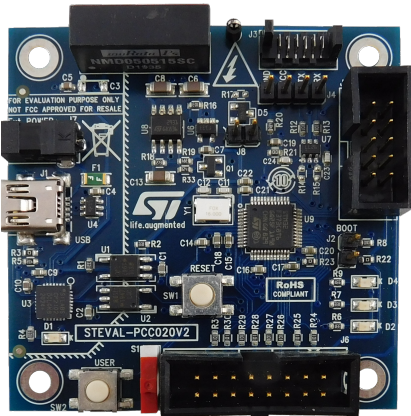


USB to I²C/UART interface board for STNRG digital power controller products (STNRG01x and ST-ONE)



Features

- Bidirectional communication between PC (USB) and ST-ONE/STNRG01x controller IC
- Self-powered from the USB line
- On-board VCC generation for IC NVM/flash programming
- 1x I²C bus running at 400 kHz
- 1x UART bus running up to 115200 bps
- UART and I²C bus mixed together on the same interface
- Dedicated connector for autonomous programming support
- On-board firmware upgrade through USB port
- RoHS compliant

Description

The STEVAL-PCC020V2 is a board with the purpose to interface a Windows® based PC with HVDPS products such as STNRG01x or ST-ONE. It is basically a bidirectional bridge between USB and I²C/UART buses.

The board is self-supplied through the 5 V coming from the USB port. An isolated DC-DC module is available to provide the correct supplies to the remaining devices. The board is also able to provide the requested VCC voltage to the target device to program the NVM or the flash memory parameters.

A standard USB-to-serial bridge manages the communication between the interface board and the PC. Thus, the USB connection is converted into a virtual COM port.

UART Rx and Tx signals are then isolated thanks to the opto-couplers and connected to an on-board STM32 MCU, keeping the USB port and the remaining devices isolated from the mains.

The microcontroller is in charge of making the bridge between the host UART and the target UART/I²C buses and protocols (dedicated GUIs are also available to handle STNRG01x or ST-ONE specific protocols and features).

The board also offers a dedicated connector able to support autonomous programming for mass production purposes (for example, update of the NVM content using automation tools instead of a standard USB connection).

Product summary	
Interface board USB to I ² C/UART to be used with STNRG011 digital power controller products (STNRG011 and ST-ONE)	STEVAL-PCC020V2
Mainstream mixed signal Arm® Cortex®-M4 core MCU with DSP and FPU	STM32F373CCT6
Applications	Digital Power/LED / OLED TV/Smart Chargers and Adapters/LED Illumination

1 Schematic diagrams

Figure 1. STEVAL-PCC020V2 circuit schematic (1 of 2)

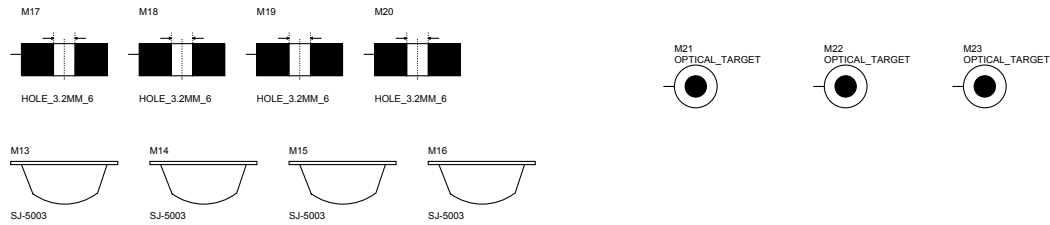
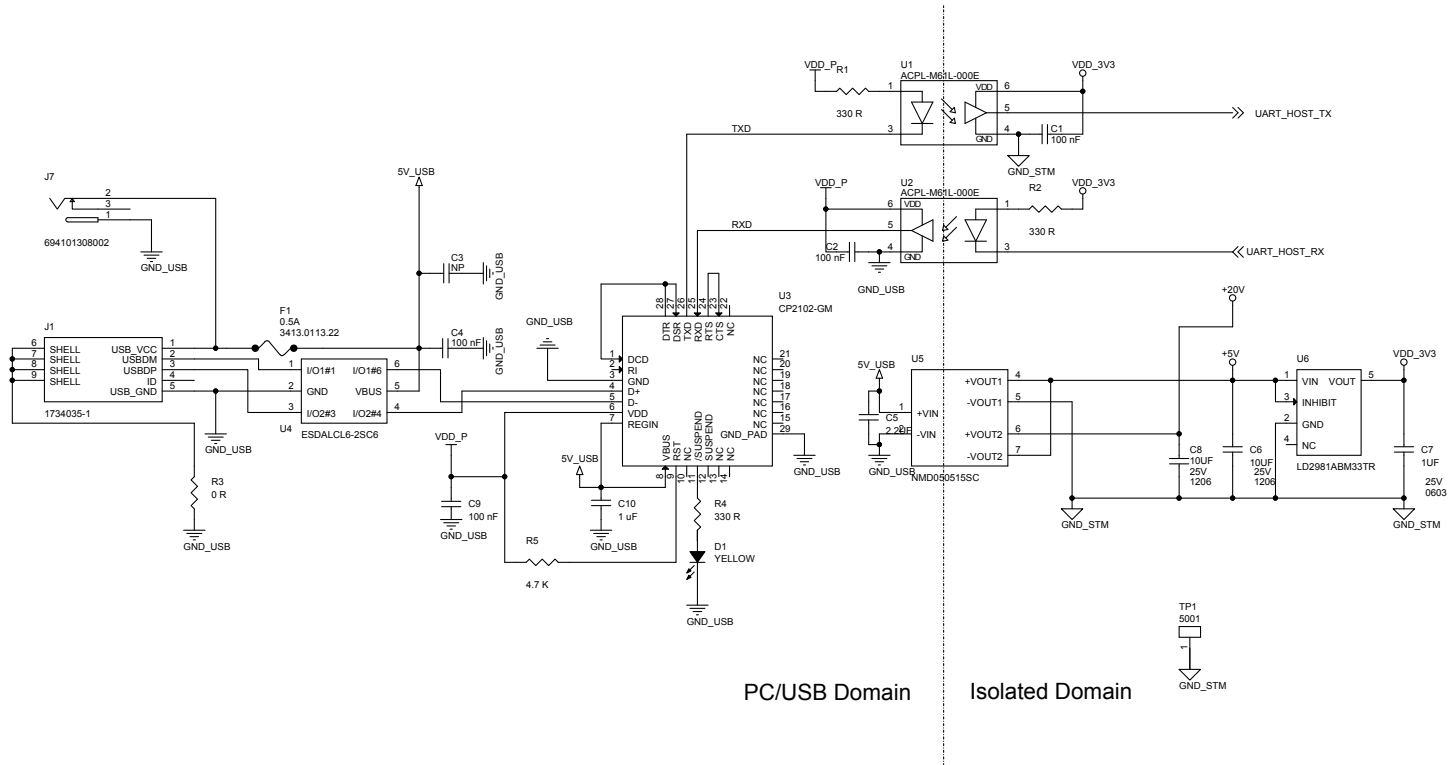
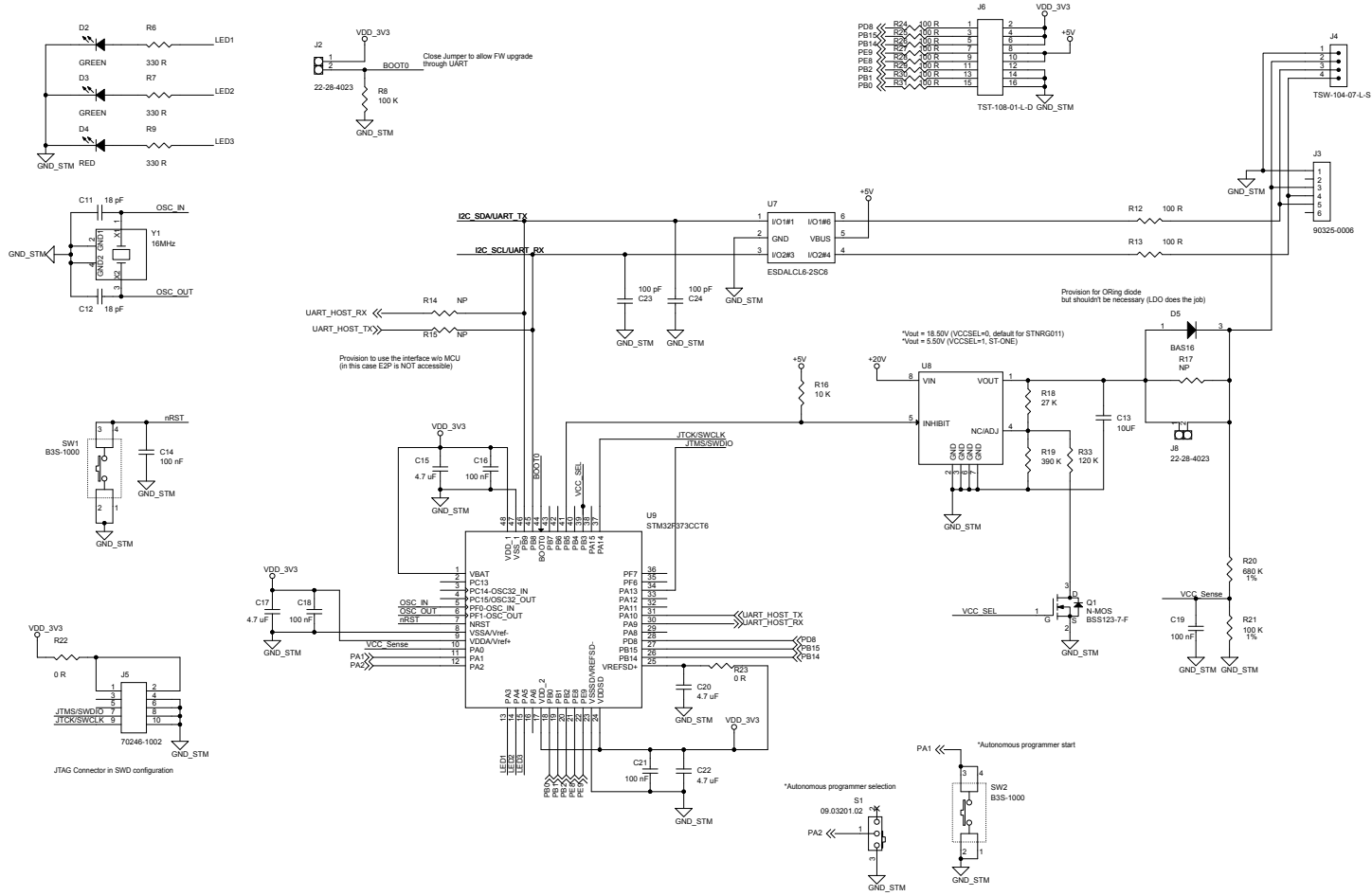


Figure 2. STEVAL-PCC020V2 circuit schematic (2 of 2)



Revision history

Table 1. Document revision history

Date	Version	Changes
10-Dec-2020	1	Initial release.
24-Mar-2022	2	Updated cover page features, product summary table, and Section 1 Schematic diagrams .

IMPORTANT NOTICE – 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 acknowledgment.

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. For additional information about ST trademarks, refer to www.st.com/trademarks. 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.

© 2022 STMicroelectronics – All rights reserved