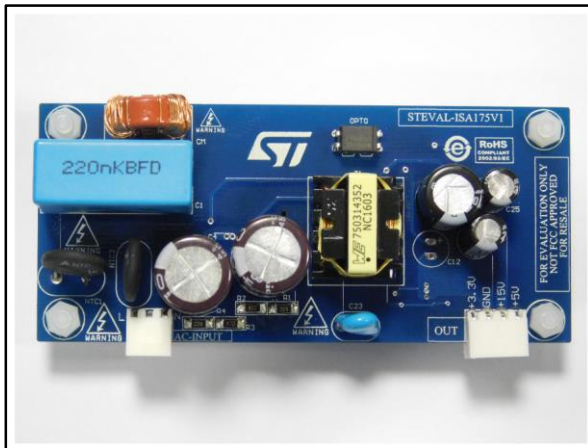


9.4 W, 15 V-5 V-3.3 V, three output isolated flyback converter for smart meter and power line systems using the VIPER26HD

Data brief



Description

The STEVAL-ISA175V1 evaluation board implements a three output isolated flyback converter specifically designed to supply the STCOMET smart meter and powerline communication system.

The board is developed using the VIPER26HD offline high-voltage converter by STMicroelectronics. The device features an 800 V avalanche-rugged power section, PWM operation at 115 kHz with frequency jittering for lower EMI, current limiting with adjustable set point, on-board soft-start, safe auto-restart after a fault condition and low standby power.

Features

- Triple output voltage: 15 V @ 0.55 A_{rms} (0.7 A peak), 3.3 V @ 200 mA and 5 V @ 100 mA
- Extended AC mains input voltage range: 90 V_{AC} to 440 V_{AC}
- Meets STCOMET smart meter and power line communication system specs
- EMC with EN55022, EN61000, EN61000-4-4, EN61000-4-5, EN61000-4-6
- RoHS compliant

The power supply provides 15 V @ 550 mA_{rms} (700 mA peak) to the power line modem (PLM) and the analog circuitry, a post-regulated 5 V @ 100 mA and a 3.3 V @ 200 mA supply through a dedicated DC-DC converter connected on the 15 V rail for digital circuitry and other low voltage parts.

The power supply is designed to operate across an extended 90 to 440 V_{AC} mains input voltage range to also be used with a phase-to-phase connection in a three-phase network.

The board can be used in a stand-alone configuration or with the dedicated STCOMET development kit and the PCB layout is specifically designed to fit inside a real meter.

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Figure 1: Main PSU circuit schematic

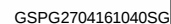
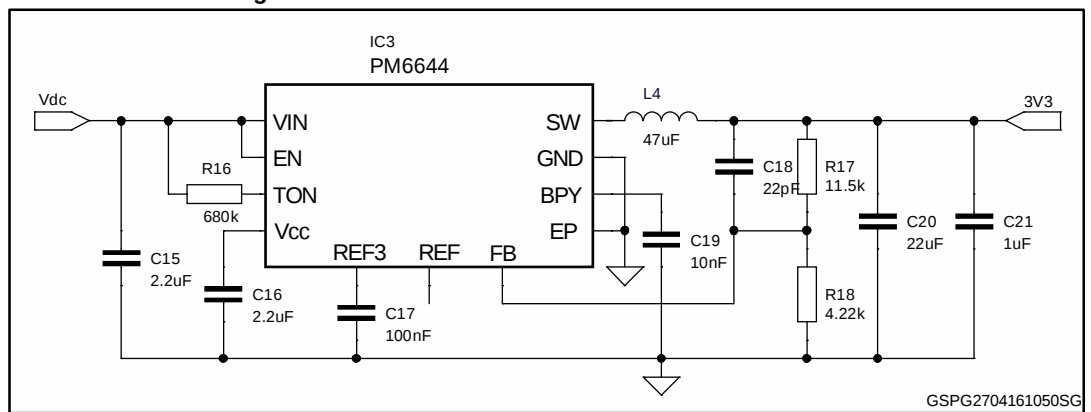


Figure 2: Dedicate DC-DC for 3V3 rail circuit schematic



2 Revision history

Table 1: Document revision history

Date	Version	Changes
29-Apr-2016	1	Initial release.

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