STEVAL-ILL043V1

High end, 75 W high power factor flyback LED driver based on the L6562A with two dimmable strings

Data brief

Features

- Mains voltage range V_{ACmin} = 165V_{ac}, V_{ACmax} = 277 V_{ac}
- Minimum mains frequency f_l = 47 Hz
- DC output voltage V_{out} = 65 V
- Maximum output current I_{out} = 1.5 A
- Maximum 2fL output ripple $\Delta VO\%$ = 1.0%
- Minimum switching frequency f_{swmin} = 40 KHz
- Expected efficiency: 90%
- RoHS compliant

Description

The STEVAL-ILL043V1 demonstration board is a high-PF flyback configuration in order to drive a new design of the 75 W LED array based on the L6562A controller, with a much reduced BOM cost.

This configuration uses an isolated feedback with an optocoupler and a secondary side reference/error amplifier. The inverse buck converter based on the L6562A is used for constant voltage and constant current control in double dimmable channels.

The L6562A is a PFC controller operating in Transition mode. The highly linear multiplier includes a special circuit, able to reduce AC input current distortion, that allows wide-range-mains operation with an extremely low THD, even over a large load range.

The inverse buck converter shows good performance in terms of power switch control and conditioning circuitry signal for the current sensing. In fact, this topology of converter allows easy driving of the switch referred to ground by using an L6562A driver.


STEVAL-ILL043V1
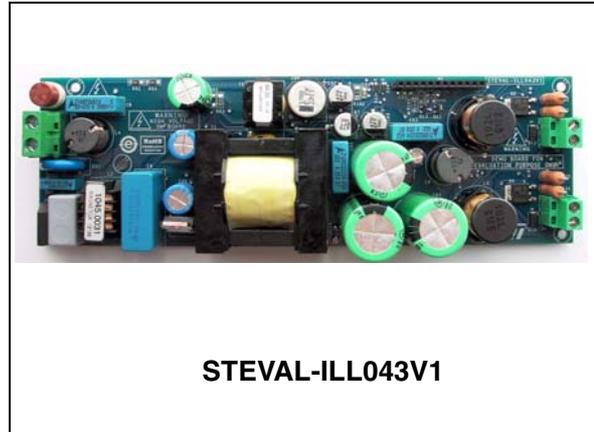
An integrated auxiliary power supply provides an energy saving action and a remote control monitoring function for the system.

This ballast designed by using the L6562A and the buck inverse converter offers more advantages in terms of output current and voltage stability.

The key benefit is the very high efficiency that, at full load, is almost 90%.

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1   Schematic diagram

Figure 1.   Schematic diagram

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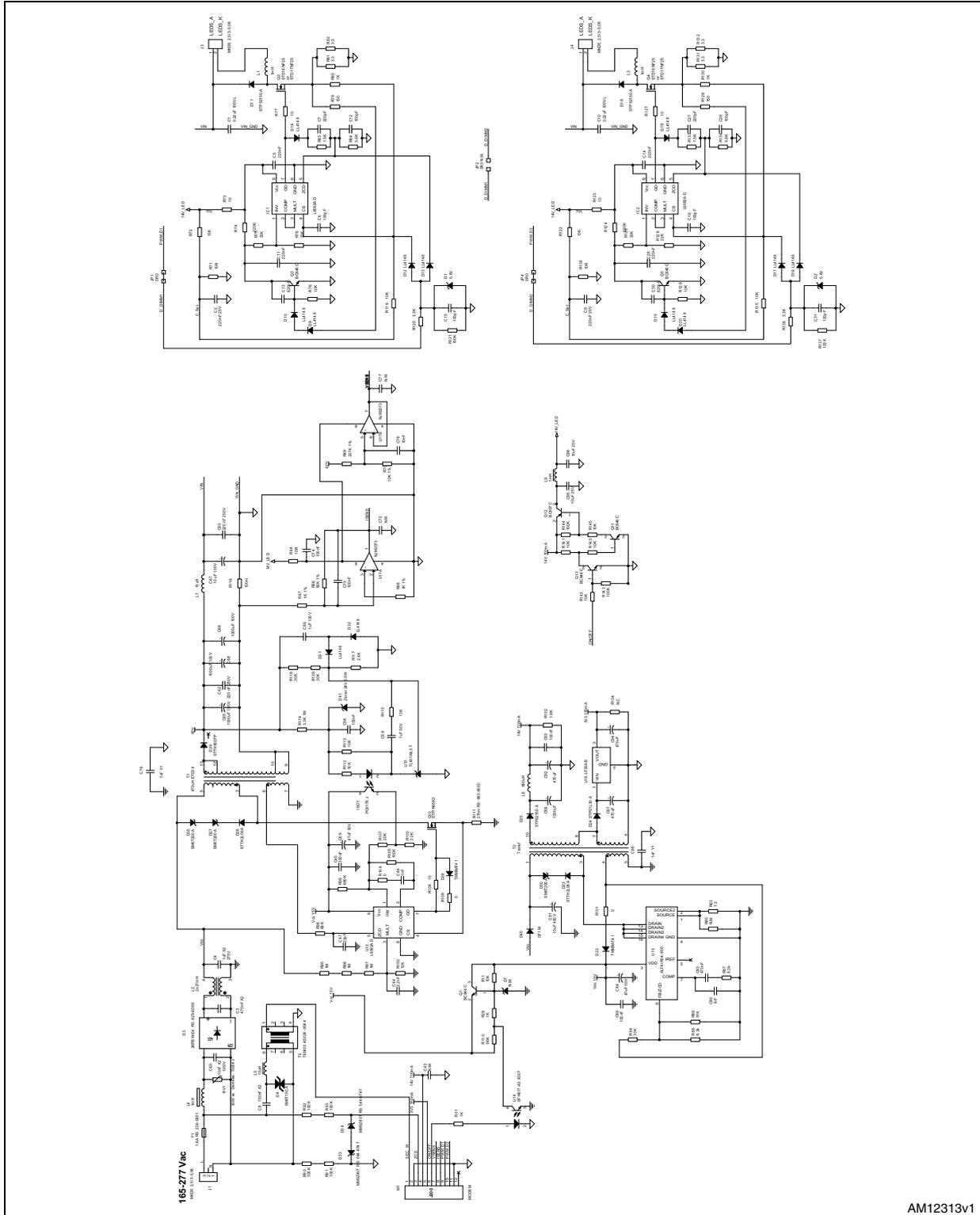
2   Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK is an ST trademark.

3 Revision history

Table 1.   Document revision history

Date	Revision	Changes
09-Jul-2012	1	Initial release.

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