



STEVAL-ISA105V1

Power supply for energy meter and power line modem based on the ALTAIR04-900

Databrief

Features

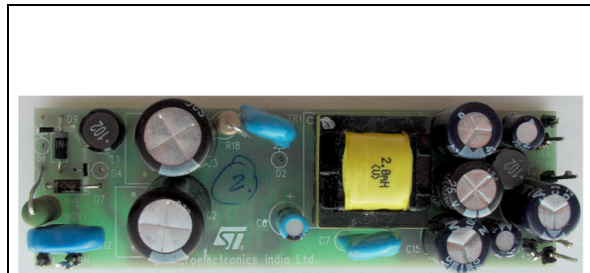
- Min. operating voltage V_{acmin} : 90 V_{ac}
- Max. operating voltage V_{acmax} : 265 V_{ac}, 440 V_{max}
- Topology: quasi-resonant flyback converter, primary side regulation
- Mains frequency f_L: 50 Hz +/-3 Hz
- Input/output isolation: yes, Galvanic isolation >2.7 KV
- Nominal output voltage:
 - 5 V/70 mA nominal, 1 A max.
 - 3.3 V/30 mA nominal, 150 mA max.
 - 12 V/2 mA nominal, 100 mA max.
 - 5 V_ISO/2 mA nominal, 80 mA max.
- Total output power P_{out}: 1 W nominal, 7.5 W (during transmission mode)
- Typical efficiency @ 230 V_{ac}: > 75%
- Output voltage pk-pk ripple: < 100 mV
- Protection: short-circuit protection
- Reflected voltage of transformer, V_R: 100 V
- RoHS compliant

Description

The STEVAL-ISA105V1 demonstration board implements a power supply based on a quasi-resonant mode of operation using ST primary side ALTAIR04-900 flyback switch.

The ALTAIR04-900 is a high-voltage all-primary sensing switcher intended for operating directly from the rectified mains with minimum external parts. It combines a high-performance low voltage PWM controller chip and a 900 V avalanche-rugged power section in the same package.

The controller is a current-mode specifically designed for offline quasi-resonant flyback converters. The device is capable of providing constant output voltage using all primary sensing



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feedback. This eliminates the need for the optocoupler, the secondary voltage reference, as well as the current sensor, while still maintaining quite accurate regulation.

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Figure 1. Schematic diagram



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
06-Aug-2012	1	Initial release.

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