

5 V / 10 W, 60 kHz isolated flyback with extra power management based on the VIPer28LN

Data brief



Features

- Input voltage range: 90 V_{RMS} - 265 V_{RMS}
- Output voltage: 5 V
- Max output current: I_{OUT} max = 2 A
- Peak output current: I_{OUT} pk = 3 A
- Precision of output regulation: $\Delta V_{OUT_LF} \pm 5\%$
- High frequency output voltage ripple: $\Delta V_{OUT_HF} = 50$ mV
- Max ambient operating temperature: T_A = 60 °C
- 800 V avalanche-rugged power section
- PWM operation at 60 kHz with frequency jittering for lower EMI
- Limiting current with adjustable set point
- On-board soft-start
- Safe auto-restart after a fault condition; low standby power (< 50 mW at 265 V_{ac}).
- Adjustable, accurate overvoltage protection, thermal shutdown with hysteresis, delayed overload protection

Description

The STEVAL-ISA125V1 is a 5 V, 2 A demonstration application with 3.3 A peak current capability of 1.9 sec, using the new VIPer28LN offline high-voltage converter from STMicroelectronics.

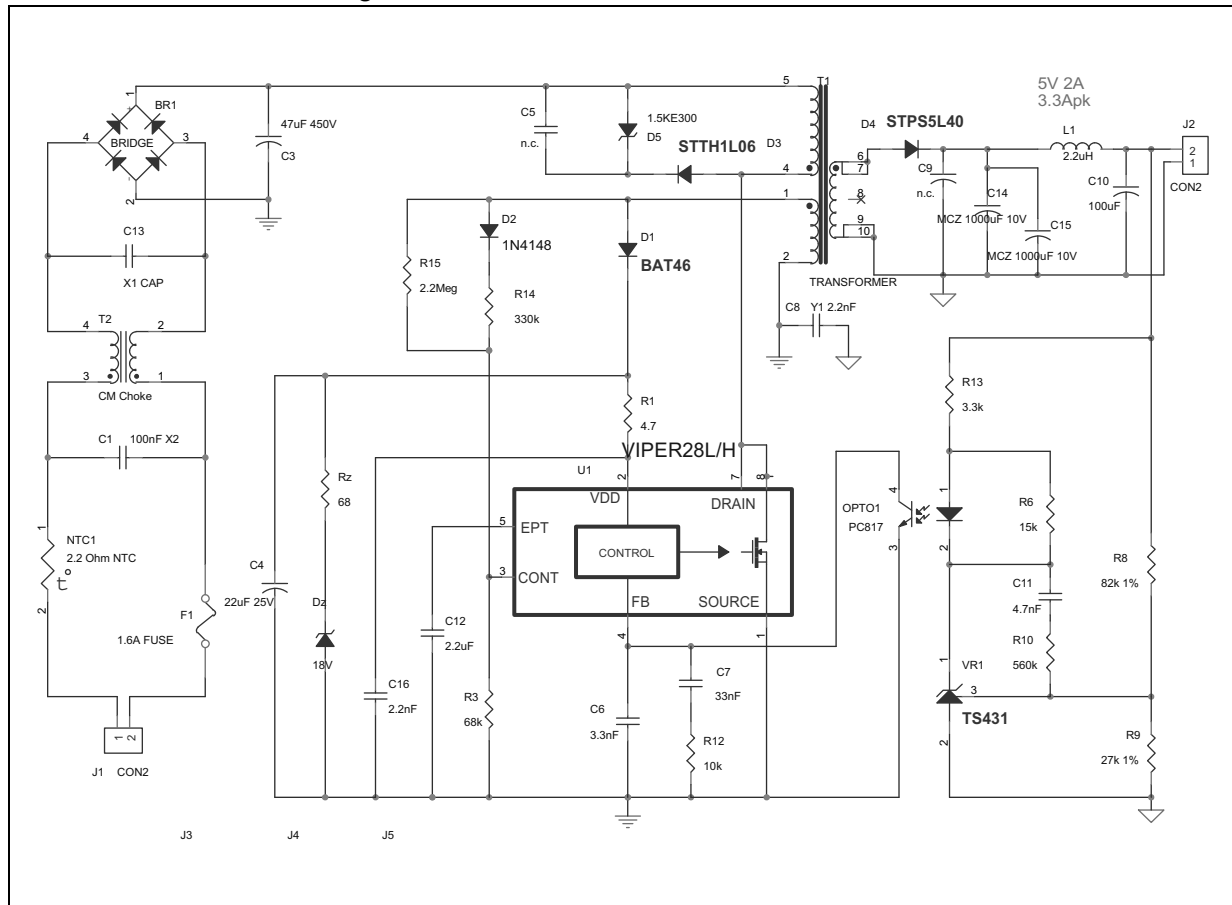
In some applications, an SMPS can have load peaks which may be two or more times as high as the power it is supposed to deliver, though only for a short time compared to the thermal time constants of the power components. Typical examples of such loads include printers and audio systems.

In such cases, it is more cost-effective to thermally design the system for maximum continuous power and not for peak power demand, which is sustained only for a limited time.

Such a design is possible thanks to the EPT function of the VIPer28LN, which allows designers to fix the maximum time window during which the converter is able to manage the peak power and still maintain output voltage regulation. If the overload period exceeds the time window, the converter is automatically shut down and enters auto-restart mode until the overload is removed, thus preventing damage to the power components.

1 Schematic diagram

Figure 1. STEVAL-ISA125V1 circuit schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
18-Jun-2013	1	Initial release.

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