STLINK-V3PWR

Data brief

Source measurement unit (SMU) and debugger/programmer for STM32 microcontrollers

STLINK-V3PWR global view. Picture is not contractual.

Product status link
STLINK-V3PWR

Features

- 1-Quadrant source measurement unit with high resolution, and measurement flexibility:
  - Programmable voltage source from 1.6 to 3.6 V
  - Output current rating 500 mA with overcurrent protection (OCP) at 550 mA
  - Programmable sampling rate from 1 SPS to 100 kSPS
  - Dynamic measurement:
    - A few nA to 500 mA current
    - Up to 1.65 W power measurements
    - 50 kHz bandwidth/1.6 MHz acquisition/down to +/-0.5% accuracy
    - Compatible with EEMBC® ULPMark™ tests
- Auxiliary output voltage source from 1.6 to 3.6 V under up to 2 A (no current measurement, OCP at 2.5 A)
- Debugging of embedded applications:
  - JTAG / Serial Wire Debug (SWD):
    - SWD (Serial Wire Debug) and SWV (Serial Wire Viewer) communication support up to 10 MHz
    - JTAG communication support up to 20 MHz
  - UART interface on Virtual COM port (VCP) with frequency up to 12 MHz
  - Multipath bridge USB to SPI/I^2C/CAN/GPIOs
  - Integrated level shifter I/O voltage 1.6 to 3.6 V adaptable
- Four bicolor LEDs providing probe state
- Three STDC14 to MIPI10 / STDC14 / MIPI20 flat cables with 1.27 mm pitch connectors
- Four cables (two male/male and two male/female)
- USB Type-C® connector:
  - Powered through USB Type-C® (5 V/1.5 A minimum)
  - USB 2.0 high-speed interface
  - Probe firmware update through USB
- Direct support from STM32CubeMonitor-Power software tool

1 Description

STLINK-V3PWR is a two-in-one standalone debugger probe and a source measurement unit (SMU) designed to synchronize code execution with a power consumption of STM32 applications in real time. This tool is specifically adapted for power consumption optimization (patent pending).

STLINK-V3PWR can be used as a standalone source measurement unit to supply power and measure the current consumption of the target application. The product keeps the output voltage constant during a fast current transient from a very low current to a high current.

STLINK-V3PWR is also a standalone debugging and programming probe for STM32 microcontrollers. The product embeds a multipath bridge interface with an integrated level shifter to adapt to the target application I/Os voltage.

STLINK-V3PWR USB Type-C® connector allows data communication with the host PC and sinks up to 5 V/3 A to supply both the probe and the target application, via the SMU and the auxiliary output.

The ST-LINK firmware upgrade tool (*STSW-LINK007*) can update the STLINK-V3PWR firmware. For optimal performance, the STLINK-V3PWR firmware must be updated to the latest version.

2 Ordering information

To order the STLINK-V3PWR SMU and in-circuit debugger/programmer for STM32, refer to Table 1. For a detailed description of the board, refer to its user manual on the product web page.

Table 1. Ordering information

Order code	Reference	User manual	Description
STLINK-V3PWR	STLINK-V3PWR	UM3097	Debug board for STM32 microcontrollers including simultaneous current measurement

3 Development environment

STLINK-V3PWR embeds an STM32 32-bit microcontroller based on the Arm® Cortex®-M core.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

3.1 System requirements

- Multi-OS support: Windows® 10, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to USB Type-C® cable

Note: macOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.
Linux® is a registered trademark of Linus Torvalds.
Windows is a trademark of the Microsoft group of companies.

3.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®(1)
- Keil® - MDK-ARM(1)
- STMicroelectronics - STM32CubeIDE

1. *On Windows® only.*

Revision history

Table 2. **Document revision history**

Date	Revision	Changes
27-Jan-2023	1	Initial release.
30-Jan-2024	2	Updated Features regarding maximum current, power, and accuracy.