STEVAL-ISW001V1

2.5 kW manual arc welder demonstration board

Data brief

Features

- V_{in}: 185 Vac to 265 Vac
- V_{out}: 80 V (peak)
- I_{out_max}: 135 A
- Frequency switching: 70 kHz
- Efficiency > 75%
- RoHS compliant

Description

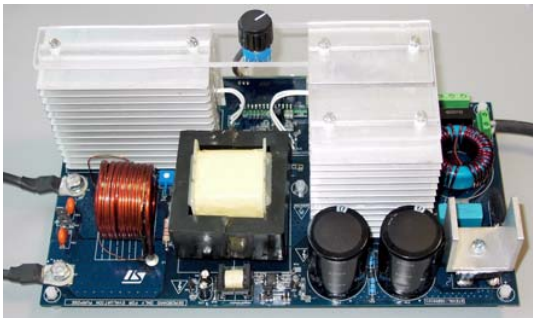
The STEVAL-ISW001V1 demonstration board is a complete 2.5 kW arc welding system capable of 135 A of welding current. It is designed for small industrial applications and domestic use for do-it-yourself applications. The system is ready-to-use and designed to perform manual metal arc (MMA) welding of iron and steel, following MMA process recommendations.

The purpose of the demonstration board is to provide a platform for evaluation of STMicroelectronics' silicon devices in high power/current applications, where the robustness and efficiency of the silicon devices used are the keys to a reliable system.

The complete system consists of two boards. One is a power board, where all the power conversion devices needed for the application are mounted. The other is a small control board that includes the PWM generator and analog control circuitry necessary to manage the MMA arc welding process.

The layout of the power board is designed to achieve a low level of interference, taking into consideration the high power delivered and the current levels present on many parts of the board.

The shape of the board and the position of the magnetic/silicon components mounted on it are optimized to guarantee sufficient air flow to the parts involved in heat dissipation.



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The design is quick to set up and install, and is re-usable (the Gerber files are available for download from the ST website).

1 Schematic diagrams

Figure 1. Power board schematic

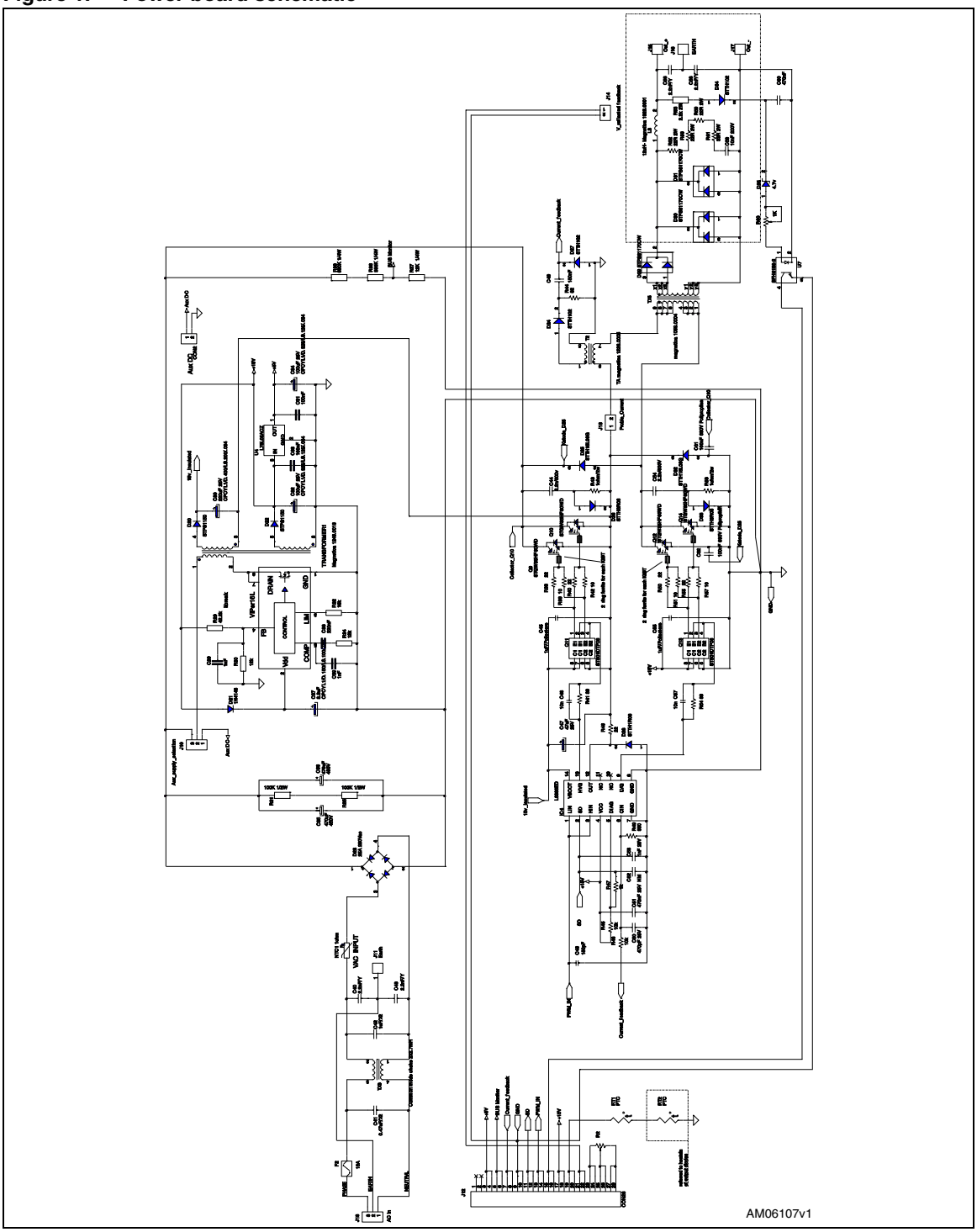
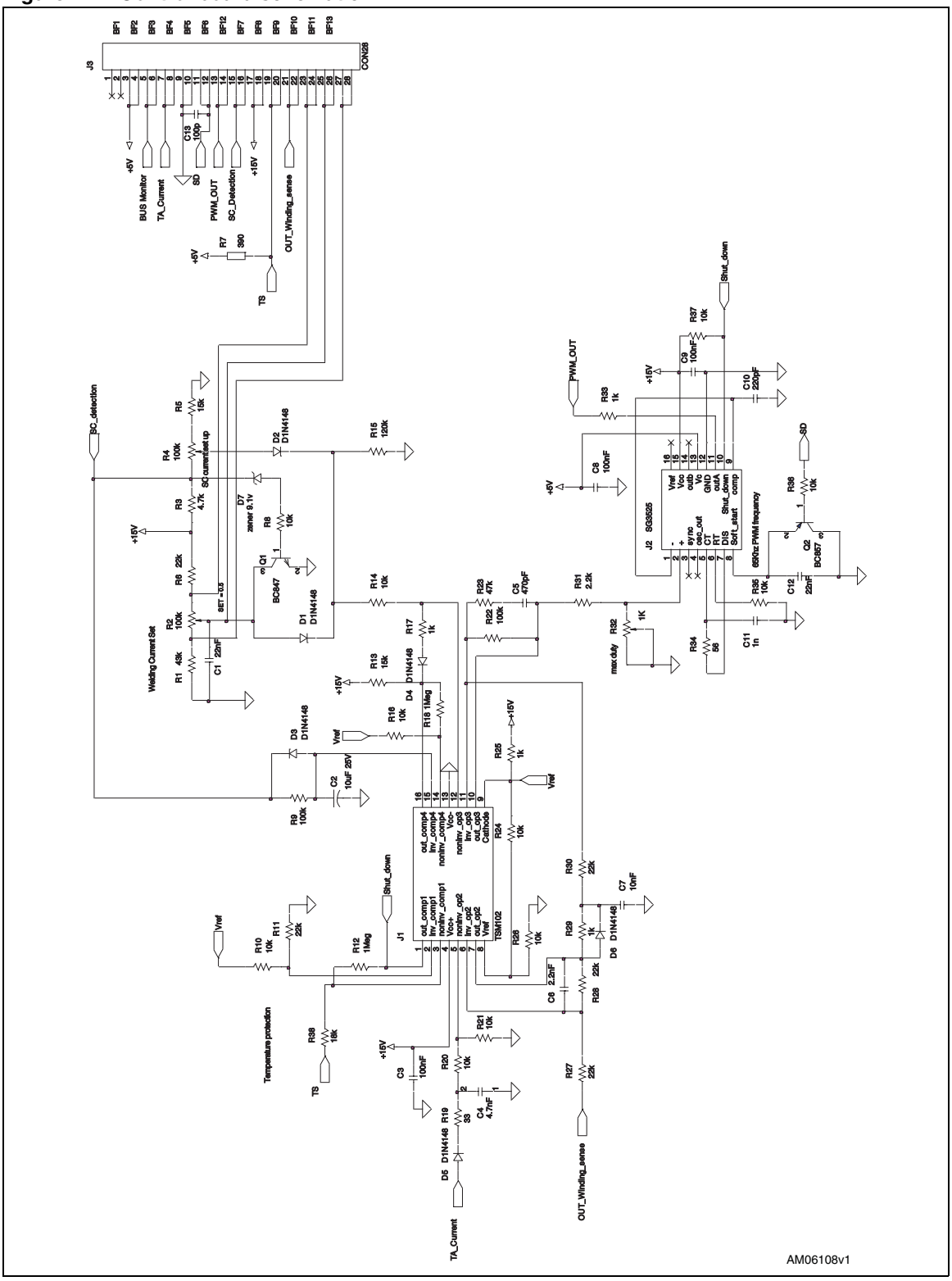


Figure 2. Control board schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
18-Mar-2010	1	Initial release.

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