National Semiconductor

LM8502
PRODUCT BRIEF

May 3, 2010

Intelligent Lighting Management Unit That Fuses a 1.2A Dual High-Side Flash LED Driver with a 10-Output Low-Side LED Driver

General Description

The LM8502 is a versatile LED driver suitable for multiple applications. It includes 2MHz, fixed-frequency synchronous boost converter, 10 current sink LED outputs, 2 outputs for flash or haptic applications, ambient light sensing and PWM input.

The 10 current sink LED outputs offer individual current control through I²C compatible interface. Current can be accurately controlled with full-scale setting and 8–bit current control. LM8502 also enables LED control with group faders and lighting engines. Group faders enable single I²C register write for multiple LED outputs with fading, whereas lighting engines with SRAM memory enable engine driven lighting sequences. Each LED output can be powered either from VOUT or an external voltage supply

The flash function is capable of driving 2 LEDs, each having 600 mA maximum current or a single LED up to a 1.2A maximum current. A hardware flash enable provides a direct interface to trigger the flash pulse. Dual TX inputs allow the Flash to be synchronized with the RF Power System to prevent excessive current draw from the system Power Supply. LM8502 also offers LED thermal sensing as a safety procedure for flash and separate indicator LED.

LM8502 has two inputs for Ambient Light Sensing. Together with PWM input they enable Dynamic Backlight Control. LM8502 offers also the possibility to be used for Haptic motor driving instead of flash. When the device is idle; featured powersave mode and use of external clock reduces current consumption significantly

NOTICE: This document is not a full datasheet. For more information regarding this product or to order samples, please contact your local National Semiconductor sales office or visit http://www.national.com/support/dir.html.

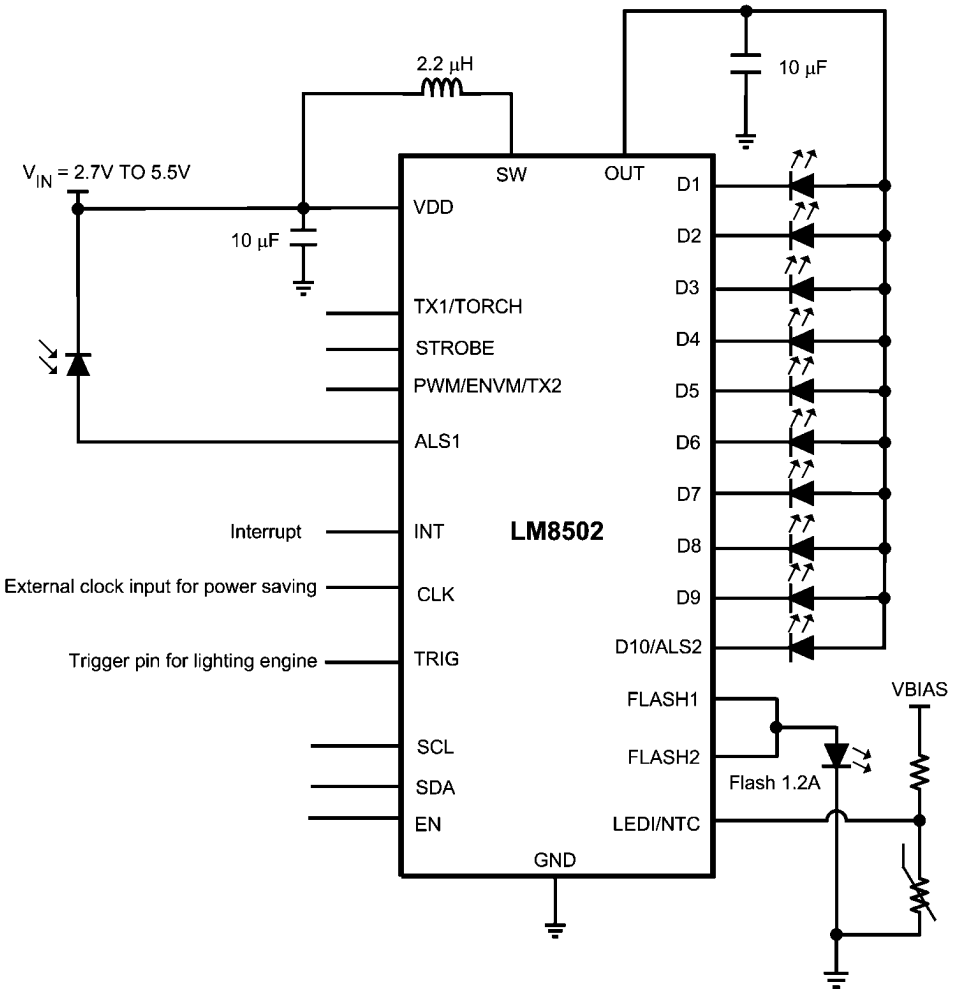
Features

- 10 Programmable Low-Side Current Sinks with flexible powering from VOUT or external voltage source
- 1.2A Dual Flash LED Driver with Flash, Torch and Voltage Modes
- Ambient Light Sensing Capability with two inputs
- Up to 4000:1 dimming ratio for LED outputs
- Flash LED Thermal Sensing and Current Scaleback
- Hardware Flash, Torch Enable and Dual Synchronization Inputs for RF Power Amplifier Pulse Events
- Haptic Feedback Motor Driver
- 2 Lighting Engines for User-Defined Lighting Sequences with 48 * 16 bits of SRAM memory
- External clock pin for Power Save
- External PWM Control Capability enabling for example Dynamic Backlight Control
- Fast I²C Compatible Interface
- General Purpose ADC for Measuring LED Output Voltages for Example
- Ultra-Small Solution Area < 32mm2
- 30-Bump (2,42 x 2,77 mm x 0.6mm) 0.4 pitch micro SMD

Applications

- Camera Phone LED Flash
- General Illumination in Portable Devices
- Haptic Feedback Motor Driver
- Fun Lighting

Typical Application Circuits



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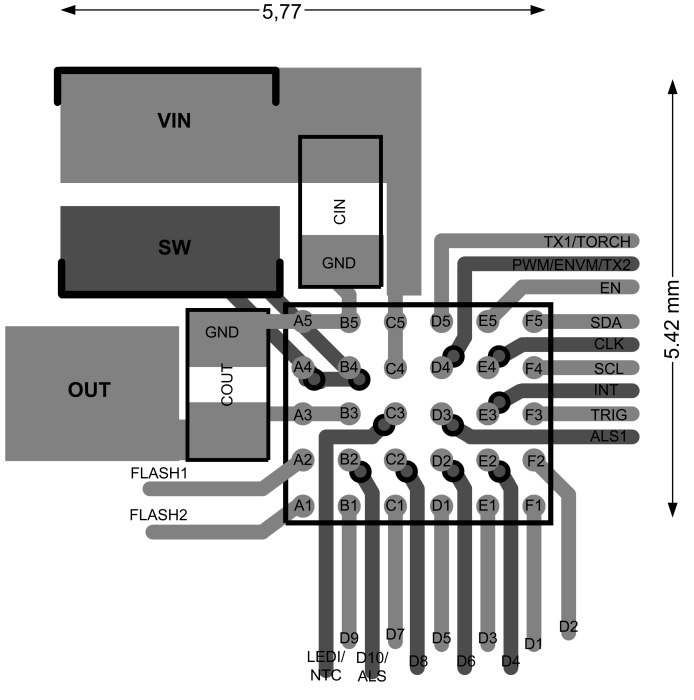

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Notes

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LVDS	www.national.com/lvds	Packaging	www.national.com/packaging
Power Management	www.national.com/power	Green Compliance	www.national.com/quality/green
Switching Regulators	www.national.com/switchers	Distributors	www.national.com/contacts
LDOs	www.national.com/ldo	Quality and Reliability	www.national.com/quality
LED Lighting	www.national.com/led	Feedback/Support	www.national.com/feedback
Voltage References	www.national.com/vref	Design Made Easy	www.national.com/easy
PowerWise® Solutions	www.national.com/powerwise	Applications & Markets	www.national.com/solutions
Serial Digital Interface (SDI)	www.national.com/sdi	Mil/Aero	www.national.com/milaero
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National Semiconductor Americas Technical Support Center
Email: support@nsc.com
Tel: 1-800-272-9959

National Semiconductor Europe Technical Support Center
Email: europe.support@nsc.com

National Semiconductor Asia Pacific Technical Support Center
Email: ap.support@nsc.com

National Semiconductor Japan Technical Support Center
Email: jpn.feedback@nsc.com