THE DATASHEET OF

STEVAL-ISV001V1

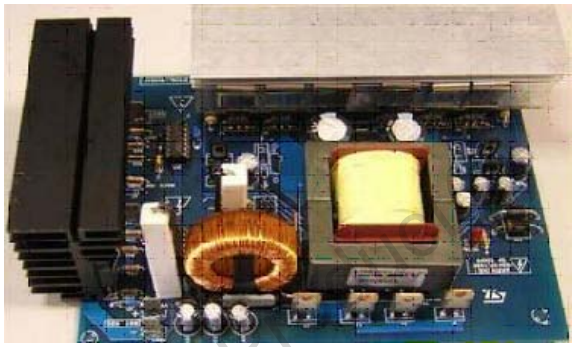
STEVAL-ISV001V1

1000 W dual stage DC-AC converter demonstration board based on the STP160N75F3

Data Brief

Features

- Nominal input voltage: 24 V
- Output voltage: 230 Vrms, 50 Hz
- Output power: 1 kW
- Efficiency: 90%
- Switching frequency: 100 kHz (DC-DC); 16 kHz (DC-AC)



STEVAL-ISV001V1

Description

The STEVAL-ISV001V1 demonstration board implements a 1 kW dual stage DC-AC converter, suitable for use in battery powered uninterruptible power supplies (UPS) or photovoltaic (PV) stand alone systems. The converter is powered from a low DC input voltage varying from 20 V to 28 V and is capable of supplying up to 1 kW output power on a single phase AC load. These features are met with a dual stage conversion topology including an efficient step-up push-pull DC-DC converter, to produce a regulated high voltage DC bus, and a sinusoidal h-bridge PWM inverter to generate a 50 Hz, 230 Vrms output sine wave. Other relevant features of the proposed system are high power density, high switching frequency, galvanic isolation and efficiency greater than 90% over a wide output load range.

1 Circuit schematics

Figure 1. Converter schematic: the power stage

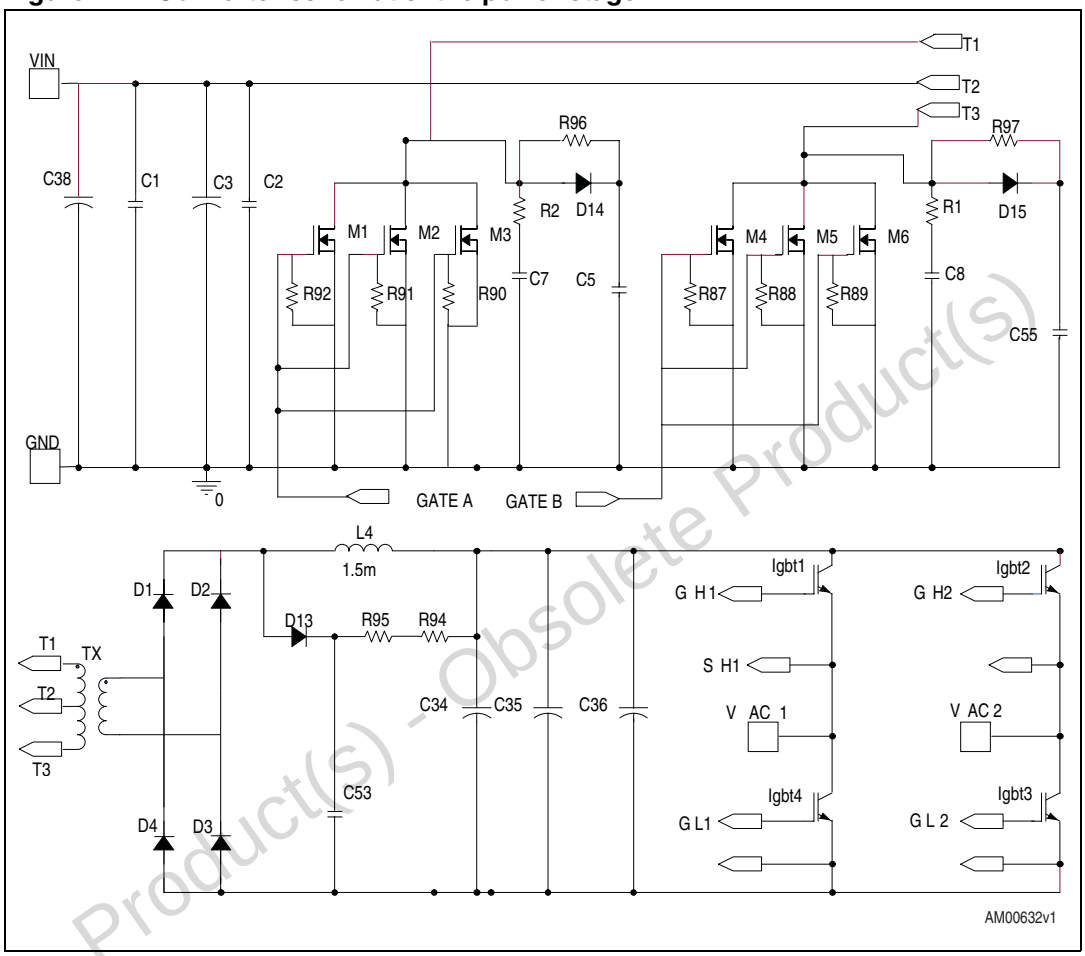


Figure 2. Schematic of the push-pull control and driving circuit

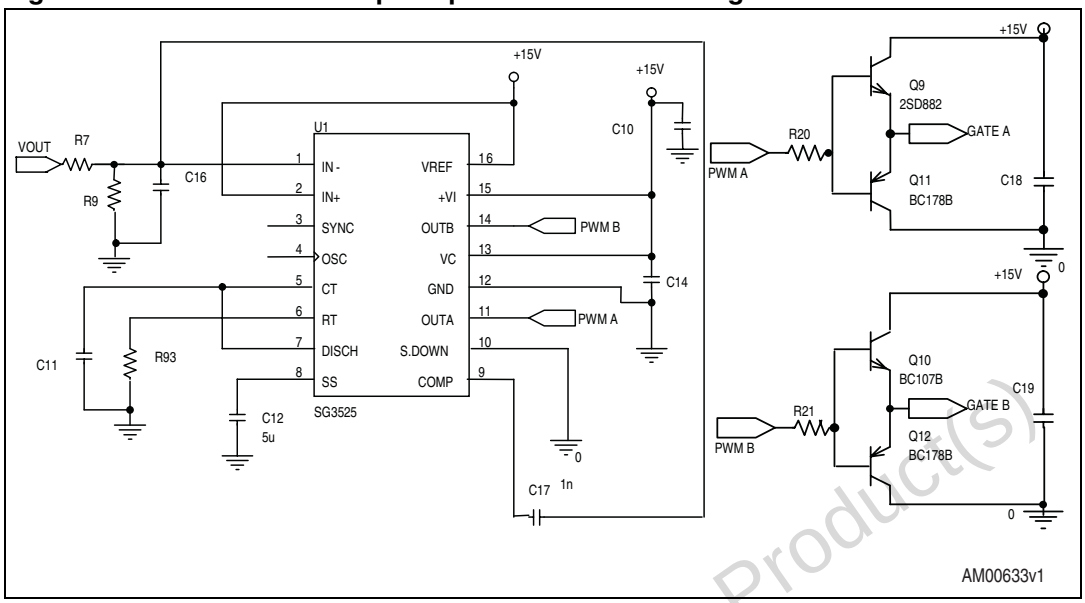


Figure 3. Inverter control driving circuit schematic

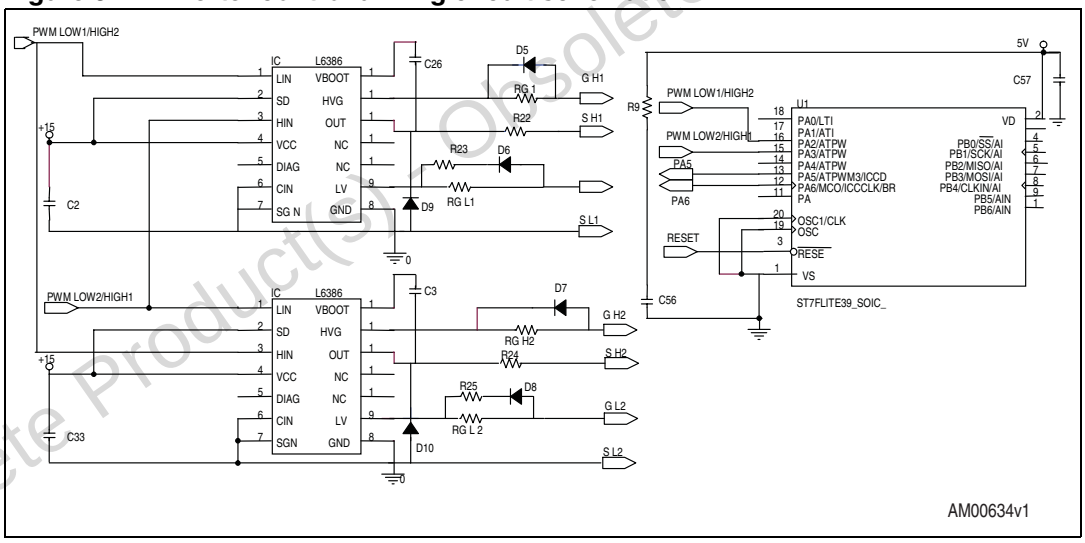
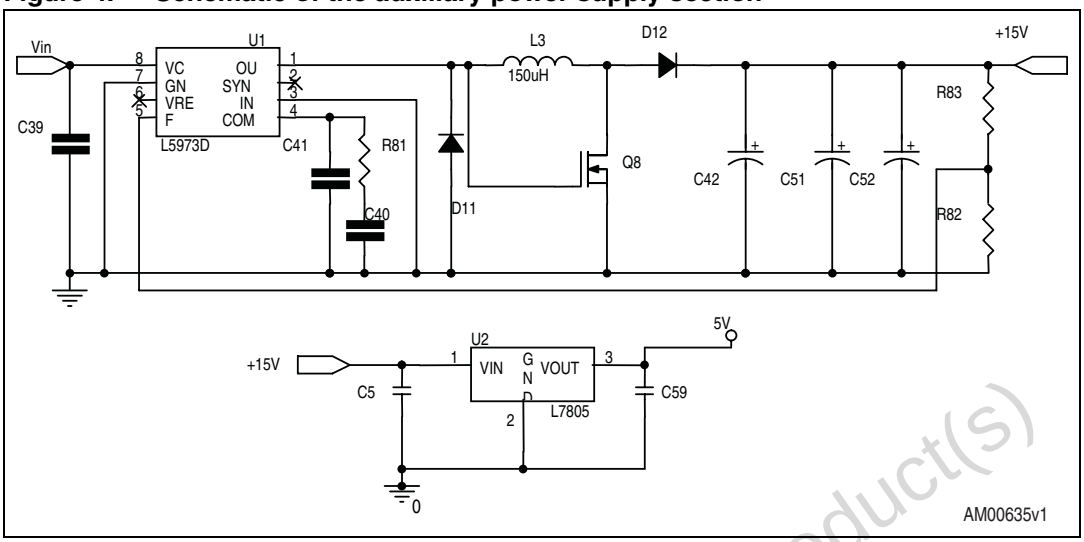


Figure 4. Schematic of the auxiliary power supply section



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
27-Nov-2008	1	Initial release.

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