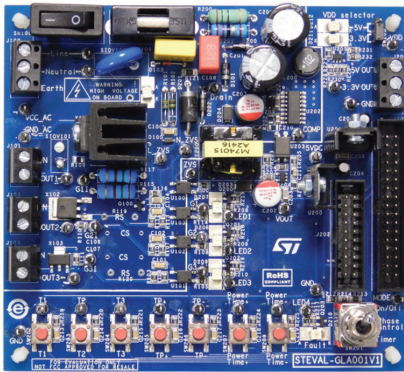


Triac and AC switch insulated control evaluation board



Triac



ACS™



ACST

Features

- Insulated control of three different AC switches used to drive AC loads up to 1 kW (230 V_{rms}) 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_{AC} to 265 V_{AC} 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_{rms}) 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 [NUCLEO-F030R8](#) STM 32 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 [STSW-GLA001V1](#) firmware is available for free download 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.

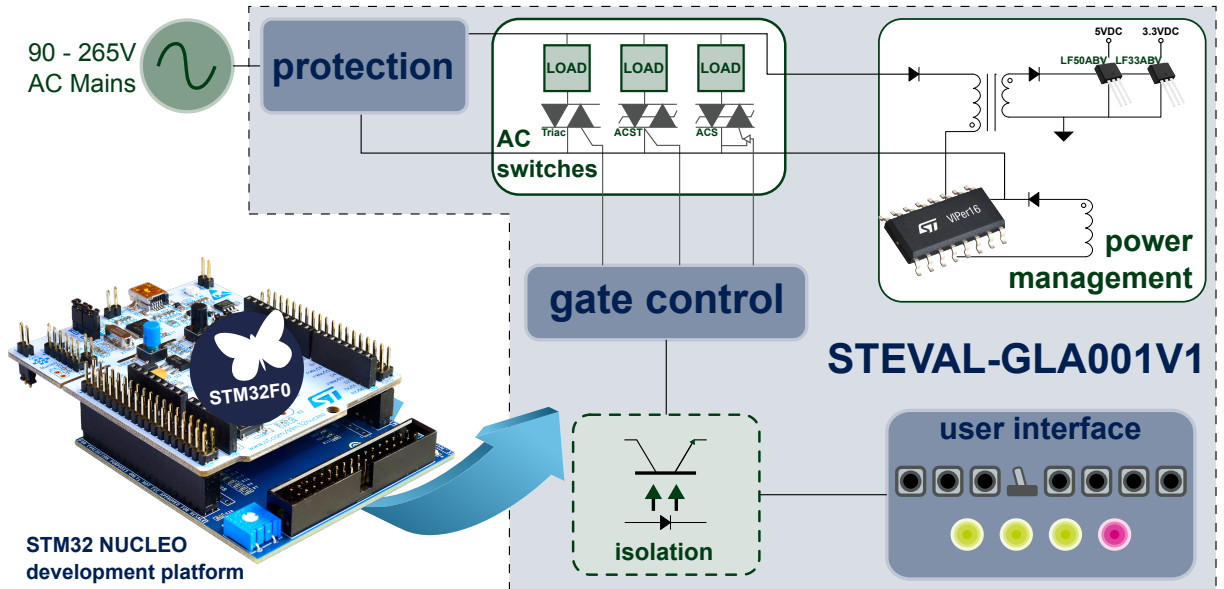
The hardware is designed to offer a wide input voltage range, low standby power losses, IEC61000-4-4 robustness and two low voltage power supplies.

Product summary

Insulated AC switch control evaluation board for home appliances	STEVAL-GLA001V1
AC switch control evaluation firmware	STSW-GLA001V1
Overvoltage protected AC switch (ACS™)	ACS108-8TN
Overvoltage protected AC switch	ACST310-8B
16 A Snubberless Triac	T1635T-8FP

1 Block diagram

Figure 2. STEVAL-GLA001V1 block diagram



2 Schematic diagrams

Figure 3. STEVAL-GLA001V1 - AC input

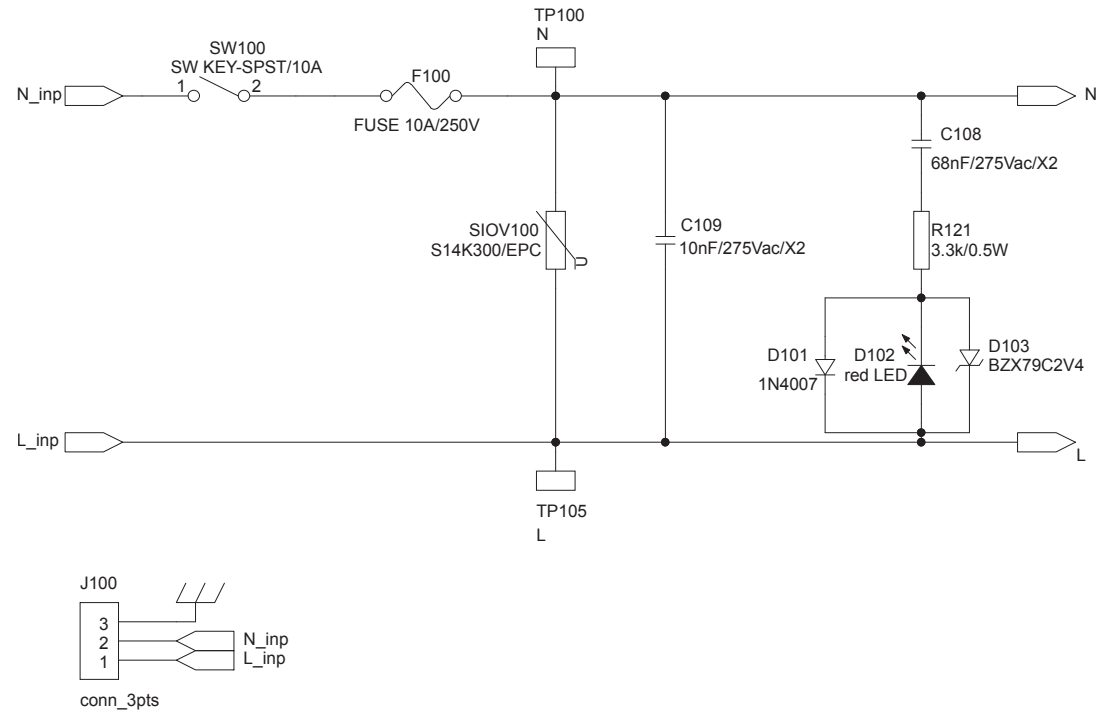


Figure 4. STEVAL-GLA001V1 - ZVS detection

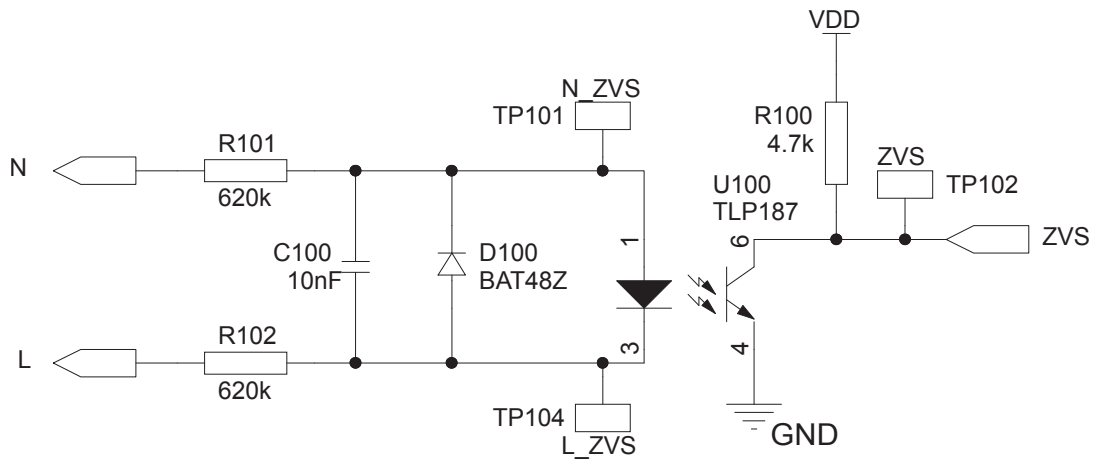


Figure 5. STEVAL-GLA001V1 - Triac gate control

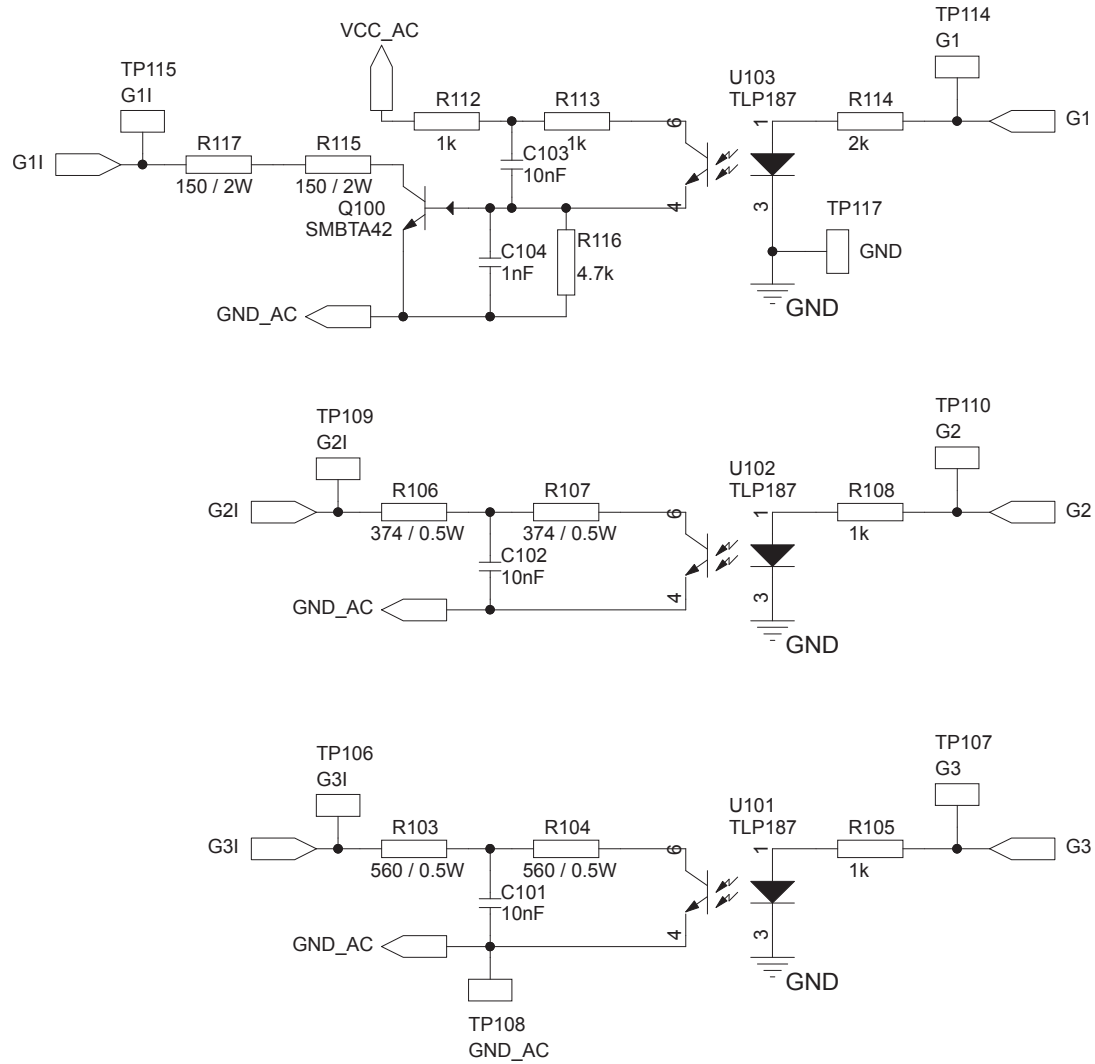


Figure 6. STEVAL-GLA001V1 - Triac and ACS connections

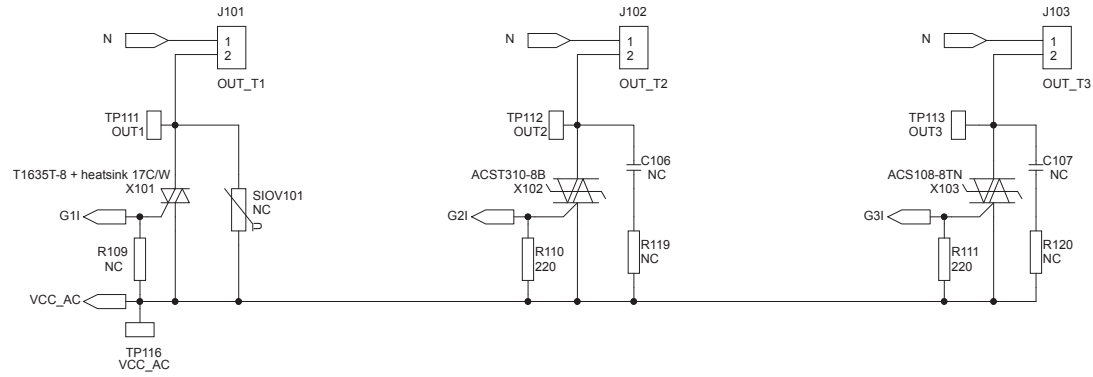


Figure 7. STEVAL-GLA001V1 - Power supply

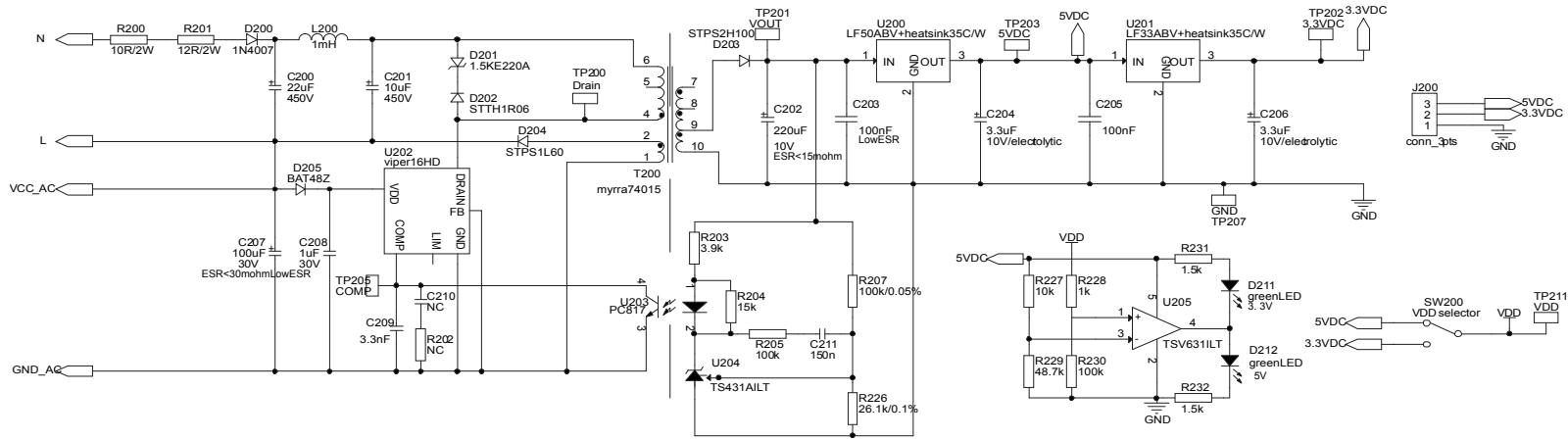


Figure 8. STEVAL-GLA001V1 - LED indicators

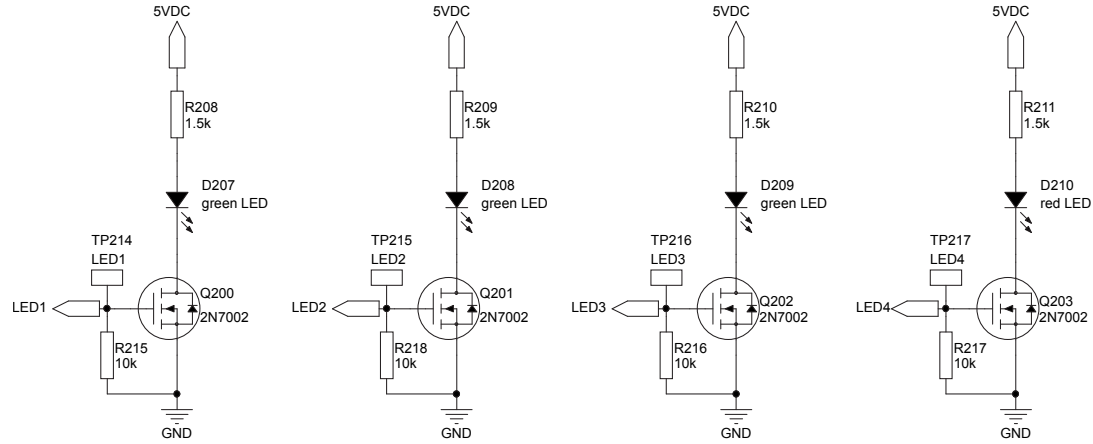


Figure 9. STEVAL-GLA001V1 - Command and parameter push buttons

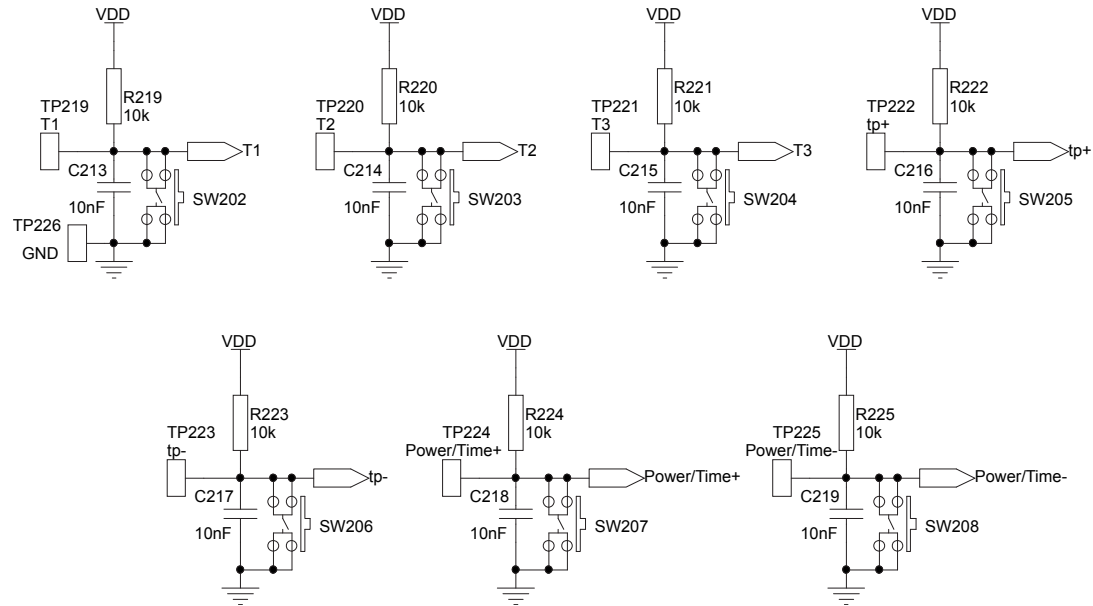


Figure 10. STEVAL-GLA001V1 - Mode selector switch

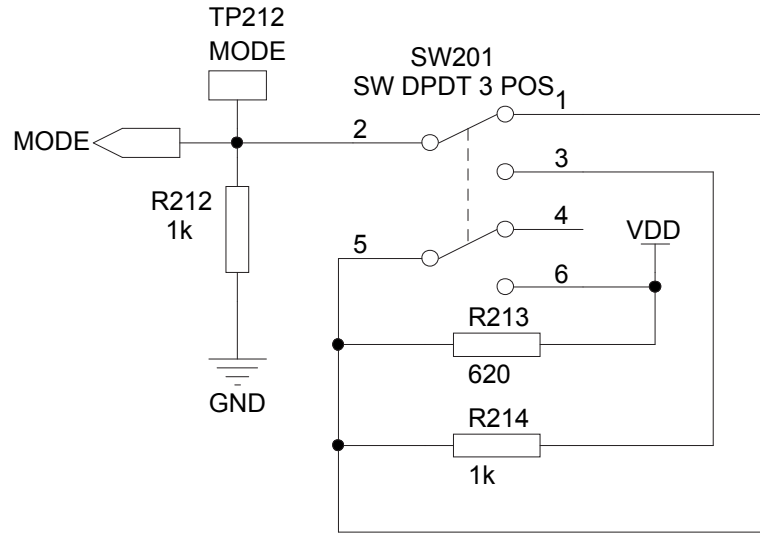


Figure 11. STEVAL-GLA001V1 - Customer board connector

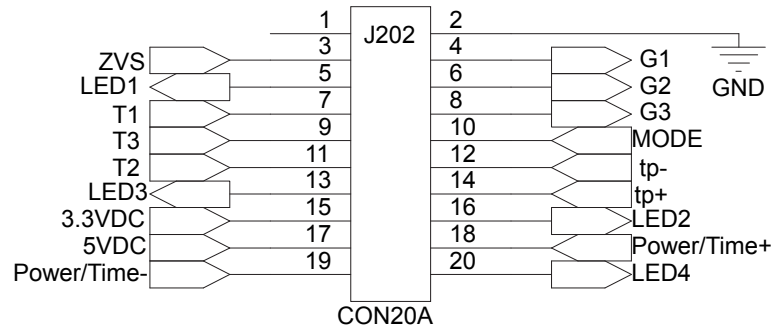
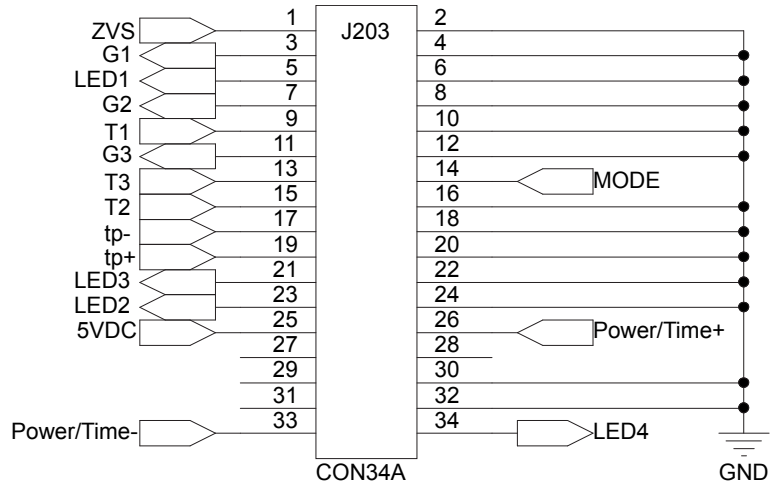


Figure 12. 34-Pin ST board connector



Revision history

Table 1. Document revision history

Date	Version	Changes
15-Nov-2017	1	Initial release.
19-Feb-2019	2	Updated title Added Section Product Summary Table Added Section 1 Block diagram Text and formatting changes throughout document

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.

© 2019 STMicroelectronics – All rights reserved