

## Analog wall dimmer for CFL/LED lamps based on the TS820 (USA version 110 V)

Data brief

### Features

- Operation for 2-wire wall dimmer
- Leading-edge control (compatible with all lamps commonly found on the market)
- Operation on 120 V line rms voltage (98 to 132 V) and 50 Hz or 60 Hz line frequency
- Dimmable power range with halogen, CFL and LED lamps (with 27 °C/W heatsinks mounted on SCRs<sup>(a)</sup> <sup>(b)</sup>):
  - 3 to 350 W for 110/120 V rms line
- Maximum operating ambient temperature: 60 °C
- Power efficiency @ 350 W / 120 V > 98.5%
- Standby losses @ 120 V < 0.3 W (could be reduced to 0 if potentiometer features a mechanical switch to open the circuit at minimum setting)
- RoHS compliant

### Compliance with EMC standards

- IEC 61000-4-4: criteria A for more than 4 kV

### Description

The STEVAL-ILD003V2 demonstration board is designed to propose a low-cost analog dimmer topology using a sensitive SCR TS820-600FP. The dimmer can drive typical low-consumption lamps, particularly CFL and LED dimmable lamps.

Through-hole technology is used for the most important components such as LC filter, gate



resistor, turn-on delay capacitor, etc., in order to allow board modification, if needed.

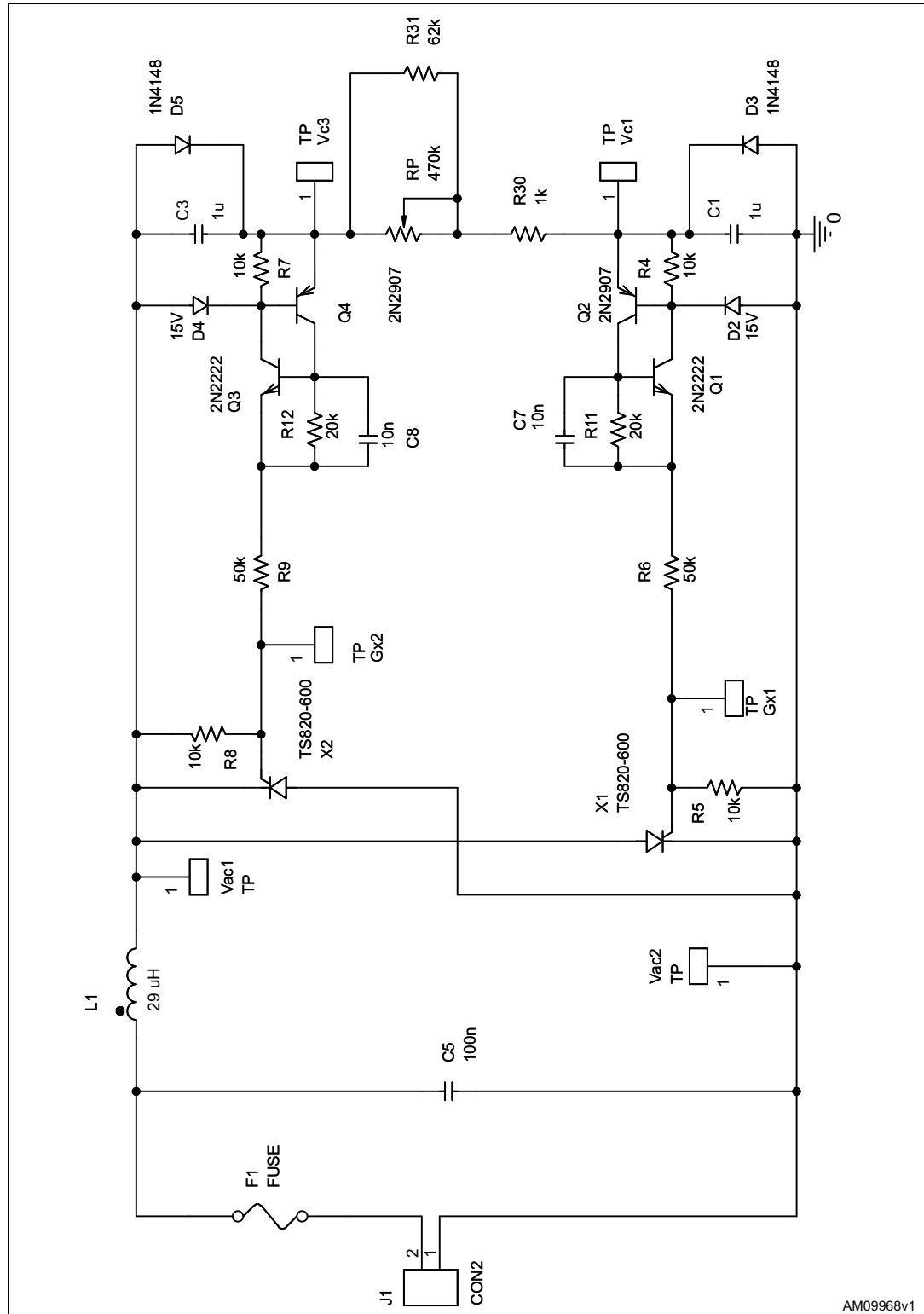
The STEVAL-ILD003V2 eliminates flickering thanks to its continuous current applied through the sensitive SCR gate. This dimmer could easily replace a standard low-cost analog Triac light dimmer using a Diac-controlled circuit.

a. Higher power can be reached with a different filter inductor and a bigger SCR heatsink

b. 200 W is the maximum allowed power without an SCR heatsink

# 1 Circuit schematic

Figure 1. STEVAL-ILD003V2 schematic



AM09968v1

## 2 Revision history

**Table 1. Document revision history**

| <b>Date</b> | <b>Revision</b> | <b>Changes</b>                    |
|-------------|-----------------|-----------------------------------|
| 11-Nov-2011 | 1               | Initial release.                  |
| 26-Mar-2012 | 2               | Changed board image on cover page |
| 15-Feb-2013 | 3               | Updated features on cover page    |

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