

Wide range single-output demonstration board based on the VIPER37LE

Data brief

Features

- Universal input mains range:
 - input voltage 90 - 264 V_{AC}
 - frequency 45 - 65 Hz
- Single-output voltage: 5 V @ 3 A continuous operation
- Standby mains consumption: < 30 mW @ 230 V_{AC}
- Average efficiency: > 75%
- Complies with EuP Lot 6 requirements
- Fully protected against faults overload, overvoltage, transformer saturation and overheating
- Compliant with EMC norm EN55022-Class-B
- RoHS compliant

Description

The STEVAL-ISA121V1 demonstration board implements a 15 W single-output wide range mains power supply to be used as an auxiliary adapter in applications such as LCD, plasma or LED TVs, desktop computers, etc., when the main power supply is OFF or in standby mode and the auxiliary power supply must provide energy only to some specific parts of the equipment such as USB ports, remote receiver, etc.

The board uses the new VIPER37LE, an offline high voltage converter from the VIPerPlus family, specifically designed for fixed frequency flyback converters, which combines a high-performance low voltage PWM controller chip and a max. 4.5 Ω R_{DS(on)}, 800 V B_{V(DSS)}, avalanche-rugged power MOSFET in the same package.

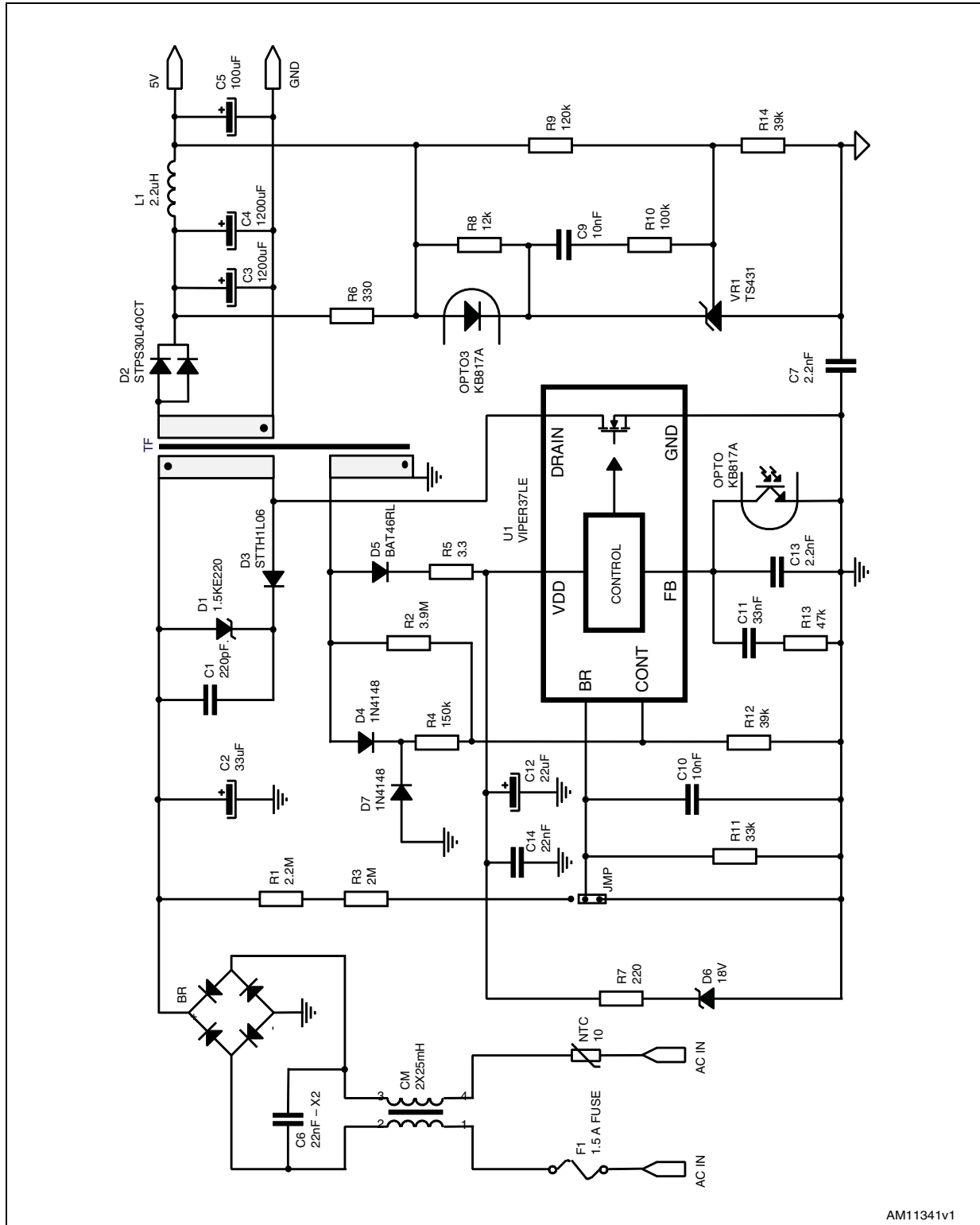
The application is optimized for less than 30 mW standby consumption and meets EPA 2.0 limits, thereby helping to meet the most stringent energy-saving requirements.



The board implements several protection features that considerably increase end-product safety and reliability: overload protection, overvoltage protection, brownout protection, hysteretic thermal protection, shorted secondary rectifier detection, and transformer saturation protection, all of which are in auto-restart mode.

1 Schematic diagram

Figure 1. STEVAL-ISA121V1 electrical diagram



AM11341v1

2 Output characteristics

Figure 2. Line and load regulation

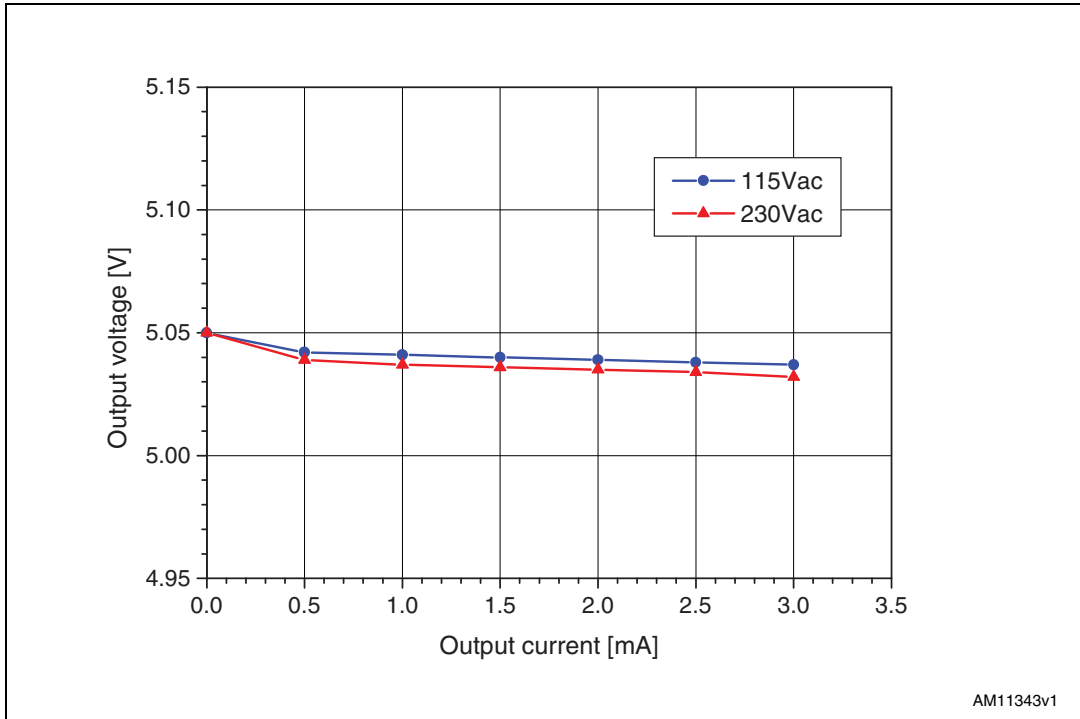


Figure 3. No load consumption

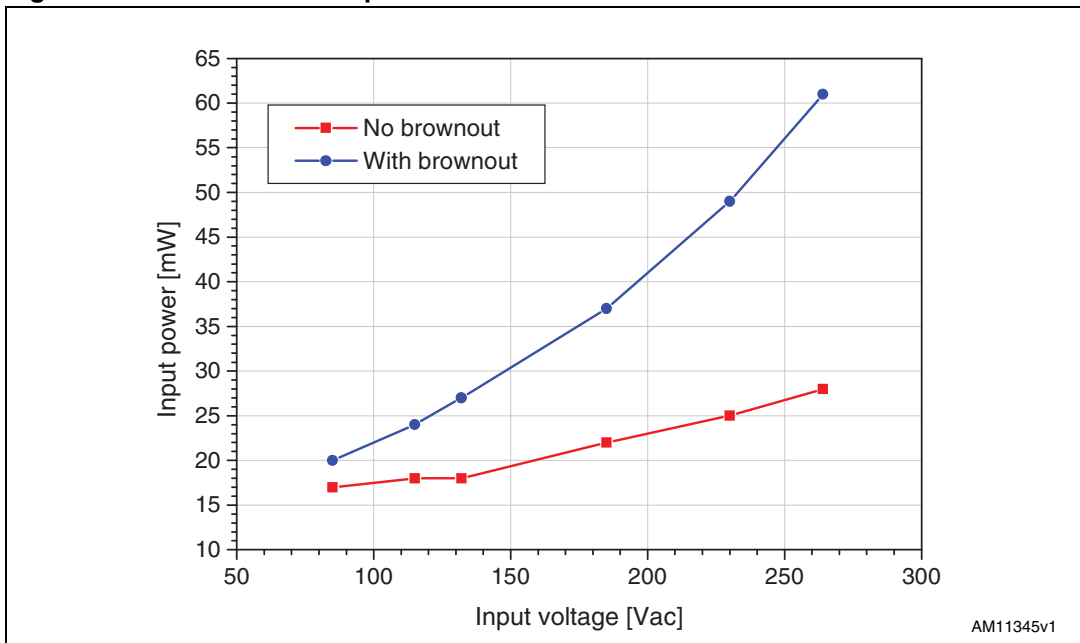
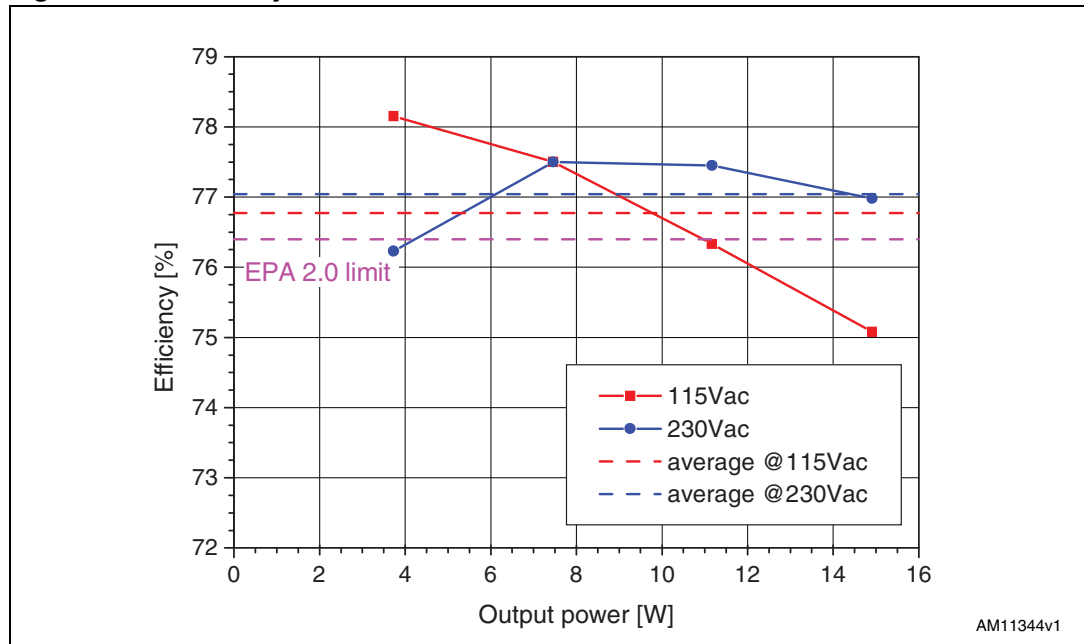


Figure 4. Efficiency



3 Revision history

Table 1. Document revision history

Date	Revision	Changes
09-Jan-2013	1	Initial release.

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