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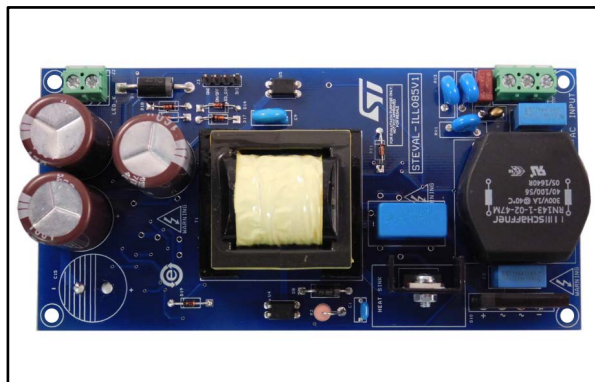
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## Wide input and wide output voltage LED driver with high power factor and low THD based on HVLED001A

Data brief



### Features

- AC input voltage range: 90 V to 300 V
- LED voltage / current: 60 V-105 V / 700 mA
- Constant LED current: 700 mA  $\pm$  2%
- Power factor: > 0.95
- Input current THD: < 10%
- Standby consumption: < 0.5 W
- Open-circuit and short-circuit protection
- Provision for smart features: ON / OFF / DIMMING
- RoHS compliant

### Description

The STEVAL-ILL085V1 board is a constant current LED driver with high power factor and low input current THD for wide range input voltage. It uses the HVLED001A power management IC for power quality improvement.

This board includes other discrete power devices produced by STMicroelectronics, including MOSFETs (STP21N90K5), diodes (STTH3L06 and STTH1L06), transistor (P6KE400), CV / CC controller (TSM101) and LDO (LM2931AD33R). The board works on 60 V to 105 V LED voltage and 700 mA constant current with  $\pm$  2% current regulation. The standby consumption is below 0.5 W.

Short-circuit and open circuit LED protection is included, and board efficiency is above 90%.

Smart pins are included for LED streetlight ON/OFF switching and remote dimming.

The design is unique in terms of form factor and proven high thermal stability.

In terms of power quality, the power factor is above 0.95 and the THD is less than 10%. It is well within the harmonic limits set by IEC61000-3-2 Class C for lighting.

# Schematic diagrams

Figure 1: Primary side power conversion

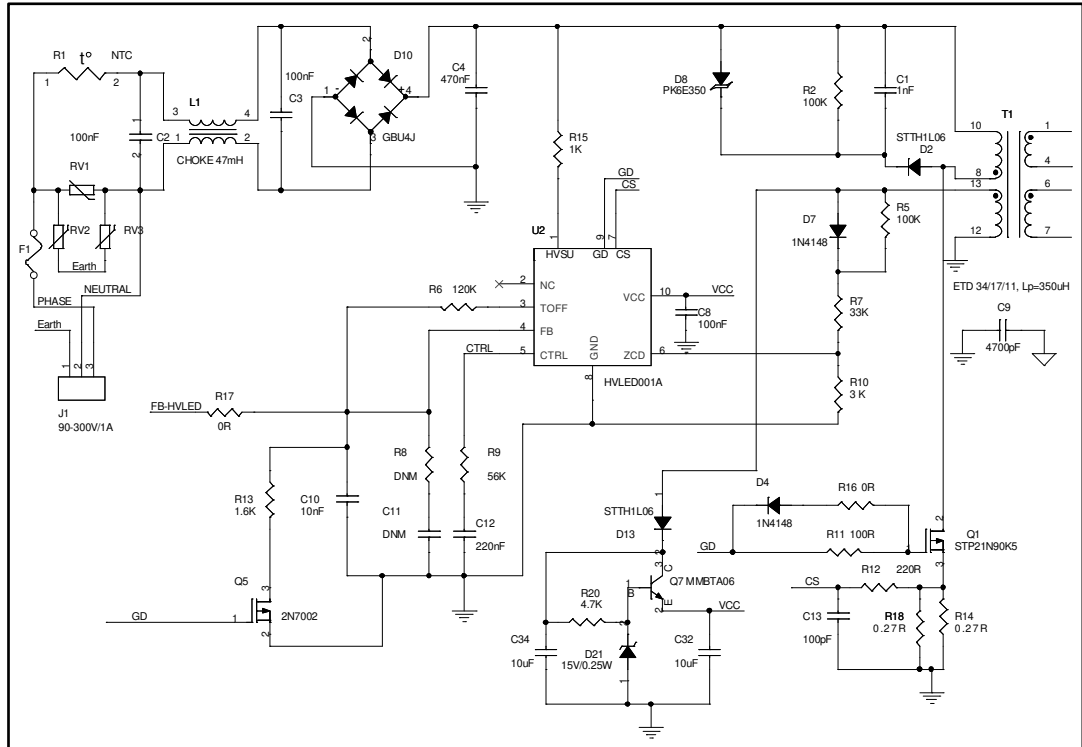


Figure 2: MCU power supply and LED ON/OFF

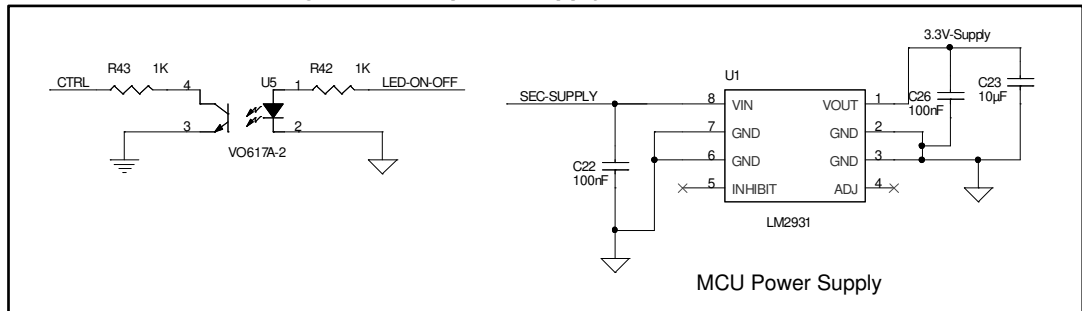
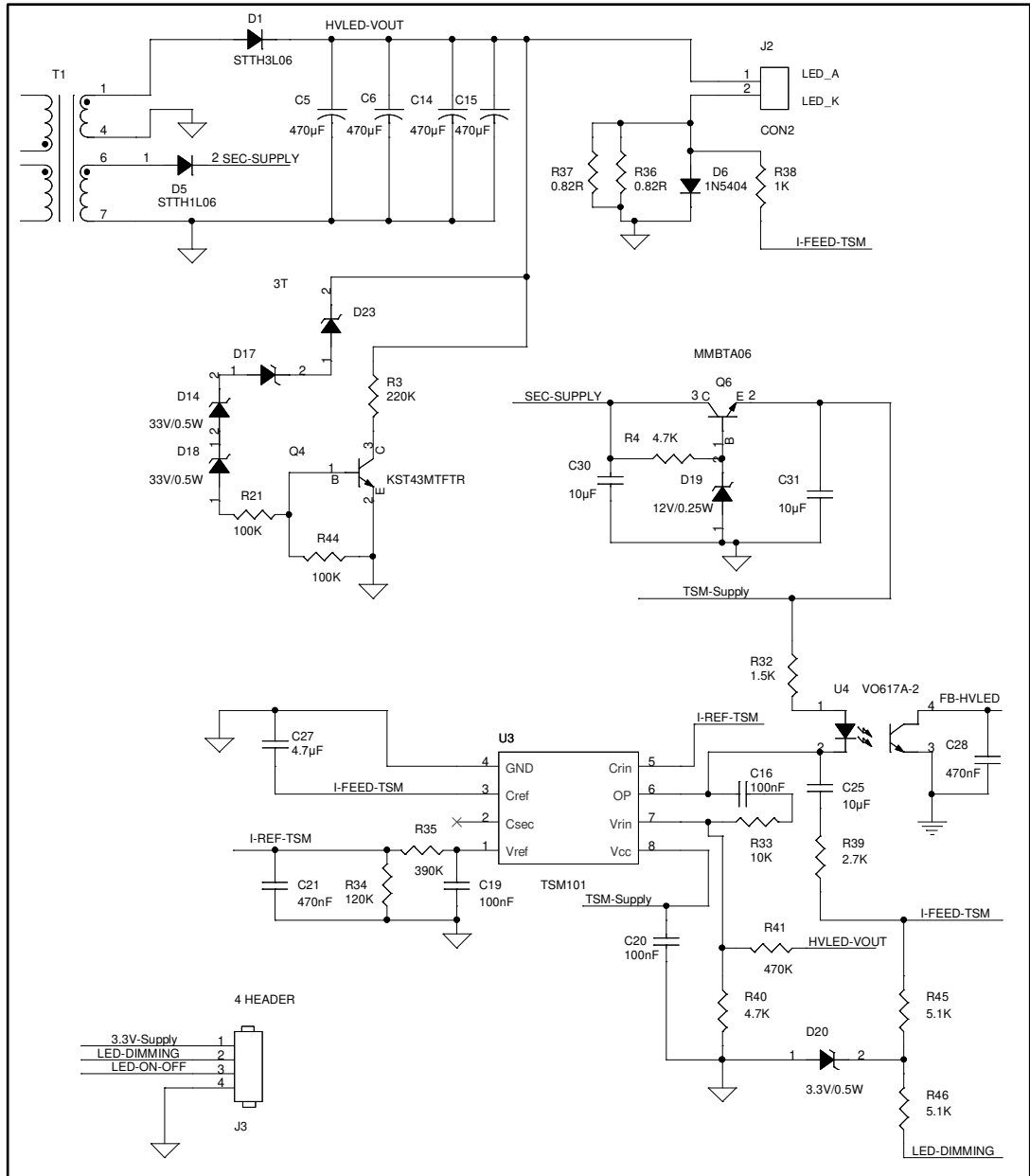


Figure 3: Secondary side power supply (LED driver) and smart pin





# 1 Revision history

**Table 1: Document revision history**

| Date        | Version | Changes   |
|-------------|---------|---|
| 27-Sep-2017 | 1       | Initial release.  |
| 16-Nov-2017 | 2       | Updated <i>Figure 3: "Secondary side power supply (LED driver) and smart pin"</i> |

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