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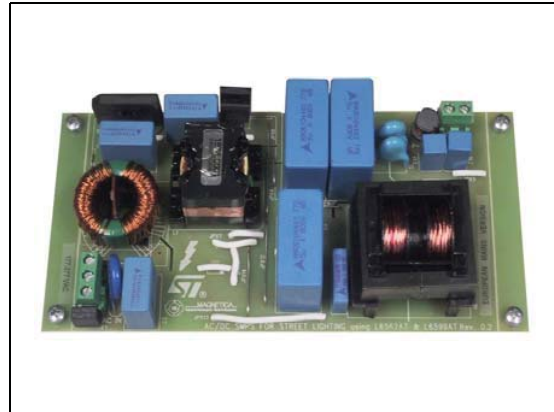
STEVAL-ILL052V1

48 V - 130 W high efficiency converter with PFC for LED street lighting applications based on L6562 and L6599 - European version

Data brief

Features

- Extended European input mains range: 177 to 277 V_{AC} - frequency 45 to 55 Hz
- Output voltage: 48 V at 2.7 A
- Long-life electrolytic capacitors not used
- Mains harmonics: in accordance with EN61000-3-2 Class C
- Efficiency at full load: greater than 90%
- EMI: in accordance with EN55022 Class B
- Safety: double insulation, in accordance with EN60950, SELV
- Dimensions: 75 x 135 mm, 30 mm maximum component height
- No heatsinks needed
- PCB: single side, 35 μm, FR-4, mixed PTH/SMT
- RoHS compliant



The STEVAL-ILL052V1 demonstration board also provides protection against overload or short-circuit, open-loop by each stage, or input overvoltage, with auto-restart.

Description

The STEVAL-ILL052V1 demonstration board implements a 130 W LED power supply for street lighting.

The circuit is composed of two stages: a front-end PFC using the L6562AT and an LLC resonant converter based on the L6599AT.

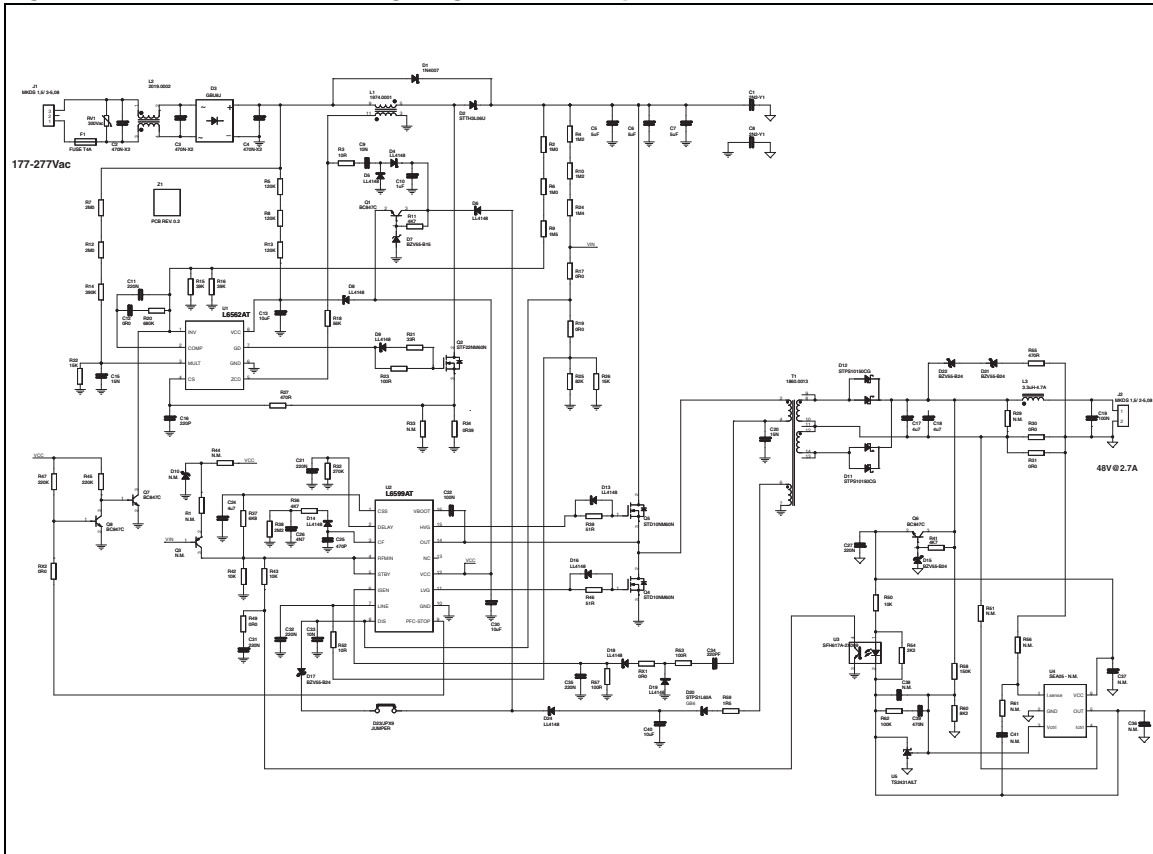
What distinguishes this design is its very high efficiency, extended European input mains range (177-277 V_{AC}) operation, and long-term reliability.

Because reliability MTBF (mean time between failures) in power supplies is typically affected by the high failure rate of electrolytic capacitors, unless using very high-end, expensive types, the STEVAL-ILL052V1 demonstration board offers an innovative design approach using film capacitors from EPCOS in place of electrolytic capacitors.

Thanks to the high efficiency achieved, no heatsinks are required.

1 Schematic diagram

Figure 1. 48 V - 130 W street lighting SMPS - European version with TS2431



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
25-Oct-2012	1	Initial release.

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