STEVAL-ISA123V1

15 W wide range double output demonstration board based on the VIPer37HE

Data brief

Features

- Universal input mains range: 85 - 265 V_{ac} frequency 50-60 Hz
- Output voltage1: 5 V/1.2 A continuous operation
- Output voltage2: 12 V/0.75 A continuous operation
- Standby mains consumption: < 50 mW at 230 V_{ac} (without brownout)
- Average efficiency: > 70%
- EMI: according to EN55022-Class-B
- RoHS compliant

STEVAL-ISA123V1

Description

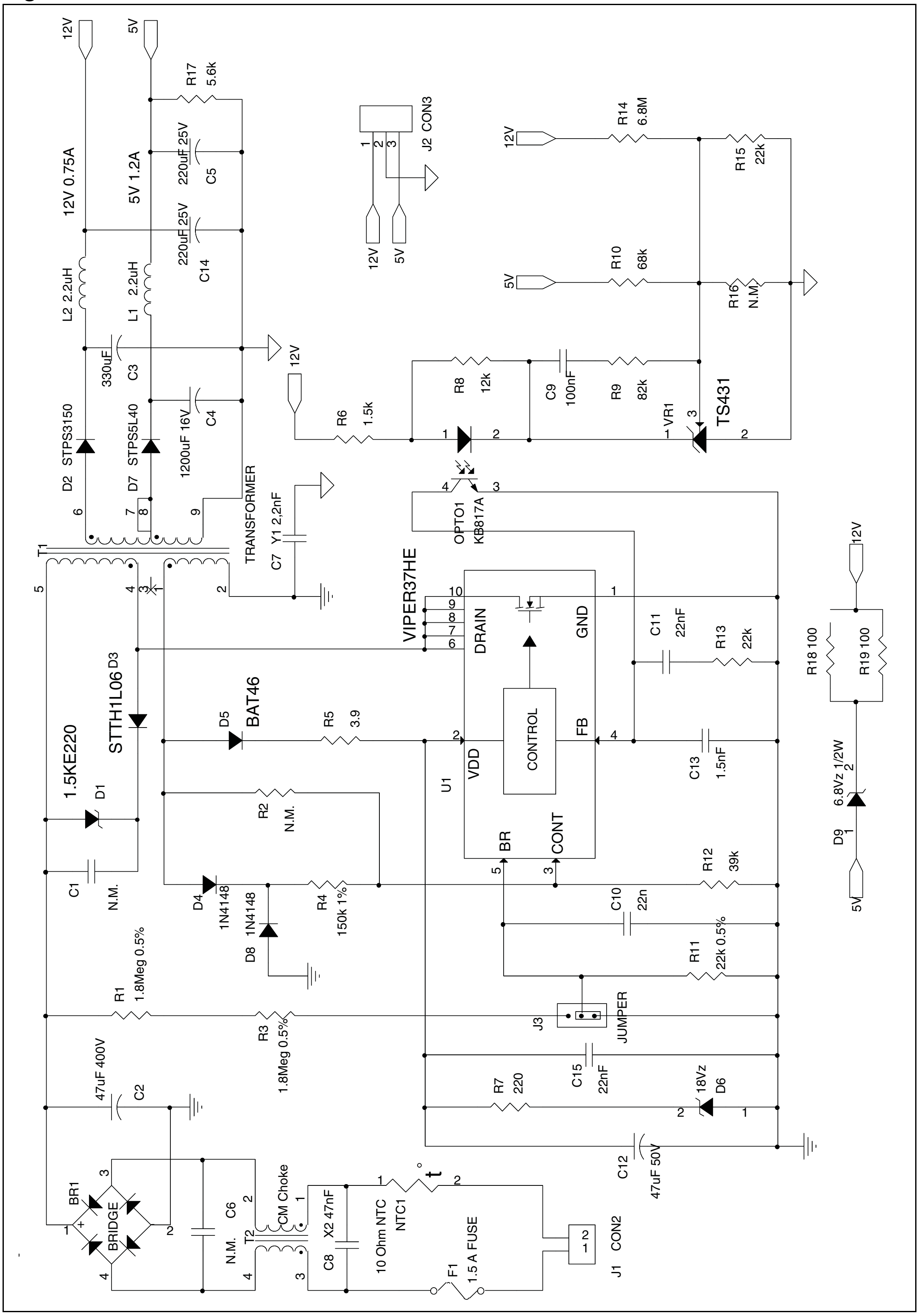
The STEVAL-ISA123V1 demonstration board implements an isolated flyback double output (5 V/1.2 A and 12 V/0.75 A) 15 W wide range mains developed for general purpose applications.

The core of the application is the VIPer37HE, a new offline high voltage converter from the VIPer® plus family. The IC combines a high-performance low voltage PWM controller chip and an 800 V, avalanche-rugged Power MOSFET in the same package.The main characteristics of the demonstration board are its high efficiency and low standby consumption. Extremely low consumption under no load conditions is ensured thanks to burst mode operation that reduces the average switching frequency and minimizes all frequency related losses.

The VIPer37HE operates at fixed frequency, 115 kHz. Frequency jittering is implemented and it helps to meet the standards regarding electromagnetic disturbance. The several protections present on the device, such as overvoltage, overload, output short-circuit, secondary winding short, hard transformer saturation protection and brownout protection, improve the reliability and safety of the design.

1 Schematic diagram

Figure 1. Electrical schematic



2 Efficiency and light load measurements

Figure 2. Efficiency vs. output current load

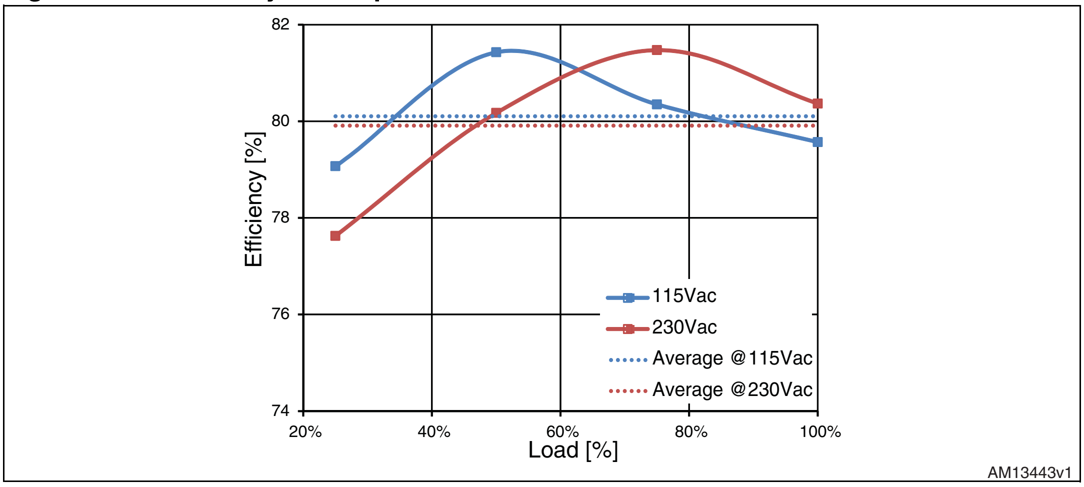


Figure 3. Efficiency vs. input voltage

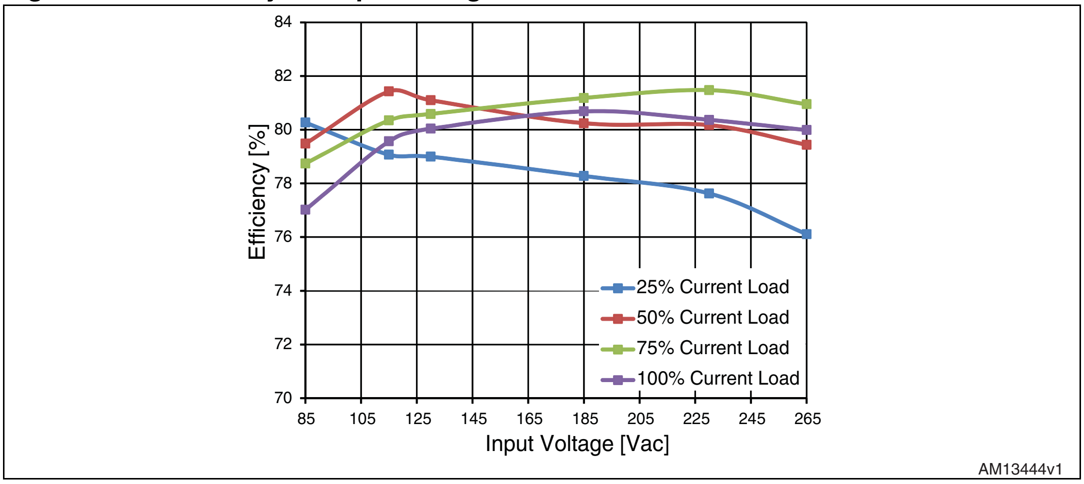


Figure 4. No load consumption vs. input voltage

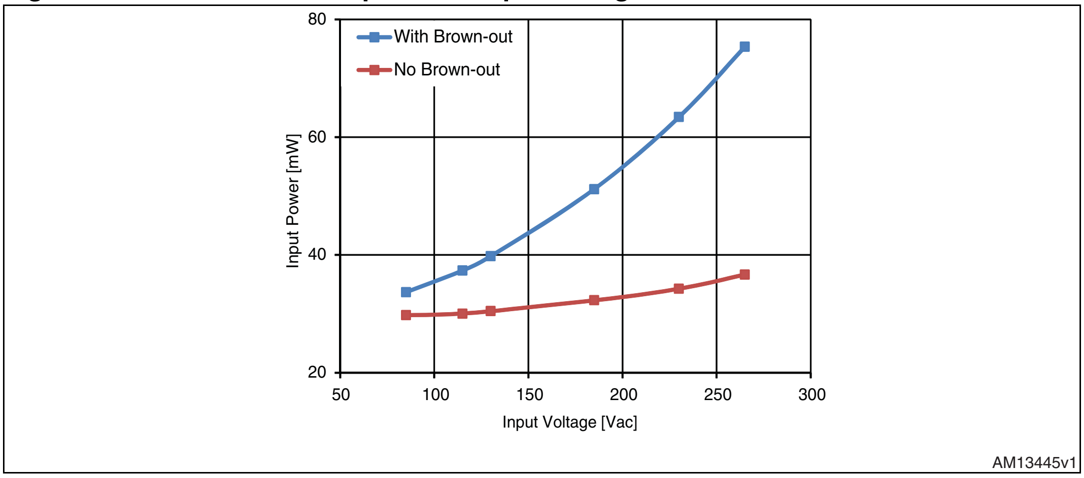


Figure 5. Light load consumption at different output power without brownout

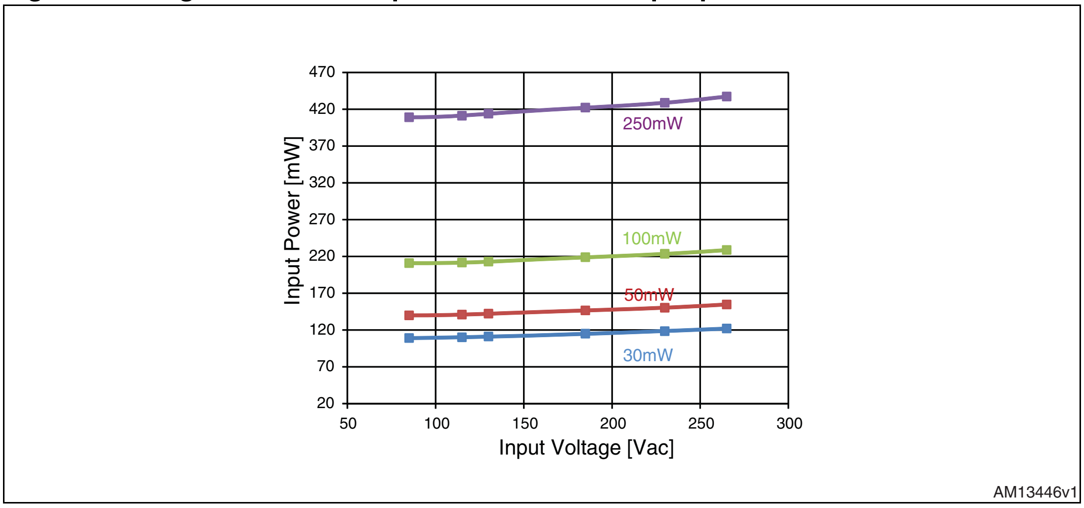
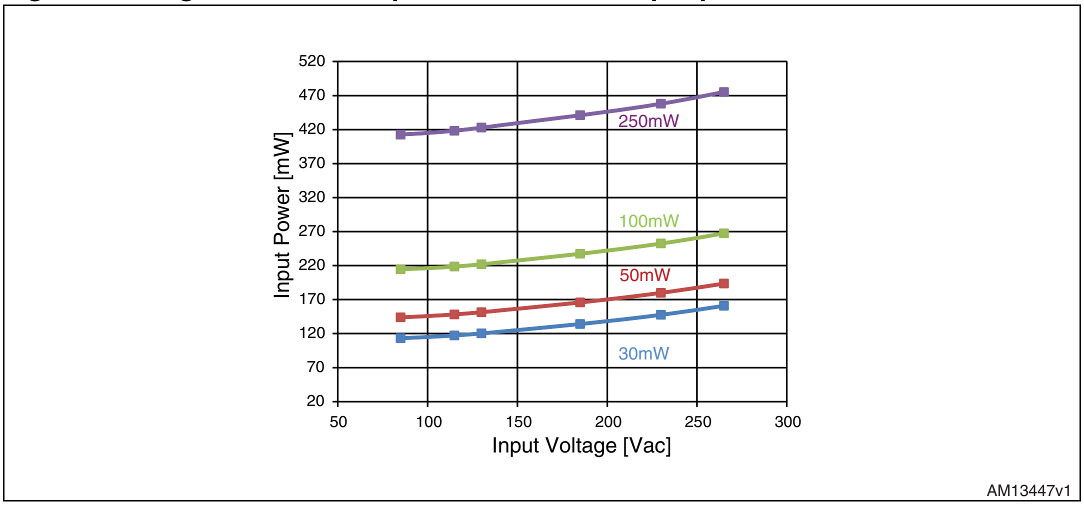


Figure 6. Light load consumption at different output power with brownout



3 Revision history

Table 1. Document revision history

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