

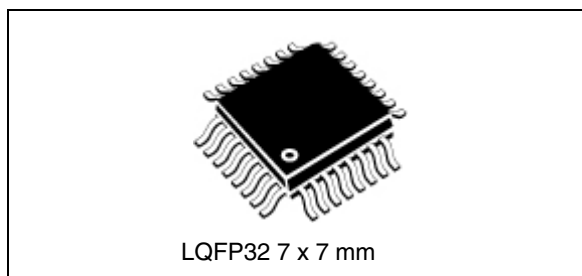
High efficiency constant current LED driver

Data brief

Features

Max V_{BATT}	40	V
Operation supply battery voltage V_{BATT}	5.6 - 24	V
Oscillator frequency range	100 - 500	KHz

- Constant current operation
- Current LED settable by external sensing resistor and adjustable via SPI
- Converter switching frequency adjustable by external resistor (R_{SF})
- EMC reduction by internal spread spectrum dither oscillator
- Low frequency PWM dimming operation
- Maximum input current limiter
- Maximum switching duty cycle limiter
- Slope compensation adjustable by external resistor ($R9$)
- Battery over voltage shut down protection (ext. $R3, R4$ resistors required)
- Led chain OV detection (ext. $R5, R6$)
- Multiplexed output for monitoring and control of LED temperature (external NTC resistor required), voltage of LED chain, and low frequency PWM
- SPI communication serial interface transceiver (SDI, SDO, SCK, CSN)
- Parameter programming and settings of internal memory registers by the dedicated SPI interface:
 - LED current reference adjusting ($\pm 66.7\%$)
 - Maximum input current limiter reference adjusting ($\pm 55.5\%$)
 - Random dither frequency sweeping, modulation frequency and deviation percentage



- Regulated output for micro supply $5\text{ V} \pm 2\%$ - 20 mA
- Power on reset pin output
- ESD protection

Applications

Automotive day time running light, LED headlamps.

Description

L99LD01 is a complete constant current DC-DC converter LED driver, manufactured in a BCD5S 70 V technology and assembled in a LQFP32™ package.

The device is designed to be used in boost, buck-boost and fly back converter topologies. An internal random dither oscillator works in low frequency modulation, allowing spreading the RF spectrum of the switching frequency, so reducing EMC emissions. The slope compensation ensures good converter loop stability whatever is the duty cycle needed by the application.

The converter is able to work either in full power mode or in low frequency dimming mode.

The device includes an internal low drop voltage regulator, that can be used to supply a microcontroller, and a reset pin, that is useful for resetting the microcontroller at the start up and every time that the regulated output voltage falls down below an established voltage threshold.

1 Revision history

Table 1. Document revision history

Date	Revision	Changes
04-Feb-2011	1	Initial release.

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