

8.4 W / 30 W peak power offline flyback converter using VIPER38HD

Data brief

**Features**

- US input range: 85 – 132 V_{AC}, frequency: 50 – 60 Hz
- Output voltage / current: 12 V / 0.7 A (2.5 A peak)
- Very compact size
- Standby mains consumption: lower than 25 mW at 115 V_{AC}
- Min. active mode efficiency: 81.14%
- Min. active mode at 10% load efficiency: 71.14%
- EMI: according to EN55022-Class-B
- RoHS compliant

Description

The STEVAL-ISA182V1 evaluation board implements an isolated flyback converter (12 V / 0.7 A) 8.4 W (30 W peak), US range 85 – 132 V_{AC}, developed for metering.

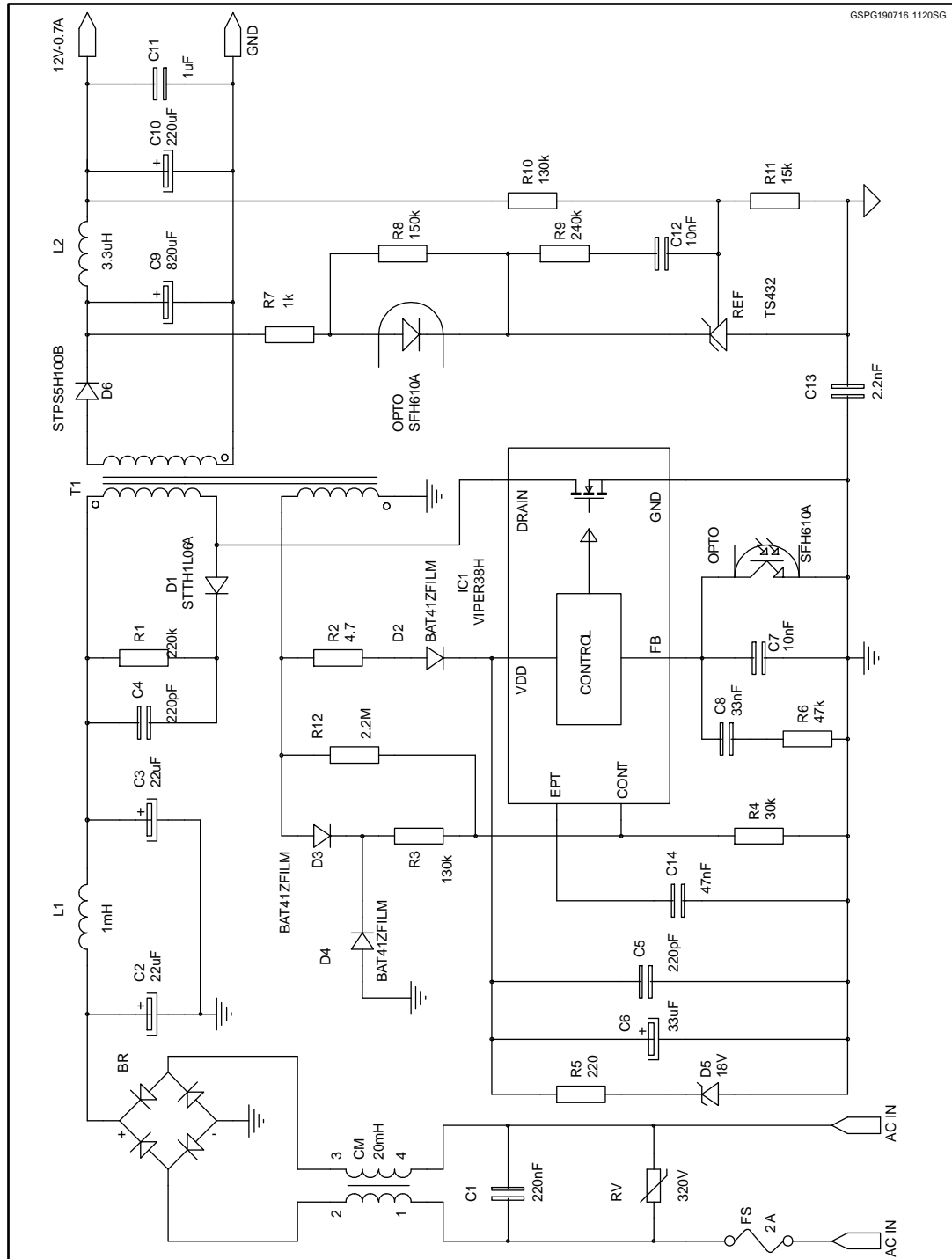
The core of the application is the VIPER38HD, the latest offline converter from the VIPerPlus family. The device is a high-voltage converter that intelligently integrates an 800 V rugged power MOSFET with PWM current-mode control. The device features an adjustable extra power timer (EPT) that enables the IC to sustain overload conditions for a few seconds.

The main characteristics of the evaluation board are its small size, minimal BoM, high efficiency and low standby consumption. Extremely low consumption under the no-load condition is ensured thanks to burst mode operation that reduces the average switching frequency and minimizes all frequency related losses.

VIPER38HD operates at 115 kHz fixed frequency. Frequency jittering is implemented to help meet the standards regarding electromagnetic disturbance. The IC features high-level protections like dual-level OCP, output overvoltage, short-circuits and thermal shutdown with hysteresis. After the removal of a fault condition, the IC is automatically restarted.

1 Schematic diagram

Figure 1: STEVAL-ISA182V1 circuit schematic



2 Revision history

Table 1: Document revision history

Date	Version	Changes
03-Oct-2016	1	Initial release.

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