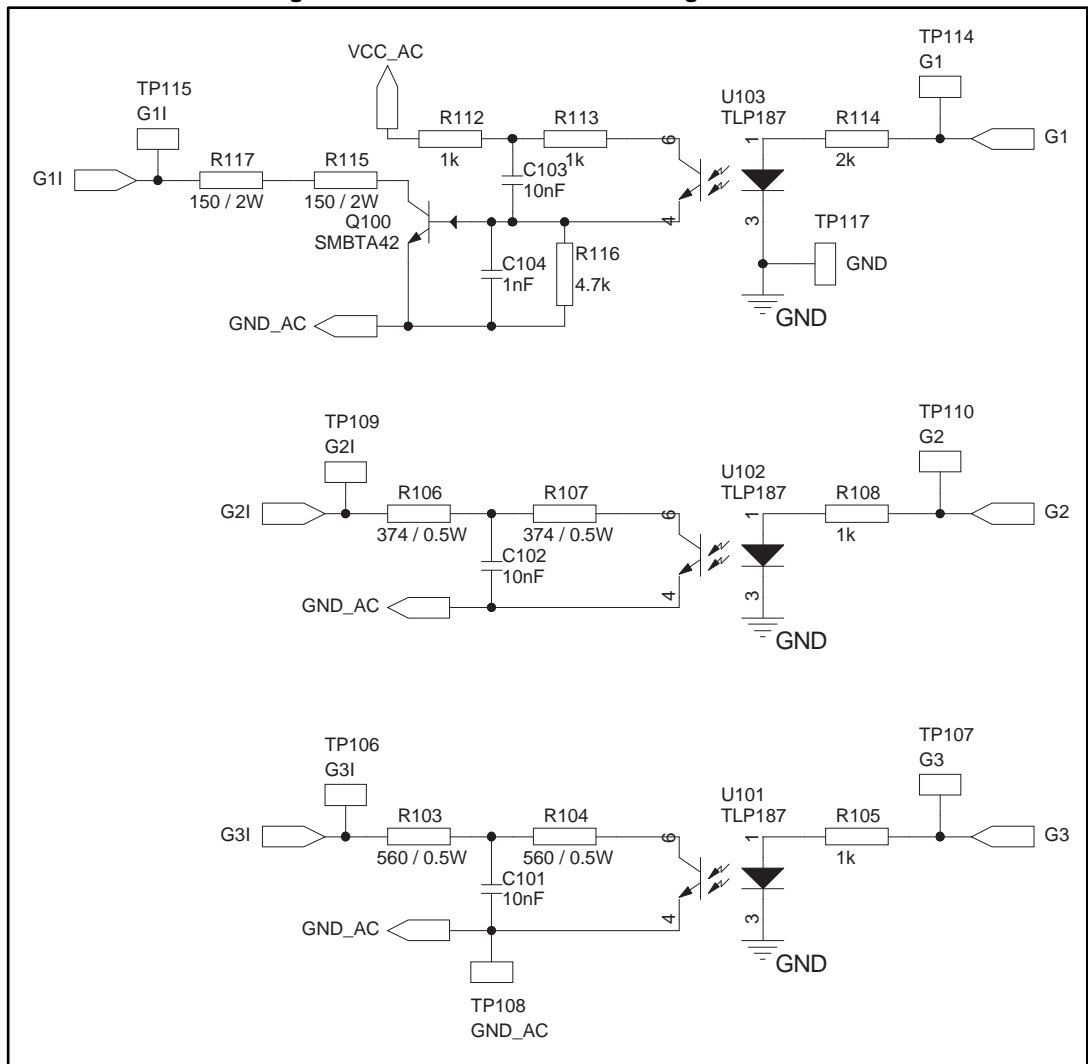


Figure 4: STEVAL-GLA001V1 - Triacs/ACS connection

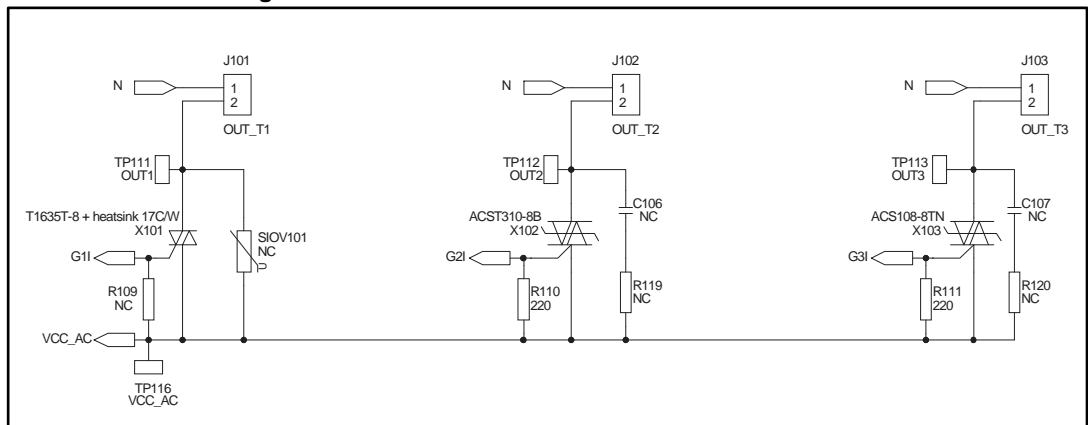




Figure 6: STEVAL-GLA001V1 - LED indicators

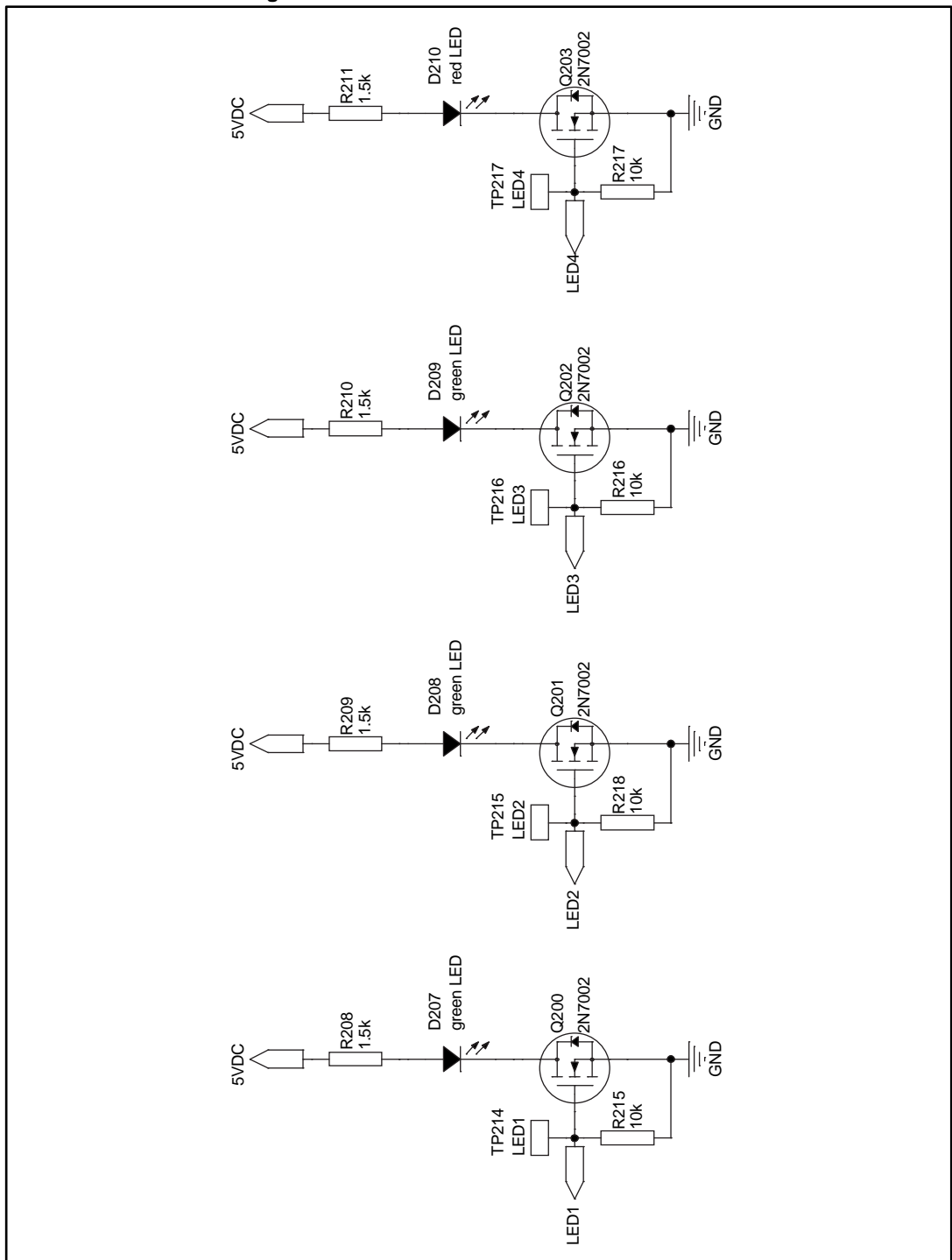


Figure 7: STEVAL-GLA001V1 - Commands/parameters push buttons

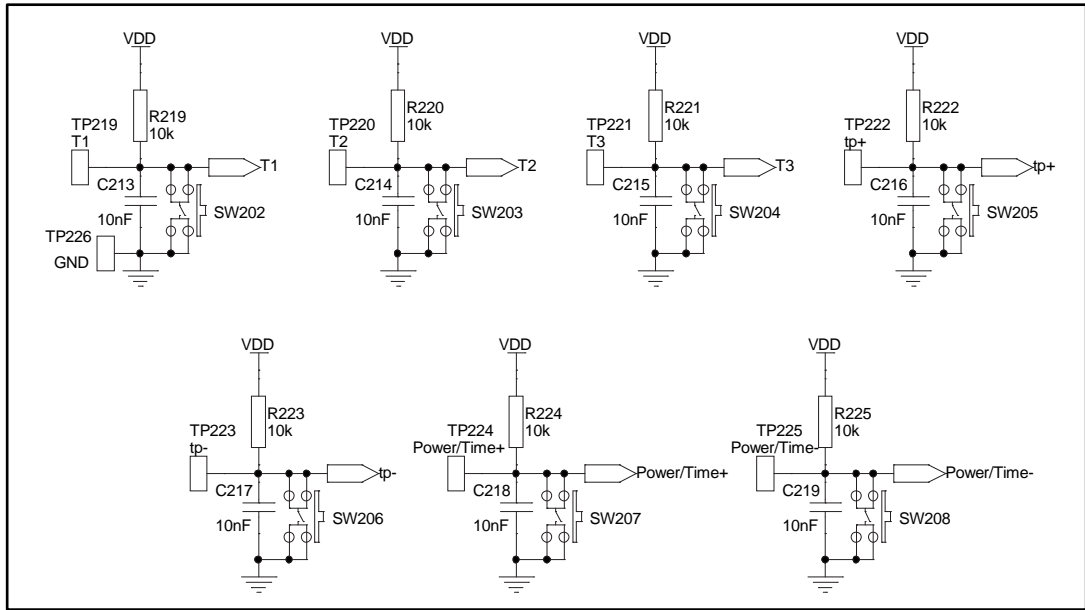


Figure 8: STEVAL-GLA001V1 - Mode selector switch

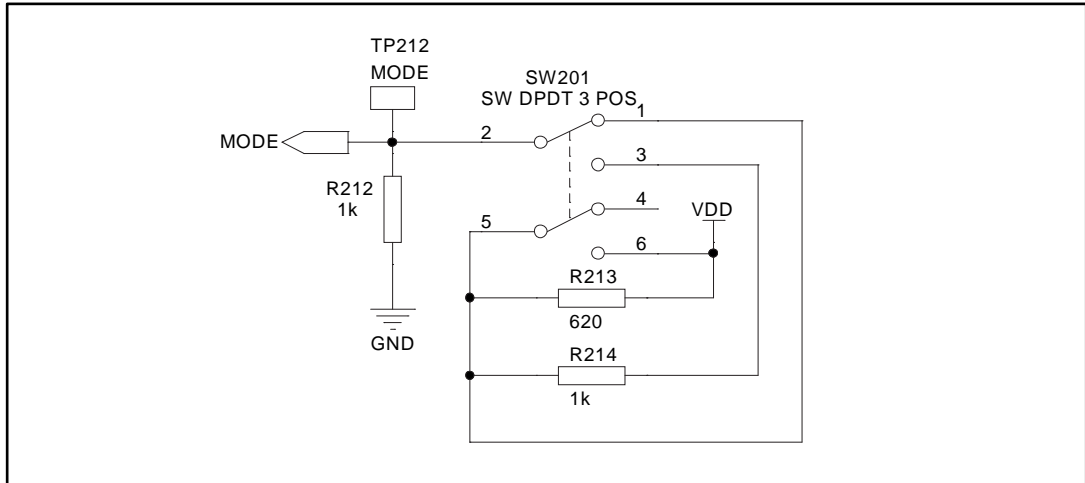


Figure 9: STEVAL-GLA001V1 - Customer board connector

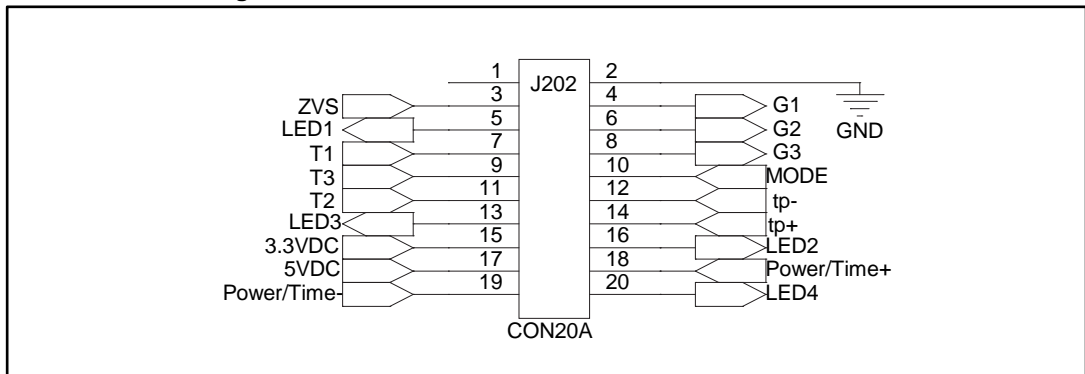
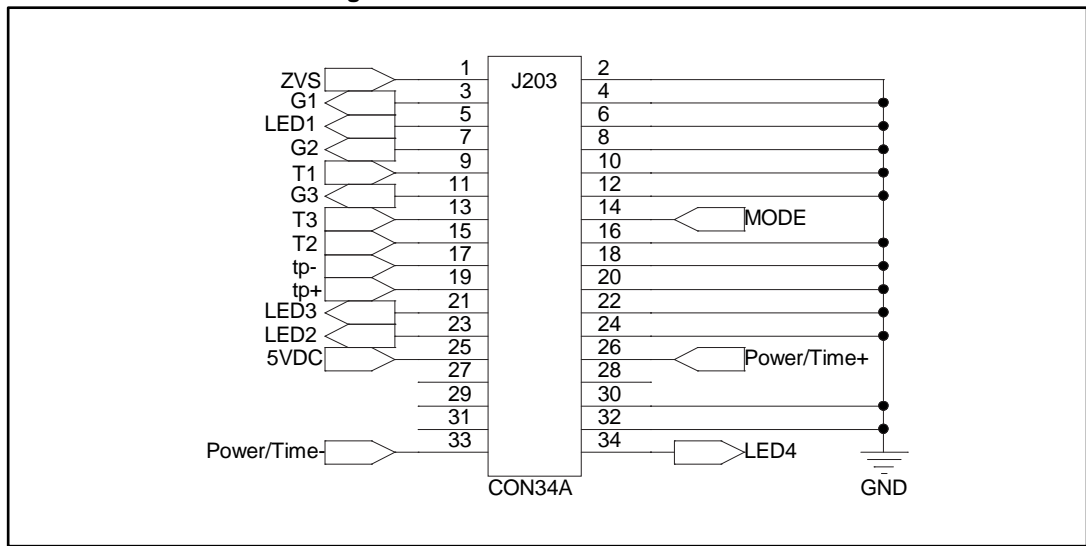


Figure 10: 34 Pins ST board connector



## 2 Revision history

Table 1: Document revision history

Date	Version	Changes
15-Nov-2017	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. 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.

© 2017 STMicroelectronics – All rights reserved