STEVAL-ISA036V1

5 W wide range SMPS demonstration board for metering and motor control based on the ESBT® STC04IE170HP

Data Brief

Features

- Rectified minimum input voltage Vin_{min}=200 V
- Rectified maximum input voltage Vin_{max}=1200 V
- Isolated output voltage Vout1=15 V / 66 mA
- Primary side ground output voltage Vout2=5 V / 0.6 A
- Primary side ground output voltage Vout3=15 V / 66 mA
- Maximum output power Pout=5 W
- Converter efficiency @ Vindc=400 V, max load > 65%

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Description

This demonstration board implements a universal input power supply design for metering and motor drives applications. It has three outputs: two 15 V outputs, one of which is isolated and the other has a primary side ground. There is also a third 5 V output, which is often used to supply the microcontroller.

The design is based on the L6565 PWM driver and the STC04IE170HP, as the main switch.

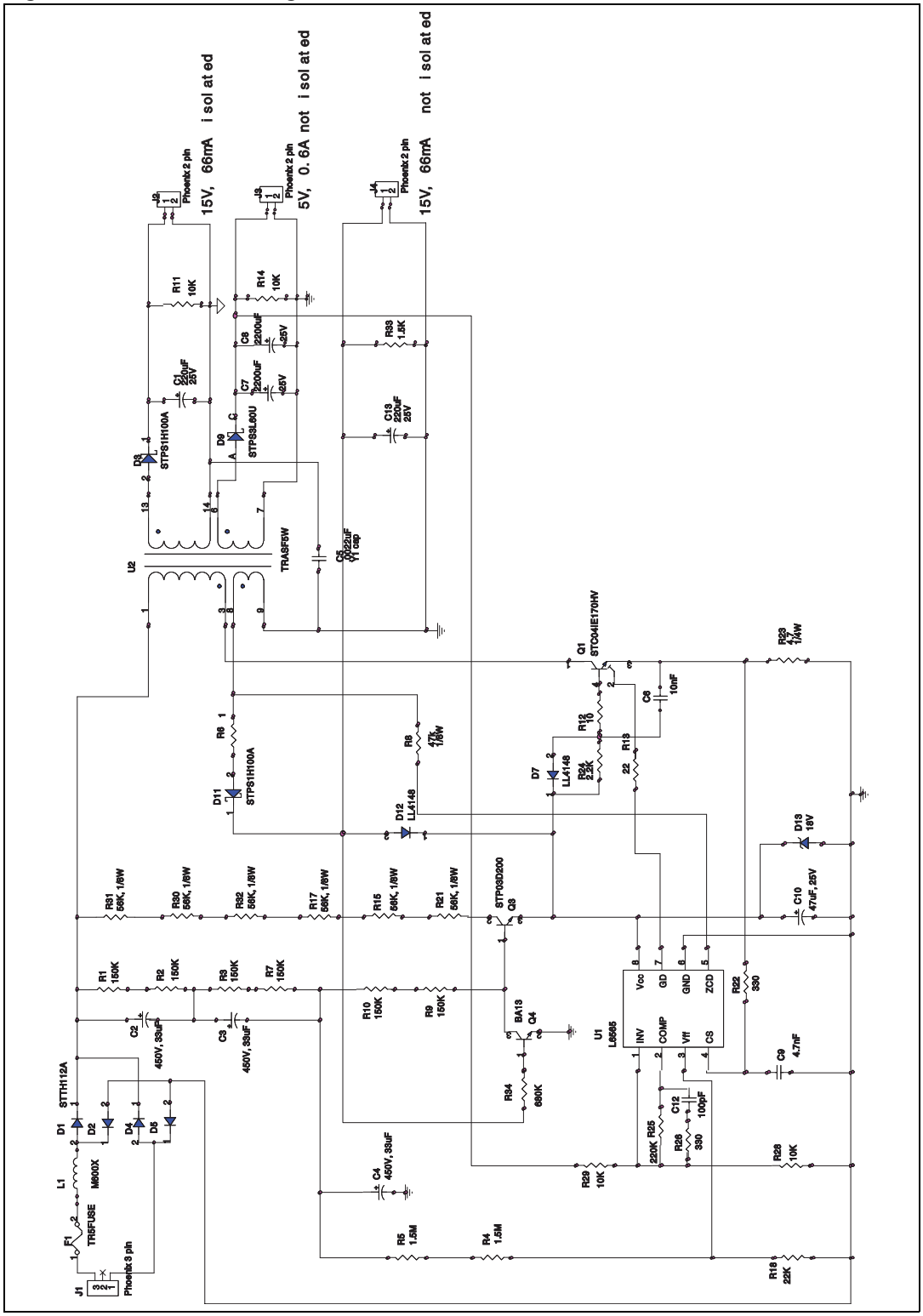
The design method, however, can also be applied to an SMPS for other applications working on a tri-phase mains, and can easily be upgraded for higher output power.

To achieve very high efficiency, despite the wide input voltage range, an active start-up network has been mounted on the board.

For more information regarding the design of an auxiliary power supply using ESBT® in flyback quasi-resonant (QR) topology with the L6565, refer to application notes AN2254 and AN2528. For base driving network design, refer to AN2454.

1 Circuit schematic

Figure 1. Schematic diagram



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
17-Feb-2009	1	Initial release.

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