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STEVAL-ILL023V1

Demonstration board: high-efficiency switching LED driver for high-current LEDs based on the L6726A

Data Brief

Features

- Input voltage V_{in} : 8 V to 18 V
- Output voltage (with $V_{in} = 18$ V): 2.5 V to 14 V
- Output current I_{LED} : 1 A / 1.5 A / 2.8 A
- Analog dimming (with $I_{LED} = 0$ A): 0 V to 2.5 V
- Low level PWM signal: 0 V
- High level PWM signal: 2.8 V to 3.8 V (typ: 3.3 V)
- Duty cycle (at $f_{dim} = 200$ Hz): 0% to 99 %
- Efficiency (with $V_{in} = 18$ V and $V_{out} = 12.6$ V): 94.8 %

Description

Rapid advances in LED technology has led to increases in their output current capabilities in recent years. 0.350 A LEDs, for example, were soon followed by 0.7 A LEDs, and then 1 A devices appeared shortly thereafter. Currently, LEDs with currents as high as several amps are present on the market. However, these high currents increase the requirements of the driving circuitry of the LEDs, particularly in terms of efficiency.

The STEVAL-ILL023V1 demonstration board is based on the L6726A single phase PWM controller, with two external MOSFETS for synchronous rectification. Designed for 2.8 A LEDs (1-3 in a series string), the main benefit of the solution is its exceptional efficiency. Ease of dimming and scalability to even higher currents are additional advantages of the design.

The solution is also much safer with regard to border conditions, since the current limit is based solely on the selection of the MOSFETS.



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
26-Feb-2009	1	Initial release.

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