STEVAL-RFPLUG01

Data brief

RF smart plug based on the STM32L443 microcontroller

Summary table	
RF smart plug based on the STM32L443CC microcontroller	STEVAL-RFPLUG01
VIPerPlus family: energy saving high voltage converter for direct feedback	VIPER06XS
Ultra-low power microcontroller with FPU ARM® Cortex®-M4 MCU 80 MHz	STM32L443CCT6

Features

- Wireless smart plug design with wireless connectivity
- Bluetooth low energy (BLE) 4.1 connectivity for control and metering panel
- Smartphone connectivity for energy consumption dashboard and control of appliances
- Sub-GHz 868 MHz connectivity for remote control based on the SP1ML certified module
- Dimming to control loads such as AC induction fan speed, heaters and incandescent lamps
- Scheduling to set the time to switch the load on or off
- NFC interface to configure the design and store the logs
- Isolated USB interface for GUI and calibration
- Rated voltage of 240 V_{AC}
- Rated current of 12 A (typ.)
- Power rating up to 2400 W/12 Amps
- Plug power consumption of 0.7 W (max.)

Description

This board has been physically tested and validated; it is not for sale.

The STEVAL-RFPLUG01 evaluation board is designed to be used in home automation for Internet of Things (IoT) applications and embeds the core functionality required for a secure communication.

The board is designed with the STM32L443CCT6 microcontroller based on the ARM® Cortex®-M4; it runs at 48 MHz. Power consumption is between 40 and 50 mA.

The STEVAL-RFPLUG01 has two modes: in the first mode, the device acts as a BLE peripheral to control and monitor the system; in the second mode, the device is a manufacturer-specific beacon advertising its metering parameters so that multiple Android devices can monitor the plug.

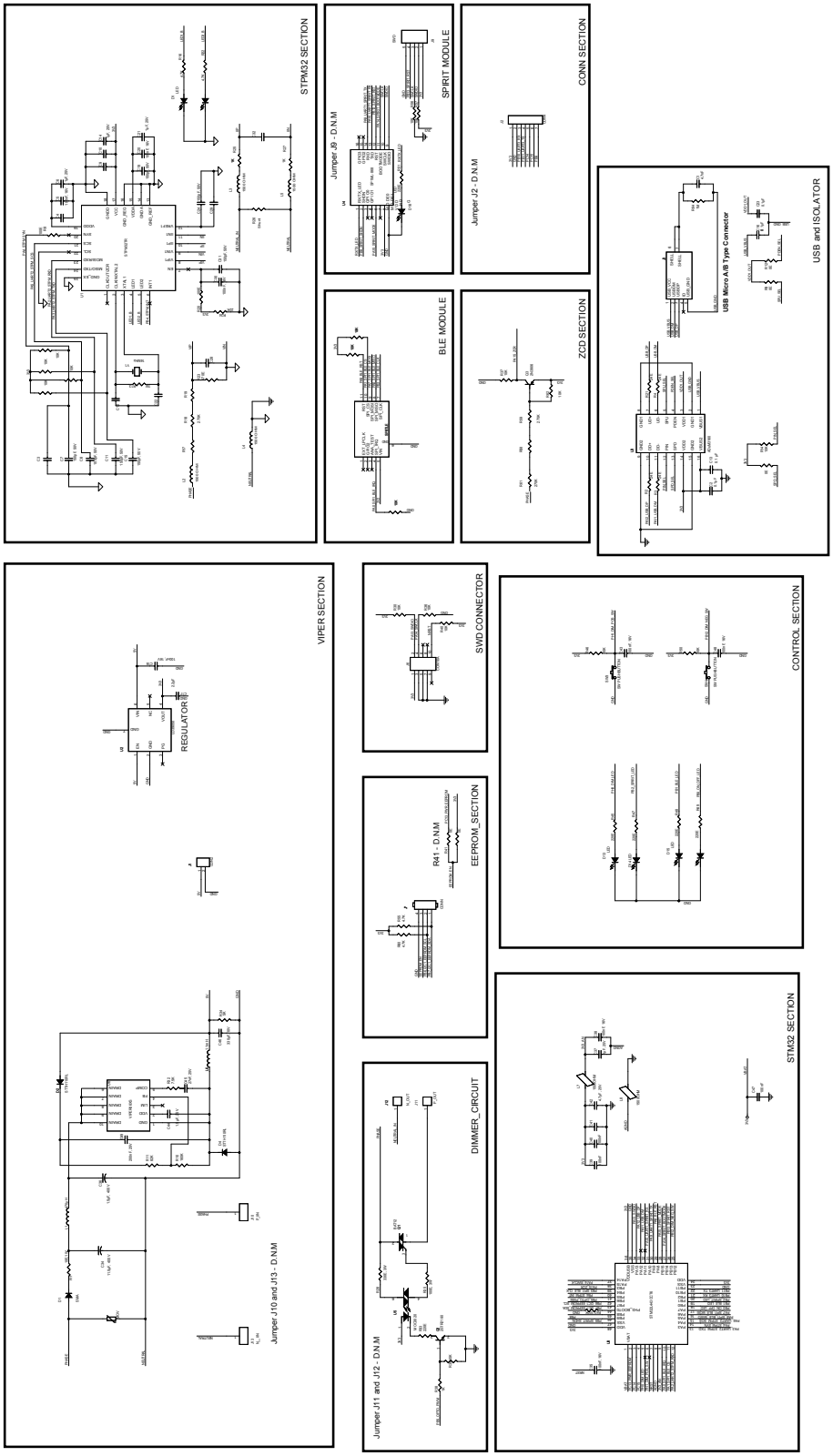
The on-board SP1ML-868 controls the system remotely with 868 MHz connectivity, and the non-isolated buck converter supply is designed using VIPER06XS (ideal for applications where large current is not needed and small form factor is required).

A Triac controls the current and acts as an AC switch for various electrical system applications.

You can use an Android application by STMicroelectronics to turn load, scheduling and dimming features on or off, and check the metering parameters.

1 Schematic diagram

Figure 1. **STEVAL-RFPLUG01 circuit schematics**



Revision history

Table 1. **Document revision history**

Date	Version	Changes
12-Feb-2018	1	Initial release.