



STEVAL-ILL031V1

Digital constant-current controller for LED driving
based on the STM8S208x

Data brief

Features

- DC input voltage: 48 V
- Buck stage adapts output voltage to drive LEDs with selected current
- Four DC-DC buck converters allow driving of 4 LED strings, managing up to 120 W
- Employs 3 W LEDs to obtain 30 W-per-string (10 LEDs in series in each string)
- Low voltage-sensing circuitry
- Logic level MOSFETs driven by the microcontroller without gate driver (ground referred)
- High efficiency (up to 98%)
- RoHS compliant



Description

The purpose of the STEVAL-ILL031V1 demonstration board is to present a new digital approach to performing real average current control on an LED streetlighting platform.

This LED streetlight platform is developed on a DC-DC “inverse buck” converter, taking advantage of power switch control and conditioning signal circuitry for current sensing.

Benefits of this design include low energy consumption, low maintenance, and reduced size and weight. The solution is customized for streetlighting applications, but can be extended to many other segments.

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Figure 1. Control stage schematic (1 of 2)

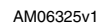


Figure 2. Control stage schematic (2 of 2)

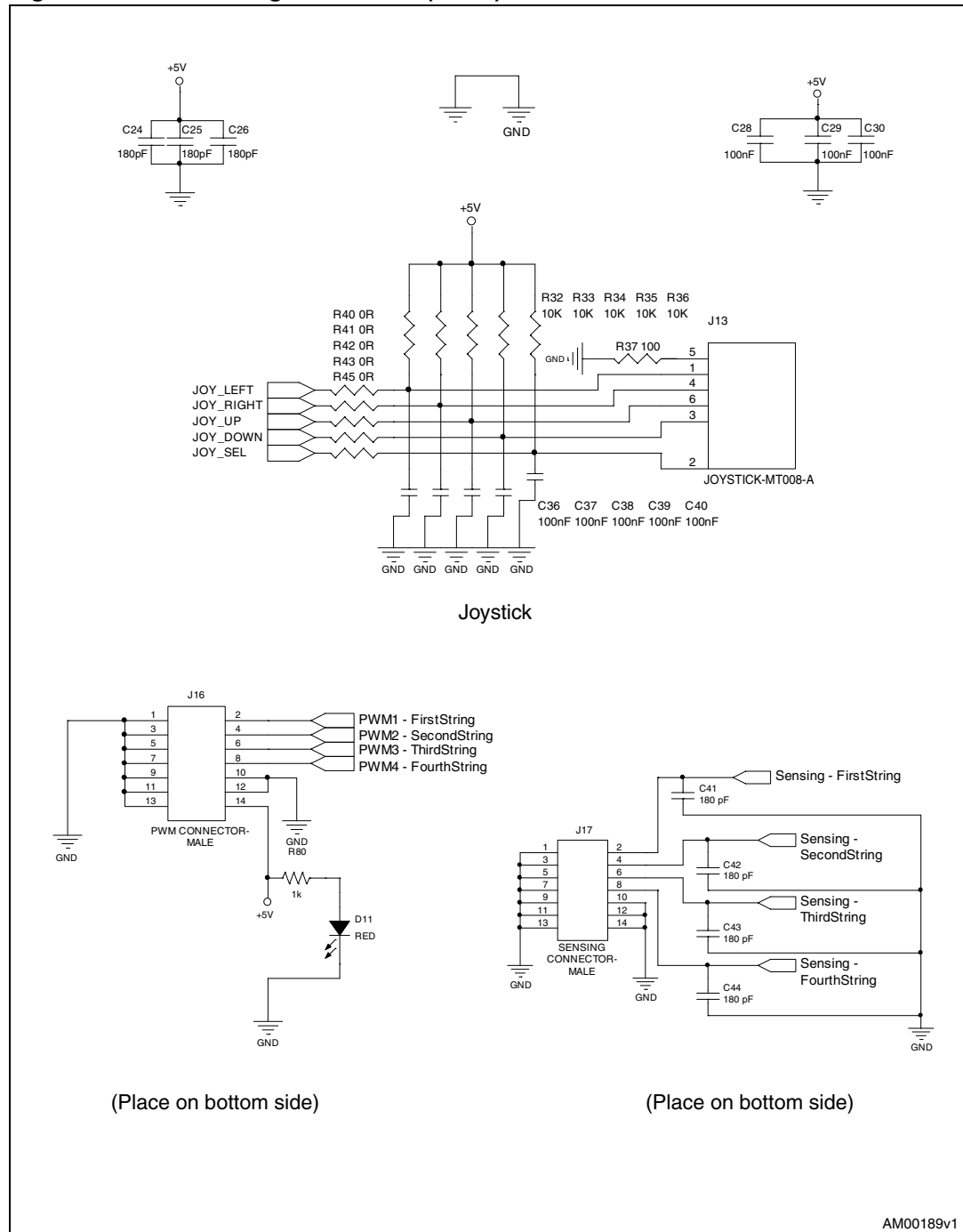
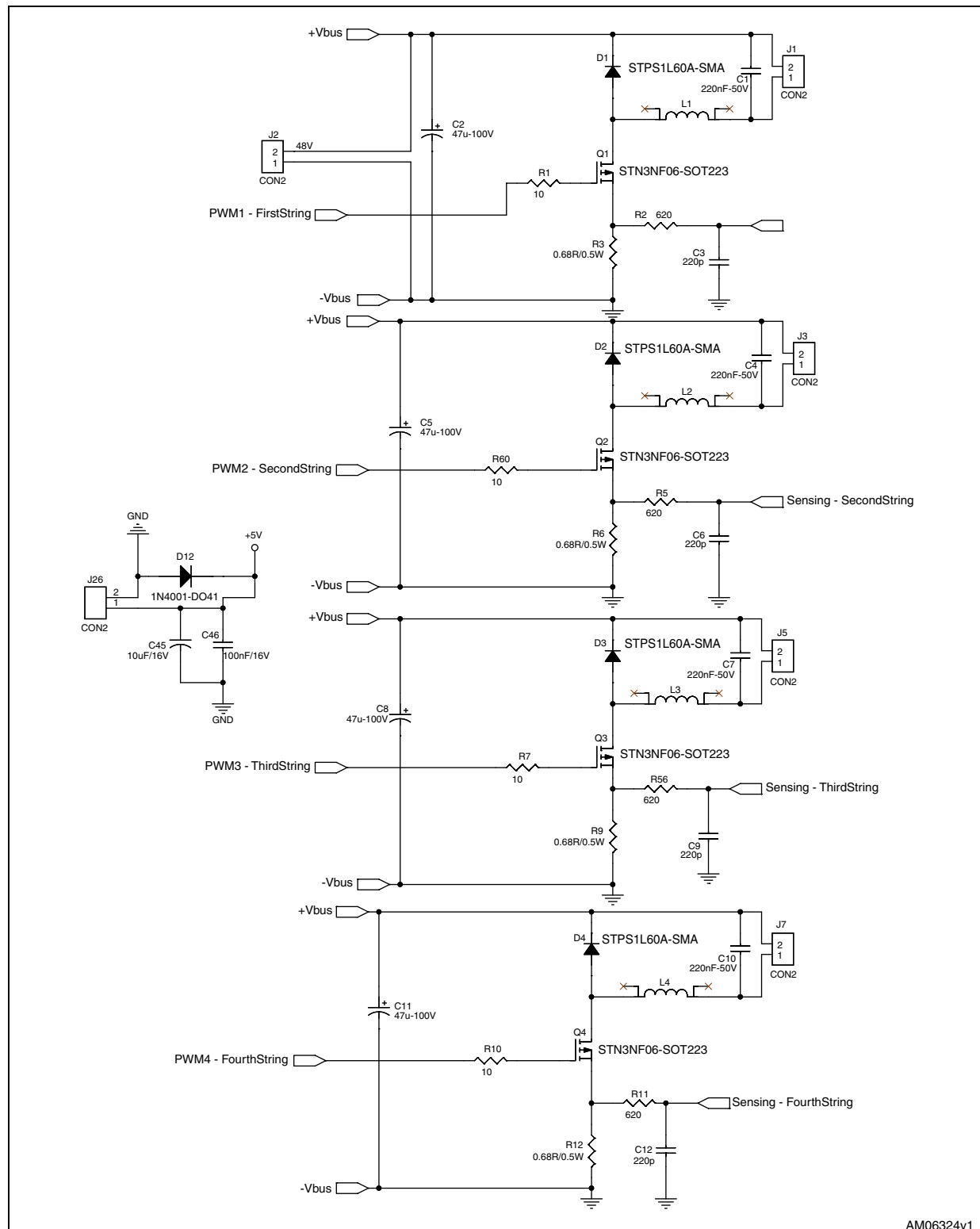


Figure 3. Power stage schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
23-Apr-2010	1	Initial release.
11-Nov-2010	2	– Changed board photo on coverpage – Divided control stage schematic diagram into two figures (<i>Figure 1</i> and <i>Figure 2</i>) to improve readability – Added <i>Figure 3: Power stage schematic</i>

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