

USB Type-C™ Power Delivery Sink expansion board based on TCPP01-M12 for STM32 Nucleo



Features

- 100 W programmable power supply (PPS) support
- USB Type-C™ reversible connector
- 6 V overvoltage protection (OVP) on CC lines against short-to- V_{BUS} when the connector is unplugged
- Up to 22 V adjustable overvoltage protection (OVP) on V_{BUS} line against charger failure
- Surge protection and system-level ESD protection on V_{BUS}
- Common-mode filter and ESD protection on USB 2.0 High Speed data-lines
- System-level ESD protection on CC lines as per IEC61000-4-2 level 4 (± 8 kV contact discharge)
- Low power mode for battery operation allows zero current consumption when no cable is attached
- Integrated dead battery management for fully depleted battery devices
- Overtemperature protection (OTP)
- Compliant with USB Type-C™ Rev 1.2 and Power Delivery 3.0 standards
- USB-IF certified (Test ID certification: 3036)

Description

The X-NUCLEO-USBPDM1 expansion board is no more available for purchase. The X-NUCLEO-SNK1M1 is a new version of this board. It is available with additional features and is compliant with any STM32 Nucleo-64 board that allows the USB Type-C™ usage with or without power delivery.

The X-NUCLEO-USBPDM1 is an expansion board for the NUCLEO-G071RB and NUCLEO-G474RE development boards or any STM32 Nucleo development board equipped with a USB Type-C™ peripheral.

The X-NUCLEO-USBPDM1 is compliant with USB Type-C™ rev 1.2 and power delivery 3.0 with 100 W PPS support, as well as USB-IF certified (test ID certification: 3036).

It provides a straightforward means for evaluating USB Type-C™ power delivery in sink mode based on TCPP01-M12.

The USB Type-C™ connector can supply the STM32 Nucleo development board thanks to a 3.3 V LDO.

Product summary	
USB Type-C™ Power Delivery sink expansion board based on TCPP01-M12 for STM32 Nucleo	X-NUCLEO-USBPDM1
USB Type-C™ software expansion for STM32Cube	X-CUBE-TCPP
USB Type-C™ port protection	TCPP01-M12
STM32 Nucleo-64 development boards with STM32G071RB/STM32G474RE MCUs	NUCLEO-G071RB/ NUCLEO-G474RE
Applications	Medical and Healthcare Power Supplies and Converters Smart Home USB Type-C™ and Power Delivery

1 Schematic diagrams

Figure 1. X-NUCLEO-USBPDM1 circuit schematic (1 of 2)

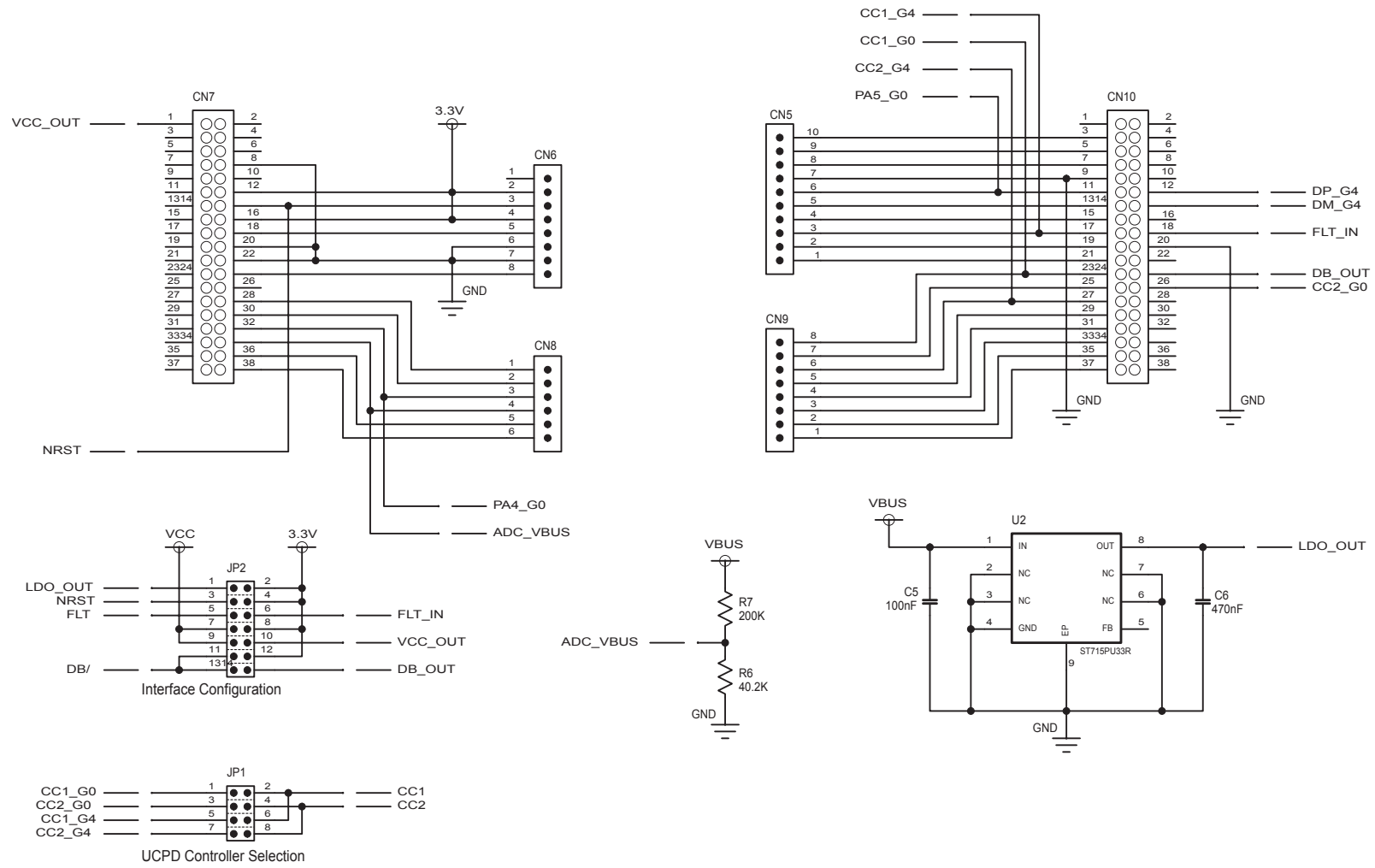
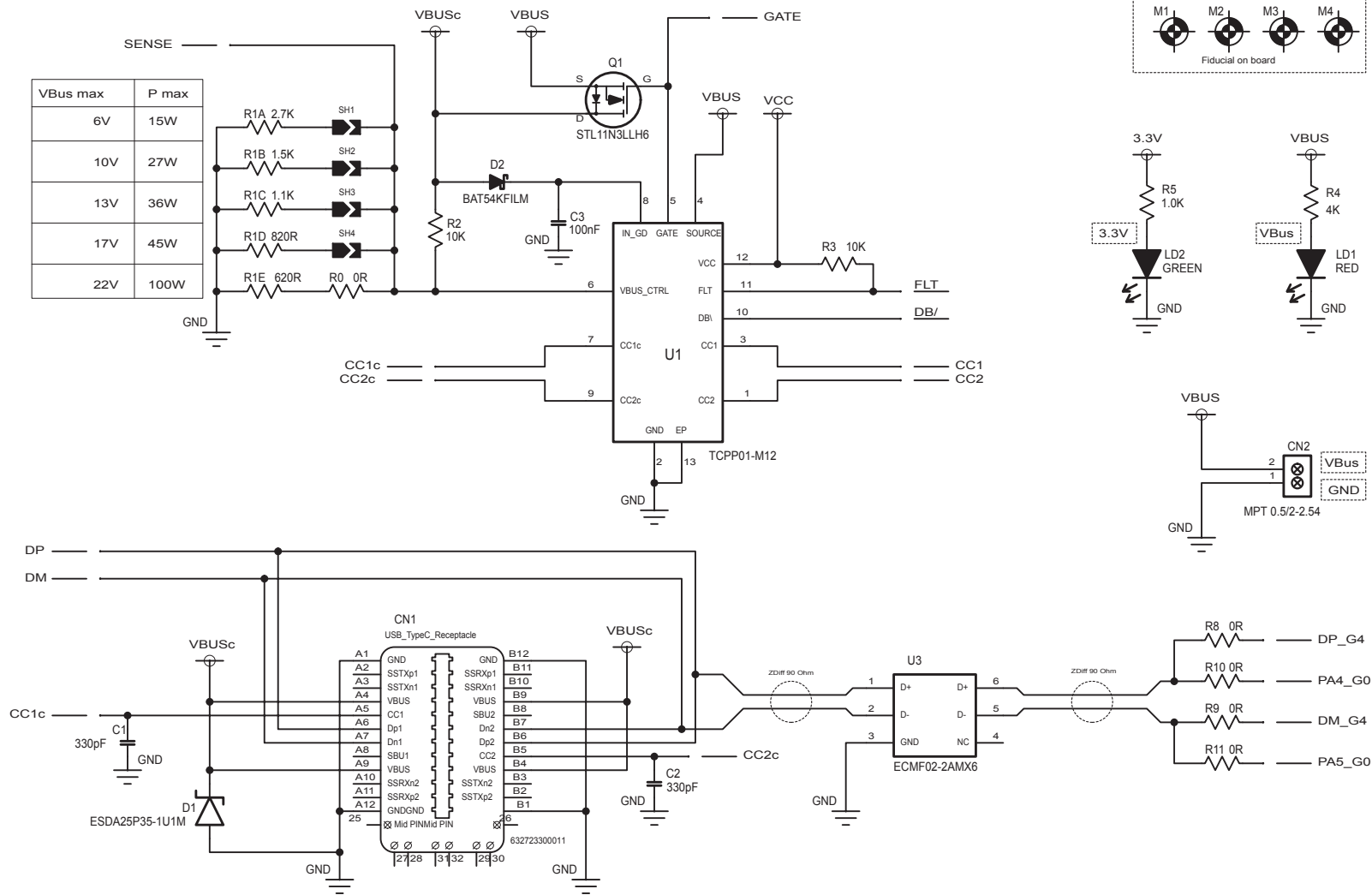


Figure 2. X-NUCLEO-USBPDM1 circuit schematic (2 of 2)



Revision history

Table 1. Document revision history

Date	Version	Changes
06-Dec-2019	1	Initial release.
14-May-2020	2	Updated cover page product summary table, features and description.
06-Apr-2021	3	Replaced X-CUBE-USBPDM1 with X-CUBE-TCPP.
12-Jan-2022	4	Updated cover page description.
07-Feb-2022	5	Updated cover page description.

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